
Pennsylvania Public
Utility Commission, et al.

v.

The Pittsburgh Water &
Sewer Authority

Call-in Telephonic
Evidentiary Hearing

Docket Nos.:

R-2023-3039919

R-2023-3039920

R-2023-3039921

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Judge's Chambers
Keystone Building
400 North Street
Harrisburg, PA

Wednesday, October 4, 2023

10:09 a.m.

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R-2023-3039921

Hearing Date: October 4, 2023

NUMBER

FOR IDENTIFICATION

IN EVIDENCE

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Statement 2-SR

Surrebuttal Testimony

Eric M. Callocchia

School District of 482 482

Pittsburgh

Hearing Exhibit 1

Joint Stipulation

School District of 470 482

Pittsburgh

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of Michael J.

McNamara

School District of 504 510

Pittsburgh

Statement No. 2 -

Direct Testimony

of Eric M.

Callocchia

School District of 470 482

Pittsburgh

Statement No. 1-SR

Surrebuttal

Testimony of

McNamara &

Dwyer

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of Harry S. Geller,

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Statement 1-SR

Surrebuttal Testimony

of Harry S. Geller,

Esquire

Buchanan

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September 22, 2023

VIA E-FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority; Docket Nos. R-2023-3039919 (Stormwater); R-2023-3039920 (Water); R-2023-3039921 (Wastewater)

Dear Secretary Chiavetta:

On behalf of The School District of Pittsburgh, enclosed please find the Surrebuttal Testimony and Exhibits of Michael J. McNamara and Theodore J. Dwyer, PhD, labeled School District Statement No. 1-SR, and the Surrebuttal Testimony and Exhibits of Eric M. Callocchia, labeled as School District Statement No. 2-SR in the above-referenced proceedings.

This document is being served as indicated in the attached Certificate of Service.

Very truly yours,



Alan M. Seltzer, Esquire

AMS/kas
Enclosure

cc: Rosemary Chiavetta, Secretary (*Letter and Certificate of Service only*)
Certificate of Service

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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Office of Small Business Advocate : C-2023-3040789
Office of Consumer Advocate : C-2023-3040847
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v. :
:
The Pittsburgh Water and Sewer Authority :

Pennsylvania Public Utility Commission : R-2023-3039920 (water)
Office of Small Business Advocate : C-2023-3040785
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The Pittsburgh Water and Sewer Authority :

Pennsylvania Public Utility Commission : R-2023-3039921 (wastewater)
Office of Small Business Advocate : C-2023-3040780
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SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

September 22, 2023

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PITTSBURGH WATER AND SEWER AUTHORITY
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1 **I. INTRODUCTION AND PURPOSE**

2 **Q. Please state your name and business address.**

3 A. My name is Eric M. Callocchia, and my business address is 900 Bestgate Road, Suite 402,
4 Annapolis Maryland, 21403.

5

6 **Q. Have you testified previously in this proceeding?**

7 A. Yes. I previously submitted Direct Testimony on behalf of the School District of
8 Pittsburgh, which is School District Statement No. 2. Any undefined and capitalized terms
9 used in this Surrebuttal Testimony have the same definitions contained in my previously
10 submitted Direct Testimony.

11

12 **Q. What is the purpose of your Surrebuttal Testimony?**

13 A. The purpose of my Surrebuttal Testimony is to address rebuttal statements made by PWSA
14 witnesses Smith, Igwe, Pickering and Readling, Pittsburgh United Our Water Table
15 witness Geller, and the Office of Consumer Advocate (“OCA”) witness Colton on the
16 following issues:

- 17 i. The proper allocation of PWSA’s Customer Assistance Charge (“CAC”);
18 ii. Stormwater management as a community-wide benefit;
19 iii. PWSA’s efforts to reduce stormwater costs for all stormwater ratepayers;
20 iv. Claims that the City of Pittsburgh’s streets and sidewalks are part of PWSA’s
21 stormwater system;

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1 v. Differences in the cost and scope of the various methods used to address
2 impervious surfaces in establishing stormwater charges;

3 vi. PWSA's inconsistent approach to rounding Equivalent Residential Units
4 ("ERU's") and suggestions that identifying impervious areas tend to understate
5 the amount of impervious area in a particular property; and

6 vii. Why providing an exemption or material discount to the School District on its
7 stormwater charges is not unreasonably discriminatory and doing so would result
8 in a public benefit;

9 I will also provide support for the School District's recommended discount on its
10 stormwater charges in this proceeding.

11
12 **Q. Should your silence with respect to any issue discussed in rebuttal testimony be**
13 **interpreted as your agreement or consent?**

14 A. No. As was the case with my Direct Testimony, my Surrebuttal Testimony is limited only
15 to the issues I discuss herein. Also, as was the case with my Direct Testimony, the charge
16 given to me by the School District was to evaluate PWSA's proposed stormwater fees and
17 determine all reasonable and just avenues of reducing or eliminating costs and charges for
18 the School District. Therefore, my conclusions and recommendations stated herein are
19 unique to this case and the School District's unique position as a PWSA stormwater
20 customer.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

1 **II. PROPER ALLOCATION OF PWSA’S CUSTOMER ASSISTANCE CHARGE**
2 **(“CAC”)**

3 **Q. What does Pittsburgh United witness Harry Geller say about the CAC to which you**
4 **wish to respond?**

5 A. In his rebuttal testimony, Mr. Geller explains that exempting non-residential customer
6 classes from CAC costs would ignore the important social benefit provided by assistance
7 programs that are also enjoyed by non-residential ratepayers.¹

8
9 **Q. Does Mr. Geller support his opinion based on cost of service and/or utility ratemaking**
10 **principles?**

11 A. No. This portion of Mr. Geller’s rebuttal testimony focused solely on the societal impacts
12 of not applying the CAC to all customer classes. He did not address the mechanics of
13 customer assistance programs or the application of cost of service or rate making
14 principles.

15
16 **Q. What relevant cost of service and rate making principles did Mr. Geller leave out in**
17 **addressing the allocation of CAC costs?**

18 A. Mr. Geller did not discuss the principle of aligning cost-causing activities and revenue
19 recovery within customer classes. Said another way, a customer class that causes a cost
20 should be responsible for the recovery of that cost. PWSA’s non-residential customers are
21 not eligible to participate in the CAC programs and therefore do not contribute to the costs

¹Pittsburgh United Statement 1-R, p. 22, line 20 through p. 23, line 1.

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1 of the CAC. Based on general cost of service and ratemaking principles, non-residential
2 customers should not be responsible for the recovery of foregone revenue caused by the
3 CAC.

4
5 **Q. Did PWSA address the application of the CAC to all customer classes?**

6 A. Yes. PWSA witness Harold J. Smith noted in his rebuttal testimony that PWSA has always
7 recovered the cost of its bad debt expense and customer assistance program costs from all
8 customers and should be allowed to continue doing so.² Additionally, he notes that
9 Philadelphia Gas Works' ("PGW") customer responsibility surcharge is assessed on all
10 customer classes.³

11
12 **Q. Do you agree with Mr. Smith's justification?**

13 A. No. The claim that PWSA has always recovered its bad debt expense and customer
14 assistance program costs across all customer classes is misleading at best. First, since
15 coming under PUC jurisdiction, PWSA has never had a separate customer assistance
16 surcharge, hence the proposal to create one in this rate case. PWSA's bad debt and
17 customer assistance costs have been recovered through base rates prior to this case. When
18 costs are recovered through base rates, the risk is on the utility to manage costs and revenue
19 appropriately between rate cases to ensure recovery. Once costs are removed from base
20 rates and included in a separate surcharge, the utility has greater assurance of the recovery
21 of those costs and has effectively shifted the risk to the customers. To say it another way,

²See PWSA Statement No. 7-R, p. 4, lines 9-10.

³See PWSA Statement No. 7-R, p. 5, lines 4-10.

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1 the utility no longer has the same incentive to keep costs under control. Furthermore, if
2 PWSA were to implement a CAC whose costs were recovered from *all* customer classes,
3 it would be one of only two regulated utilities in the Commonwealth to do so. Only PGW,
4 as Mr. Smith noted, has implemented a customer assistance rider that is applied to all
5 customer classes.⁴ In PGW's 2017 rate case, the Commission stated that PGW was the
6 only jurisdictional gas company that does not allocate costs of universal service programs
7 to strictly the residential class, and that PGW had followed that procedure since before it
8 was a PUC regulated utility:

9 *"...we recognize that PGW was, and will continue to be, the only Pennsylvania*
10 *jurisdictional gas distribution company that does not allocate costs of universal service*
11 *programs to strictly the residential class. As this Commission has previously determined*
12 *in prior proceedings involving PGW, this Company has followed this allocation procedure*
13 *prior to coming under our regulatory authority and our approval of this allocation for this*
14 *Company represents an exception to our general policy as applied to other jurisdictional*
15 *utilities that such costs are only allocated to the residential customer class."*⁵
16

17 This justification cannot apply to PWSA, as it does not currently have a customer assistance
18 surcharge in place, and therefore cannot rely on "past practice" as a basis to allocate all
19 CAC-related costs to all customer classes. The Commission should reject PWSA's
20 proposal to allocate all CAC-related costs to all customer classes and require it to allocate
21 the surcharge's costs to only residential customers.

22
23 **Q. How did OCA address the CAC allocation issue?**

⁴Except for firm interruptible customers.

⁵See Opinion and Order R-2017-2586783 dated 11/14/2017, pp. 73-74.

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1 A. OCA’s witness Roger Colton addressed the CAC allocation issue in much the same way
2 as Geller and Smith, citing that CAC costs have always been spread across all customer
3 classes and PGW always allocated universal service costs to all customers, noting that the
4 Commission has rejected proposals to allocate to only residential customers in the past.⁶
5 Mr. Colton also states that PWSA has been allocating CAP costs to all customer classes
6 since they have become regulated by the PUC.⁷

7
8 **Q. Do you agree with his argument?**

9 A. No. As stated above in my response to Mr. Smith, PWSA has always recovered its bad
10 debt expense and customer assistance program costs across all customer classes through
11 base rates. Since coming under PUC jurisdiction, PWSA has never had a separate customer
12 assistance surcharge. By pulling the costs out of base rates you are effectively shifting the
13 risk of recovery from the utility to the customers, and it should be noted that some of those
14 customers will not contribute to those costs.

15
16 **III. STORMWATER MANAGEMENT AS A COMMUNITY WIDE BENEFIT**

17 **Q. Please summarize the issues raised by PWSA witness Tony Igwe in his rebuttal**
18 **testimony, PWSA St. No. 5-R, to which you wish to respond.**

19 A. Mr. Igwe makes several statements in PWSA St. No. 5-R related to PWSA’s proposed
20 stormwater fees, including statements that:

⁶ See OCA Statement 4R, p. 2 lines 11-15, p. 3 lines 1-8.

⁷ See OCA Statement 4R, p. 3, lines 9-12.

PITTSBURGH WATER AND SEWER AUTHORITY
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- 1 (a) Stormwater management provides community-wide and individual
2 customer benefits.⁸
- 3 (b) PWSA will explore CBP3 arrangements but gives no timeline for doing so.⁹
- 4 (c) Providing stormwater relief to the School District is unreasonably
5 discriminatory.¹⁰
- 6 (d) Stormwater exemptions should not be provided to the School District.¹¹
- 7 (e) As a regulated entity PWSA is subject to a variety of statutory and
8 regulatory requirements that do not apply to cities that grant exemptions
9 from stormwater charges, like Baltimore or Tacoma Park.¹²
- 10 (f) PWSA does not charge for impervious service area in public right of way,
11 claiming such facilities are integral to the “drainage infrastructure.”¹³

12

13 **Q. Please describe Mr. Igwe’s position on the community benefit of stormwater**
14 **management.**

15 A. Mr. Igwe acknowledges that stormwater management provides community-wide
16 benefits.¹⁴

17

18 **Q. Do you agree with Mr. Igwe’s statement that stormwater management provides**
19 **benefits to the community as a whole?**

20 A. Yes, I do agree. However, Mr. Igwe does not elaborate on this conclusion. There are many
21 community benefits resulting from stormwater management, such as recreation

⁸ PWSA Statement No. 5-R, p. 5, lines 4-5.

⁹ PWSA Statement No. 5-R, p. 5, lines 21-22.

¹⁰ PWSA Statement No. 5-R, p. 8, lines 4-8.

¹¹ PWSA Statement No. 5-R, p. 8, lines 15-19.

¹² PWSA Statement No. 5-R, p. 6, lines 17-24, page 7, lines 1-2.

¹³ PWSA Statement No. 5-R, p. 8, lines 23-24.

¹⁴ PWSA Statement No. 5-R, p. 5, lines 4-5.

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1 opportunities like retention ponds or urban wetlands, climate resilience to mitigate the
2 impacts of extreme weather events, and long-term cost savings by reducing the need for
3 emergency flood response and infrastructure repairs. These benefits are widespread and
4 not related to any particular property in an area in which stormwater is managed.

5
6 **Q. Please describe Mr. Igwe's position on the discrete, tangible benefits of stormwater
7 management for individual customers.**

8 A. Mr. Igwe states that the tangible benefit of stormwater management for individuals is that
9 PWSA manages and/or conveys stormwater runoff from properties with impervious area
10 that might otherwise cause flooding, property damage, and/or water quality issues.¹⁵

11
12 **Q. Do you agree with Mr. Igwe's statement on the discrete, tangible benefits of
13 stormwater management for individual customers?¹⁶**

14 A. Not entirely. While I agree that PWSA manages and/or conveys stormwater runoff from
15 properties with impervious area, the benefits that Mr. Igwe's states as discrete and tangible
16 to individual customers are not limited to only properties with impervious area. Each of
17 these benefits also benefit the community as a whole. When looking at community versus
18 individual benefits, it is important to recognize that communities are always comprised of
19 individuals so there is always benefit to individuals. However, since everyone living in the
20 stormwater management service area benefits from stormwater management, including
21 those that have no impervious surfaces on their property, stormwater service is not

¹⁵ PWSA Statement No. 5-R, p. 5, lines 7-9.

¹⁶ PWSA Statement No. 5-R, p. 5, lines 5-10.

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1 measurable or metered the way it is for other individual utility service and that much of the
2 stormwater infrastructure traditionally supports runoff from public streets and sidewalks,
3 it is more accurate to view stormwater management as publicly oriented rather than
4 individually beneficial. As noted in School District Exhibit EMC-9, Black & Veatch 2021
5 Stormwater Utility Survey Report, p. 40, public streets and roads are the most common
6 type of *exempted* properties from stormwater fees, not because they are considered part of
7 the stormwater infrastructure, but because of public policy or state enabling legislation.

8
9 **IV. PWSA'S EFFORTS TO REDUCE STORMWATER COSTS FOR ALL**
10 **STORMWATER CUSTOMERS**

11 **Q. How did Mr. Igwe address the use of Community-Based Public Private Partnerships**
12 **(“CBP3”)?**

13 A. Mr. Igwe indicates that PWSA has not yet explored the use of CBP3's in its stormwater
14 program.¹⁷ However, he stated that PWSA has included a provision in that program to
15 consider these types of partnerships¹⁸ at some time in the future. Additionally, Mr. Igwe
16 noted that there is no “specific requirement” to explore these types of relationships.¹⁹

17 In my view, the absence of a “specific requirement” to explore CBP3 is not a sufficient
18 explanation for failing to do so more aggressively and comprehensively, especially since
19 PWSA serves such a large percentage of low-income customers who need and deserve
20 every opportunity to have lower bills for services. As noted by School District witnesses
21 McNamara and Dwyer in School District Statement No. 1-SR, the School District serves

¹⁷ PWSA Statement No. 5-R, p. 5 line 19.

¹⁸ PWSA Statement No. 5-R, p. 5 lines 21-25.

¹⁹ PWSA Statement No. 5-R, p. 5 lines 19-20.

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1 large numbers of low-income students and families, and anything that can reduce the
2 School District's stormwater bills would allow it to use funds to offer additional
3 educational and other related benefits to its low-income students and their families. PWSA
4 has been remiss in not pursuing CBP3 relationships more aggressively, and the Commission
5 should direct PWSA to do so and report its findings to the parties in this case at least
6 annually.

7
8 **Q. When would you propose PWSA explore these partnerships?**

9 A. As noted above, I propose that PWSA commit and be directed to explore CBP3
10 relationships between now and the next rate request proceeding and report the results of its
11 efforts to the parties in this proceeding. By doing this, PWSA will show its customers, the
12 Commission, and the parties in this proceeding that it is doing all it can to help reduce
13 stormwater-related costs and mitigate large stormwater-related rate increases.

14
15 **Q. Do you agree with PWSA witness William J. Pickering's statement that PWSA has**
16 **done everything it can to reduce the impact of stormwater management costs on**
17 **customers?²⁰**

18 A. No. Mr. Pickering's statement is not consistent with PWSA witness Igwe's testimony that
19 PWSA has not considered implementing CBP3 partnerships as of this time but is willing
20 to explore CBP3 at an appropriate time.²¹ PWSA has clearly not explored all cost saving

²⁰ PWSA St. No. 1-R, p. 15.

²¹ PWSA Statement No. 5-R, p.5 lines 19-22.

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1 options for its stormwater management operations and should be directed to do so in this
2 proceeding.

3
4 **Q. Do you agree with PWSA witness William J. Pickering’s additional criticisms of the**
5 **exemptions from stormwater charges provided by Maryland and Florida?**²²

6 A. No. Mr. Pickering’s claim that the Maryland and Florida programs and exemptions for
7 stormwater fees are just a “different way to implement stormwater charges” is both wrong
8 and unreasonably dismissive of our point that these jurisdictions provide real world support
9 for our recommendations on better and more equitable ways to address stormwater charges
10 to a unique non-residential entity like the School District.

11
12 **V. CLAIMS THAT THE CITY OF PITTSBURGH’S STREETS AND SIDEWALKS**
13 **ARE PART OF PWSA’S STORMWATER SYSTEM**

14 **Q. Please summarize Mr. Igwe’s testimony regarding whether PWSA levies stormwater**
15 **charges on the public right of way owned by the City of Pittsburgh (“City”).**

16 A. Mr. Igwe acknowledges that PWSA does not charge for impervious service area in public
17 rights of way, such as streets, roads, and highways. He claims such facilities are integral to
18 the “drainage infrastructure.”²³

19

²² PWSA St. No. 1-R, p. 15.

²³See PWSA Statement No. 5-R, p. 8, lines 22-24 and p. 9, lines 1-2.

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1 **Q. In your view, has PWSA demonstrated that the City's public rights of way, such as**
2 **streets, roads, sidewalks and highways, are an integral part of PWSA's drainage**
3 **infrastructure?**

4 A. No. PWSA makes no indication that the City's public rights of way are part of PWSA's
5 system. PWSA claims no capital or operating costs related to the City's streets, roads,
6 sidewalks, or highways. PWSA makes no indication that any revenue generated from its
7 proposed stormwater fees would be used to maintain or replace the City's streets, roads,
8 sidewalks or highways. Therefore, the claim that the City's public rights of way are in some
9 way part of PWSA's stormwater system is incorrect.

10

11 **Q. Are public streets, sidewalks, and other impervious areas in the public right of way**
12 **contributors of stormwater runoff?**

13 A. Yes. Based on common sense, the City's public rights of way are likely among the largest
14 contributors to stormwater run-off within PWSA's service area. PWSA witness Pickering
15 notes that "we strongly prefer that these costs be recovered on the basis of cost causation
16 principles so that customers are paying these charges on the basis of the amount of
17 stormwater runoff that their properties require PWSA to manage."²⁴ If PWSA's claimed
18 fairness and cost causation principles are correct, the City should be paying for the cost of
19 the stormwater management service that is being directly provided to it for its streets and
20 sidewalks. And, in so doing, the claimed PWSA stormwater costs would be spread across

²⁴ PWSA St. No. 1-R, p. 15.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

1 and recovered from a larger number of ERU's, which will bring the cost per ERU down
2 for everyone.

3

4 **Q. Do you agree with PWSA's decision to not charge for impervious area within the**
5 **public rights of way or PWSA Igwe's defense of that position?**

6 A. No. Mr. Igwe is incorrect. The reason that storm drains and related infrastructure exist
7 along the City's streets and sidewalks is because they convey large amounts of stormwater
8 run-off, not because they are part of the actual stormwater infrastructure that PWSA is now
9 seeking to charge for.

10

11 **Q. Please describe how Mr. Pickering addresses your testimony on the recovery of**
12 **stormwater costs on a cost-of-service basis.**

13 A. Mr. Pickering states that the School District's desired outcome of this proceeding is a return
14 to PWSA's prior rate structure in which stormwater costs were not collected based on an
15 impervious area-based fee, but rather as part of PWSA's wastewater rates.²⁵

16

17 **Q. Is Mr. Pickering's position an accurate representation of your testimony?**

18 A. No. Nowhere in any testimony sponsored by the School District in this proceeding have
19 we recommended that PWSA return to its prior rate structure. The School District
20 understands that stormwater management is essential to providing various public benefits
21 and does not dispute PWSA's role in conducting stormwater management. However,

²⁵ PWSA Statement No. 1-R, p. 14, lines 18-19.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

1 because stormwater management provides widespread *public benefits*, the School
2 District's view is that the true customer of PWSA's stormwater service is the City.
3 Therefore, PWSA's stormwater fees should be charged to the City, and the City should be
4 responsible for recovering its stormwater costs from its citizens via a City-wide tax. Other
5 Parties have incorrectly concluded that if stormwater charges were to be classified as a tax,
6 the consequence would be to collect those costs from wastewater customers. As a public
7 benefit, those costs should be paid by the City with PWSA continuing to provide the
8 stormwater service.

9
10 **VI. DIFFERENCES IN THE COST AND SCOPE OF THE VARIOUS METHODS**
11 **USED TO ADDRESS IMPERVIOUS SURFACES IN ESTABLISHING**
12 **STORMWATER CHARGES**

13 **Q. Do you agree with PWSA witness Keith Readling's dismissal of your suggestion that**
14 **PWSA investigate the determination of stormwater recovery under the Intensity of**
15 **Development Factor ("IDF") and Equivalent Hydraulic Area ("EHA")**
16 **methodologies?²⁶**

17 **A.** No. Mr. Readling makes several statements in support of PWSA's ERU structure rather
18 than agree to evaluate the efficacy of either IDF or EHA²⁷:

- 19 (a) IDF and EHA would result in similar results when compared to ERU.
20 (b) IDF and EHA would be overly complicated and more expensive.
21 (c) ERU is more straightforward and transparent than IDF or EHA.
22 (d) ERU is the most commonly used approach in the United States

²⁶ PWSA St. No. 8-R, p. 5-6.

²⁷ PWSA Statement No. 8-R, p. 5, lines 23-25 and p. 6, lines 1-3.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

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Q. Why do the IDF and EHA methods have an advantage over PWSA’s current approach to assigning stormwater costs to parcels?

A. IDF and EHA consider both the impervious and pervious area of each parcel. Therefore, these methods may result in a more equitable distribution of costs because not all parcels with a given impervious area are the same overall size. It is possible that two parcels with the same impervious area contribute vastly different amounts of stormwater runoff into PWSA’s system under the same rainfall conditions. For example, under the same rainfall conditions, a parcel with 1,000 square feet of impervious area and a total lot size of 1,250 square feet likely contributes more stormwater to PWSA’s system than a parcel with 1,000 square feet of impervious area and a lot size of 20,000 square feet. This is because the larger parcel has more pervious area for rainwater to percolate into the ground before flowing into PWSA’s system. A method that considers both impervious and pervious area recognizes and values the difference in stormwater contribution from two seemingly similar parcels in terms of impervious area.

VII. PWSA’S INCONSISTENT APPROACH TO ROUNDING ERUs

Q. How does PWSA witness Keith Readling explain why PWSA only rounds ERUs up rather than up and down?

A. Mr. Readling claims that PWSA only rounds up because it results in more accurate bills.²⁸ He supports his claim by stating that:

²⁸ PWSA Statement No. 8-R, p. 5 line 5.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

1 (a) Impervious area is captured by humans who are likely to under-capture²⁹;
2 and

3 (b) Mapping of impervious area results in boundaries being clipped in a way
4 that also underestimates impervious area³⁰;

5

6 **Q. Do you agree with this characterization?**

7 A. No, I do not. Regardless of the inaccurate nature of PWSA's capturing of impervious area,
8 PWSA has a database that it relies on to develop its stormwater ERUs. Within that flawed
9 database, it is clear that a parcel with a measured impervious area of 1.5 ERUs would
10 receive a more accurate bill based on its measured impervious area than if its ERU was not
11 rounded to 2.0. Rounding up by definition creates a disconnect between a parcel's
12 measured impervious area (however inaccurate) and the ERUs assigned to that parcel.

13

14 **VIII. WHY PROVIDING AN EXEMPTION OR MATERIAL DISCOUNT TO THE**
15 **SCHOOL DISTRICT ON ITS STORMWATER CHARGES IS NOT AN**
16 **UNREASONABLE DISCRIMINATION IN RATES**

17 **Q. Do you agree with PWSA witness Igwe's claim that providing stormwater relief to**
18 **the School District would be unreasonably discriminatory?³¹**

19 A. No. And, indeed, his own testimony reflects that PWSA is already making policy and other
20 distinctions among customers that provide exemptions or deep discounts on stormwater
21 charges. For example, Mr. Igwe concedes that all entities that own property in PWSA's
22 service territory with greater than 400 square feet of impervious area must pay their fair

²⁹ PWSA Statement 8-R, p. 5, lines 5-6.

³⁰ PWSA Statement 8-R, p. 5, lines 6-9.

³¹ PWSA St. No. 5-R, p. 6.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

1 share for stormwater services.³² Mr. Igwe further states that PWSA's stormwater tariff does
2 not exempt any customers from the stormwater charges.³³ However, he expressly states
3 that only entities with greater than 400 square feet of impervious area pay the stormwater
4 fee. This means entities with less than 400 square feet of impervious area are exempt from
5 stormwater fees. That is a clear and conscious determination to provide some relief for
6 certain customers.

7 Further, the large 85% discount on stormwater fees for qualifying low-income customers
8 on their stormwater charges is another example of a policy choice reflecting a conscious
9 decision to provide relief to low-income customers. Because the School District is a unique,
10 non-profit governmental entity largely serving the same low-income students and families
11 that receive the 85% discount, it too should be eligible for material relief from its large and
12 growing stormwater charges.

13
14 **Q. Do you agree with Mr. Igwe's objection to your examples of jurisdictions that have**
15 **provided exemptions for stormwater charges?**

16 A. No. He claims that Tacoma Park, Maryland and Jacksonville, Florida are not relevant
17 examples of utilities that exempt certain customers from stormwater charges because they
18 are not regulated utilities.³⁴

19
20 **Q. Why do you disagree with Mr. Igwe's objection?**

³² PWSA St. 5-R, page 6, lines 11-13.

³³ PWSA St. 5-R, page 7, lines 5-6.

³⁴ See PWSA Statement No. 5-R, page 6, lines 17-22.

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1 A. Mr. Igwe's attempt to distinguish between PWSA's situation and those of the cities of
2 Baltimore and Tacoma Park that exempt certain customers from paying stormwater charges
3 is not supportable or supported. His claim that these cities are not regulated as public
4 utilities does not support failing to provide a discount or exemption in this proceeding given
5 the School District's unique status that I described above. He claims that as a regulated
6 entity PWSA is subject to a variety of statutory and regulatory requirements that do not
7 apply to cities like Baltimore or Tacoma Park, but never cites to any specific legal
8 requirements that would prevent some reasonable accommodation to the School District
9 given its unique circumstances and attributes. PWSA is a regulated entity, yet it provides
10 substantially discounted stormwater service to qualifying low-income customers.
11 Regulated utilities routinely develop different rate classes and rates based on a number of
12 factors relating to customers and the same can and should be done here for the School
13 District. I understand from counsel that only unreasonable discrimination is prohibited by
14 utilities, but they can and should design rates and provide relief based upon reasonable
15 differences between different types of customers.

16 Further, the Black & Veach Study I discussed in my Direct Testimony, School
17 District Exhibit EMC-9, documents a number of school districts receiving exemptions from
18 stormwater fees, including some with no statutory or regulatory policy basis for the
19 exemption. As noted previously, the School District is looking for relief from its large and
20 growing stormwater charges given its public education mission, its service to many low-
21 income students and their families, its governmental and non-proprietary status, and its
22 unique status as a nonresidential PWSA customer.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

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Q. Explain why you believe that providing relief to the School District on its stormwater charges would not be unreasonably discriminatory.

A. The public benefits of additional spending on childhood education are well documented. In a 2007 study, professors from various universities arrive at the following conclusion:

“Poor education leads to large public and social costs in the form of lower-income and economic growth, reduced tax revenues, and higher costs of such public services as health care, criminal justice, and public assistance. Therefore, we can view efforts to improve educational outcomes for at-risk populations as a public investment that yields benefits in excess of investment costs.”³⁵

A study performed by a professor at Penn State University found the following:

“...education also has broader social and economic benefits for individuals, families, and society at large. These benefits are received even by people whose relationship to the public school system does not extend beyond “taxpayer.” The widespread improvement of social and economic conditions is a direct outcome of an educated population that is better able to use information to make good decisions and which is collectively better trained for work.”³⁶

It is clear that each and every dollar the School District can spend on its core mission of educating students provides for larger societal benefits.

Providing significant relief to the School District on stormwater fees would not be unreasonably discriminatory because the School District has large numbers of low-income students and families, including low-income residential customers who already get large 85% stormwater discounts from PWSA. Further, the School District has no counterpart in the nonresidential class, it is not a for-profit retail business, or a manufacturer, but rather a

³⁵ Levin, H., Belfield, C., Muennig, P., and Rause, C. 2007. *The Costs and Benefits of an Excellent Education for All of America’s Children*. at p. 2

³⁶ Mitra, Ph. D., D. *Pennsylvania’s Best Investment: The Social and Economic Benefits of Public Education*. https://www.elc-pa.org/wp-content/uploads/2011/06/BestInvestment_Full_Report_6.27.11.pdf

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

1 governmental entity serving an important public purpose. Establishing in this proceeding
2 a material discount on stormwater charges for the School District would not give the district
3 an unreasonable preference given the School District's unique status and attributes,
4 particularly its service to so many low-income students and their families.

5
6 **IX. SUPPORT FOR THE SCHOOL DISTRICT'S RECOMMENDED**
7 **STORMWATER DISCOUNT**

8 **Q. Please describe School District Exhibit EMC-10.**

9 A. I understand that the School District, via School District Statement 1-SR, is proposing as
10 an alternative to full exemption an 85% discount on its stormwater charges arising from
11 this proceeding to mirror the discount level available to certain low-income residential
12 customers on the PWSA system under the CAP program.

13 I prepared School District Exhibit ECM-10 to demonstrate the relatively small
14 impact on all of PWSA's customer rate classes of applying such a discount to the School
15 District's stormwater charges. This exhibit utilizes PWSA's cost of service model for its
16 proposed 2024 rates. As shown in the exhibit, and based on PWSA's rate design, an 85%
17 reduction in the School District's stormwater rates will result a maximum rate increase of
18 1.30%. For most customer rate classes, both residential and nonresidential, the actual rate
19 increase with a School District stormwater rate discount of 85%, would be less than 1.0%
20 For example, for Tier 3 Residential customers, the ERU rate would go from \$20.52/EDU
21 to \$20.73/EDU based on an 85% reduction in the School District's stormwater rate.

PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF ERIC M. CALLOCCHIA

1 X. **CONCLUSION**

2 Q. **Does this conclude your Surrebuttal Testimony?**

3 A. Yes, it does. However, I reserve the right to supplement my Surrebuttal Testimony should
4 additional issues and facts arise during the course of this proceeding.

School District Exhibit EMC-10

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Stormwater Rate Design

School District Exhibit EMC-10

School District 85% Discount for Low Income Schools Scenario

Monthly Stormwater Rates

Residential

	Units	PWSA Proposed Rate (\$/ERU)	School District Proposed Rate (\$/ERU)	Difference (\$)	Difference (%)
Tier 1	11,638	\$ 5.13	\$ 5.18	\$ 0.05	0.97%
Tier 2	59,136	10.26	10.36	0.10	0.97%
Tier 3	12,903	20.52	20.73	0.21	1.02%
Other	-	10.26	10.36	0.10	0.97%

Subtotal: Residential

83,677

Residential - CAP

Tier 1	85%	1,457	\$ 0.77	\$ 0.78	\$ 0.01	1.30%
Tier 2	85%	5,658	1.54	1.55	0.01	0.65%
Tier 3	85%	669	3.08	3.11	0.03	0.97%
Other	85%	-	1.54	1.55	0.01	0.65%

Subtotal: Residential - CAP

7,784

Non-Residential

Commercial	103,136	\$ 10.26	\$ 10.36	\$ 0.10	0.97%
Industrial	1,512	10.26	10.36	0.10	0.97%
Health or Education	11,595	10.26	10.36	0.10	0.97%
Municipal	6,021	10.26	10.36	0.10	0.97%
Other	28,126	10.26	10.36	0.10	0.97%

Subtotal: Non-Residential

154,464

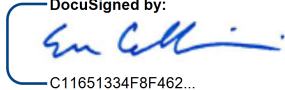
Total Stormwater

245,925

VERIFICATION

I, Eric M. Callocchia, Partner, NewGen Strategies and Solutions, LLC., have read the foregoing document, Surrebuttal Testimony of Eric M. Callocchia, and verify that the facts set forth therein are true and correct to the best of my knowledge, information and belief.

I understand that any false statements made herein are subject to the penalties of 18 Pa. C.S.A. § 4904, relating to unsworn falsification to authorities.

By:  _____
C11651334F8F462...

Name: Eric M. Callocchia

DATE: 9/21/2023

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	Docket Nos. R-2023 -3039920 (Water)
	:	R-2023-3039921 (Wastewater)
	:	R-2023-3039919 (Stormwater)
V.	:	
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	
	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the of the foregoing document upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party).

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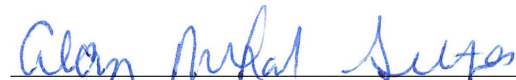
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Dated this 22nd Day of September 2023

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Intervenor*


Alan M. Seltzer, Esquire

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	R-2023-3039919 (stormwater)
Office of Small Business Advocate	:	C-2023-3040789
Office of Consumer Advocate	:	C-2023-3040847
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

Pennsylvania Public Utility Commission	:	R-2023-3039920 (water)
Office of Small Business Advocate	:	C-2023-3040785
Office of Consumer Advocate	:	C-2023-3040845
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

Pennsylvania Public Utility Commission	:	R-2023-3039921 (wastewater)
Office of Small Business Advocate	:	C-2023-3040780
Office of Consumer Advocate	:	C-2023-3040846
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

**STIPULATION BETWEEN THE CITY OF PITTSBURGH AND THE SCHOOL
DISTRICT OF PITTSBURGH**

In accordance with 52 Pa. Code Section 5.234, the City of Pittsburgh (“City”) and the School District of Pittsburgh (“School District”) submit to the Administrative Law Judge for admission into the evidentiary record in full and complete resolution of the Motion to Exclude and Objection to Admission of School District of the City of Pittsburgh Testimony that Violates Due Process Rights and PUC Procedural Regulations (“Motion”) filed on September 29, 2023 in the above proceedings:

The following explanatory clarification should be deemed to be added to the Surrebuttal Testimony of School District witness Eric Callocchia on page 16, line 8 of School District Statement No. 2-SR:

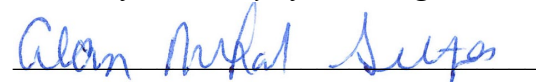
“To clarify, the School District is not proposing any cost of service, rate allocation or rate design modifications in this case that would have the City pay increased stormwater charges to PWSA for impervious surfaces that include City streets and sidewalks or have the City pay all PWSA stormwater costs through rates set in this proceeding. Rather, the School District believes that stormwater management is a public benefit that should be provided by a municipality (not a utility) and paid for via taxes imposed on all residents of the municipality.”

Respectfully submitted,

/s/ Whitney E. Snyder, Esquire

Whitney E. Snyder, Attorney I.D. No. 316625
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**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	Docket Nos. R-2023 -3039920 (Water)
	:	R-2023-3039921 (Wastewater)
	:	R-2023-3039919 (Stormwater)
V.	:	
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	
	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the of the foregoing document upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party).

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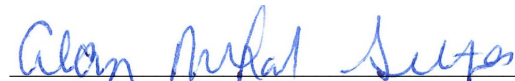
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Counsel for City of Pittsburgh

Hon. Gail M. Chiodo
Administrative law Judge
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120
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Dated this 3rd day of October 2023

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August 9, 2023

VIA E-FILING

The Honorable Gail M. Chiodo
Administrative Law Judge a
Pennsylvania Public Utility Commission
400 North Street, 2nd Floor West
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority; Docket Nos. R-2023-3039919 (Stormwater); R-2023-3039920 (Water); R-2023-3039921 (Wastewater)

Dear Judge Chiodo:

On behalf of The School District of Pittsburgh, enclosed please find the Direct Testimony and Exhibits of Michael J. McNamara, labeled School District Statement No. 1, and the Direct Testimony and Exhibits of Eric M. Callocchia, labeled as School District Statement No. 2 in the above-referenced proceeding.

This document is being served as indicated in the attached Certificate of Service.

Very truly yours,



Alan M. Seltzer, Esquire

AMS/kas
Enclosure

cc: Rosemary Chiavetta, Secretary (*Letter and Certificate of Service only*)
Certificate of Service

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	R-2023-3039919 (stormwater)
Office of Small Business Advocate	:	C-2023-3040789
Office of Consumer Advocate	:	C-2023-3040847
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

Pennsylvania Public Utility Commission	:	R-2023-3039920 (water)
Office of Small Business Advocate	:	C-2023-3040785
Office of Consumer Advocate	:	C-2023-3040845
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

Pennsylvania Public Utility Commission	:	R-2023-3039921 (wastewater)
Office of Small Business Advocate	:	C-2023-3040780
Office of Consumer Advocate	:	C-2023-3040846
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

DIRECT TESTIMONY OF MICHAEL J. MCNAMARA

With Regard To

**Background on the Pittsburgh School District, Stormwater Charges and Impacts of
Increases in Stormwater Charges**

August 9, 2023

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PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 **I. INTRODUCTION AND PURPOSE**

2 **Q. Please state your name and business address.**

3 A. My name is Michael J. McNamara and my business address is 1305 Muriel Street,
4 Pittsburgh, PA 15203.

5

6 **Q. By whom are you employed and in what capacity?**

7 A. I am employed by the Pittsburgh School District (“School District”) as Chief Operations
8 Officer. In that capacity, I oversee the School District’s Plant Operation Department,
9 which is responsible for Energy Management. Energy Management includes billing and
10 procurement of all the School District’s utilities, including stormwater. Prior to being
11 promoted to the Chief Operation Officer, I was the Assistant Director of Construction for
12 the Facilities Department and prior to that as a Construction Project Manager for the
13 Facilities Department. I have been employed by the School District since 2009.

14

15 **Q. Briefly describe your educational and professional work experience.**

16 A. I have a Bachelor’s degree from Edinboro University and a Master’s degree from Penn
17 State University. Attached to this testimony as School District Exhibit MJM-1 is my
18 current resume.

19

20 **Q. What is the purpose of your testimony in this proceeding.**

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 A. The purpose of my testimony is to (i) describe the School District, (ii) explain our mission
2 and purpose, and (iii) address the Pittsburgh Water and Sewer Authority’s (“PWSA”)
3 stormwater charges and the proposed increases in those charges and their impacts on the
4 School District’s overall financial health and ability to continue to educate students in the
5 district. Given its concerns, the School District has also retained NewGen Strategies &
6 Solutions, LLC to review and submit testimony on PWSA’s proposed rate increases. Their
7 conclusions are provided in School District Statement No. 2, which is the direct testimony
8 of Eric Callocchia. Finally, the School District is also concerned that the PWSA’s
9 proposed stormwater charge is or may be an unlawfully imposed tax that the PWSA lacks
10 the authority to establish, and that the PWSA may be prohibited from charging it to any
11 customers under current law. And, if the PWSA’s stormwater charges constitute a tax, the
12 School District is tax-exempt and, as such, is not required to pay such tax. I am advised by
13 our counsel that this “legal” issue will be addressed by the School District in other
14 testimony and briefing.

15

16 **II. PWSA BACKGROUND AND SCHOOL DISTRICT INTEREST IN**
17 **PROCEEDING.**

18 **Q. What is PWSA and what prompted the School District’s interest in this proceeding?**

19 A. I understand that the PWSA is a municipal water and wastewater authority serving
20 customers in the City of Pittsburgh and surrounding communities. The PWSA provides
21 water service to approximately 80,000 residential, commercial and industrial customers in
22 portions of the City of Pittsburgh; the Borough of Millvale; and portions of Reserve,
23 O’Hara, and Blawnox Townships, Allegheny County. The PWSA also provides

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 wastewater conveyance service to customers located in the City of Pittsburgh, Allegheny
2 County, and also conveys wastewater for portions of 24 neighboring communities. The
3 PWSA provides stormwater service to the City of Pittsburgh. I have been advised that the
4 PWSA became subject to regulation by the Pennsylvania Public Utility Commission
5 (“Commission” or “PUC”) on April 1, 2018 and commenced a stormwater charge to
6 customers in 2022.

7 On May 9, 2023, the PWSA made rate filings with the Commission including, among other
8 things, three proposed tariffs, Tariff Water- PA. P.U.C. No.1, Supp. No. 12; Tariff
9 Wastewater- PA. P.U.C. No.1, Supp. No. 11; and Tariff Stormwater - PA. P.U.C. No. 3.
10 PWSA is requesting a multi-year total overall rate revenue increase of \$146.1 million. This
11 includes a \$46.8 million or 22.5% increase in the Fully Projected Future Test Year
12 (“FPFTY”) (Fiscal Year (“FY”) 2024, \$45.4 million or 17.8% in Fiscal Year 2025, and
13 \$53.9 million or 17.9% in Fiscal Year 2026).

14 Of particular relevance to the School District is PWSA’s proposed treatment of and
15 changes to its charges for stormwater to customers like the School District. I understand
16 that PWSA is seeking to shift \$9.5 million of its claimed stormwater cost of service to
17 wastewater customers in FY 2024 and \$8.5 million for both FY 2025 and FY 2026.
18 Further, I understand that the PWSA is proposing substantial increases in its non-residential
19 stormwater fee, which was first established in 2022, for years 2024-2026. For those years,
20 the PWSA is proposing increased charges for years 2024-2026 per Equivalent Residential
21 Unit (“ERU”) of impervious surface as follows: 2024 (\$10.26/ERU); 2025 (\$12.14/ERU);
22 and 2026 (\$14.20/ERU).

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 These are substantial increases that will have an adverse impact on the School District and
2 its ability to manage operating expenses in fulfilling its mission to provide high quality
3 educational services to students attending its schools. Further, the School District is a
4 governmental entity, and the stormwater charges sought to be imposed and increased by
5 the PWSA impact the public as a whole, as well as having a direct, significant and unique
6 impact on the School District, which is funded with local taxes, state subsidy payments and
7 federal funds. None of these sources of funding can be quickly or easily increased to cover
8 higher expenses.

9 Because of concerns about (i) the magnitude of the cost increase in the PWSA's stormwater
10 fees and (ii) whether the PWSA's stormwater fees are in reality an unlawful tax, the School
11 District decided to participate in this proceeding.

12
13 **III. SCHOOL DISTRICT BACKGROUND**

14 **Q. Describe the history and organization of the School District.**

15 A. The School District is organized and maintains its existence under the Act of Mach 10,
16 1949, P.L. 30, known as the Public School Code of 1949, as amended ("School Code").
17 The School District is classified by population as a first class-A school district and is fully
18 accredited by the Middles States Association for Elementary and Secondary Schools. The
19 School District is an independent government unit in Pennsylvania. It owns real property
20 comprising more than sixty-five buildings in the City of Pittsburgh and is a water,
21 wastewater and stormwater customer of the PWSA at many of the School District's
22 properties.

PITTSBURGH WATER AND SEWER AUTHORITY
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The School District, the second largest school system in the Commonwealth of Pennsylvania, provides a full range of educational services to students in grades pre-kindergarten (“Pre-K”) through grade 12 who reside in the City of Pittsburgh or Borough of Mt. Oliver. The 2010 census population of the two municipalities served was 309,107, covering a land area of 55.3 square miles.

The School District’s official 2021-22 enrollment included 20,350 students (Pre-K to 12) with 19,159 K-12 attending 57 schools. The projected enrollment for 2023-2024 is 20,352 students (Pre-K to 12). The average age of the School District’s buildings is 77 years. The School District offers programs for general education, special education, vocational education, and early childhood education.

In addition, as of December 31, 2021, 5,069 students residing in the City of Pittsburgh and Borough of Mt. Oliver attend 378 charter schools¹, including 11 approved by the School District, 16 approved by other school districts or the state, and 11 cyber schools approved by the Commonwealth of Pennsylvania. In Pennsylvania, charter schools are funded by

¹Charter schools are created under the Charter School Law, which is part of the School Code. Brick and mortar charter schools are granted charters by the school district in which they are located. Students who attend charter schools are paid for by their home district based upon the home district’s budgeted expenditures with certain exclusions. Because Pittsburgh School District’s per pupil cost is among the highest in the state, there are many charter schools in our footprint. The home district must provide transportation to the charter students, resulting in another cost for the home school district.

Cybercharter or online charters are approved by Pennsylvania Department of Education. If home school districts do not pay their charter bills timely, the state may redirect school subsidy payments to the charters upon notice of nonpayment.

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 payments from the school district of residence. The School District’s charter school
2 expense in 2021 totaled \$122,087,479. The projected charter school costs for the School
3 District in 2023 is \$120.7 million –the second largest expense other than salaries and
4 benefits. We note that the School District is not responsible for paying stormwater charges
5 associated with the charter schools.

6 Although public education in Pittsburgh dates back to 1835, the consolidated School
7 District was founded November 1911, as a result of an educational reform movement that
8 combined the former ward schools into one system with standardized educational and
9 business policies. Initially, the School District was governed by an appointed Board of 15
10 members, but since 1976 has been governed by a 9-member Board elected by the school
11 districts of relatively equal populations. Board elections are held every two years. Board
12 members serve without pay.

13 As the policy-making body for the School District, the Board is charged with providing the
14 best education program the community can support in accordance with the School Code.
15 Board-adopted policies governing financial operations include accident and illness
16 prevention program (risk management), debt, fund balance and investments (cash
17 management). The chief administrative officer of the School District is the Superintendent
18 of the Schools, who is primarily responsible for implementing Board policy and generally
19 overseeing all School District employees.

BOARD MEMBER	OFFICE	EXPIRATION DATE OF TERM OF OFFICE
Sala Udin	President	December, 2025

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

BOARD MEMBER	OFFICE	EXPIRATION DATE OF TERM OF OFFICE
Devon Taliaferro	First Vice-President	December, 2023
Pam Harbin	Second Vice-President	December, 2023
Kevin Carter	Member	December, 2023
William Gallagher	Member	December, 2023
Tracey Reed	Member	December, 2025
Jamie Piotrowski	Member	December, 2025
Gene Walker	Member	December, 2025

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The following summarizes certain information regarding the School District’s schools.

PITTSBURGH PUBLIC SCHOOL
2022-23
ORGANIZATION OF SCHOOLS

ELEMENTARY SCHOOLS

K-5.....	23
K-8.....	11
Total.....	34

MIDDLE SCHOOLS

Grades 6-8.....	7
Total.....	7

SECONDARY SCHOOLS

Grades 6-12.....	4
Grades 9-12.....	4
Student Achievement Center 6-12.....	1
Total.....	9

SPECIAL EDUCATION CENTERS

Conroy, Oliver, Pioneer.....	4
Pittsburgh Gifted Center.....	1
Clayton Academy.....	1
Pittsburgh Online Academy.....	1
Total.....	7

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

TOTAL ALL SCHOOLS.....57

EDUCATION LEVEL	Enrollment October 1, 2020	Enrollment October 1, 2021	Increase/Decrease
Elementary School	9,264	8,557	(707)
Middle Schools	4,706	4,301	(405)
Secondary Schools	5,740	5,663	(77)
Special Schools	728	724	(4)
Sub Total- K-12	20,438	19,245	(1,193)
Pre-K/Headstart	1,165	1,193	28
System-Wide Totals	21,603	20,438	(1,165)

Q. What are the School District’s vision and mission?

A. We have clearly articulated and well-developed Vision and Mission statements that guide everything we do. Those statements are as follows:

SCHOOL DISTRICT VISION

All students will graduate high school, career and life-ready prepared to complete a two- or four-year college degree or workforce certification.

SCHOOL DISTRICT MISSION

The Pittsburgh Public Schools will be one of America’s premier school districts, student focused, well managed, and innovative. We will hold ourselves accountable for preparing all children to achieve academic excellence and strength of character, so that they have the opportunity to succeed in all aspects of life.

As I will describe later, the PWSA’s current rate filing, seeking substantial increases in fees for stormwater, are particularly problematic since the funds used to pay these new charges cannot be deployed in direct support of the School District’s vision and mission.

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 **IV. THE SCHOOL DISTRICT'S STORMWATER CHARGES**

2 **Q. Please describe the current cost to the School District for stormwater charges from**
3 **PWSA.**

4 A. As noted above, the School District is a water, wastewater and stormwater customer of
5 PWSA for most of the district's properties. We own a large number of buildings and
6 facilities and have a significant amount, about almost 6.9 million square feet, of impervious
7 surfaces within our footprint, which equates to about 4,264.5 ERUs as defined by PWSA.
8 About 45 percent of the School District total land area, according to PWSA, constitutes
9 impervious surface.

10 For reference purposes, for our last fiscal year, which ran from January 1, 2022 to
11 December 31, 2022, we paid PWSA \$935,910.26 for water service, \$523,905.28 for
12 wastewater service \$9,889.65 for fire line service and \$303,378.44 for stormwater. Our
13 total average annual payment to the PWSA (based on the last five years) for water,
14 wastewater and stormwater for all School District properties is \$1,347,892, while the total
15 paid to PWSA in 2022 was \$1,773,083.50. Payments to the PWSA comprise about 16% of
16 the School District's average annual utility budget².

17 Attached to this testimony as School District Exhibit MJM Exhibit-2 is a spreadsheet
18 showing the property location, bill class, amount of impervious surface at each location,
19 and the applicable ERUs. This spreadsheet was primarily prepared by the PWSA and edited
20 by the School District for accuracy. The obvious take-away from this exhibit is that the
21 School District owns a substantial number of properties that are being assessed a

²The School District's "utility budget" specifically refers to the total amount the School District pays in a given year for Water, Sewage, Fire Lines, Natural Gas, Electric, Steam, and Chilled Water.

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 stormwater charge from the PWSA and any increased charges will have large impacts on
2 the district.

3

4 **Q. Can you describe in greater detail the economic and financial impact PWSA's**
5 **stormwater fees are having on the School District and its ability to provide high**
6 **quality educational services to its students?**

7 A. Yes. As I noted earlier, the School District's buildings are on average 77 years old. The
8 aging infrastructure and systems in the buildings are requiring more maintenance and
9 custodial attention. To budget for additional stormwater costs to PWSA, we will be forced
10 to cut custodial and maintenance personnel which, moving forward, is going to adversely
11 affect our ability to adequately prepare the buildings to accept students every day.

12

13 **Q. Does the School District have any equipment or facilities in place at its various**
14 **properties to collect, divert or otherwise address stormwater?**

15 A. Yes. The School District has a water efficiency plan that describes some of its initiatives
16 in this area, including those items impacting stormwater. A copy of the water efficiency
17 plan is attached to this testimony as School District Exhibit MJM-3. For example, the
18 School District has installed rain gardens at three of its properties, Conroy Academy,
19 Crescent Early Childhood Center and Lincoln PreK-5, to reduce surface water runoff. And,
20 at its Central Operations building, the School District is collecting rainwater from the
21 rooftop, depositing it into a reservoir where it is then filtered, sanitized and recycled for
22 use in the building's cooling tower mechanical system.

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

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Q. To your knowledge, does the School District receive any credits to its stormwater bill from PWSA for these water efficiency efforts specifically intended to reduce stormwater run-off?

A. Not to my knowledge.

Q. To your knowledge, has PWSA installed any meters or other devices at any of the School District’s properties to measure the actual amount of stormwater run-off that occurs from time to time?

A. No.

Q. To your knowledge, has the School District ever specifically asked for “stormwater service” from the PWSA as it has for water and wastewater services?

A. No. To our knowledge, we started receiving charges for stormwater in connection with the School District’s various properties in early 2022, but never requested any such “service” from the PWSA.

Q. Please comment on the School District’s claim that the PWSA’s stormwater charge is or may be an unlawfully imposed tax that the PWSA lacks the authority to establish, and that the PWSA may be prohibited from charging it to any customers under applicable federal and state law.

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF MICHAEL J. MCNAMARA

1 A. I understand this is a legal issue and, as a non-lawyer, I am not offering a legal opinion on
2 this issue. However, the School District is aware the Borough of West Chester's attempt to
3 establish a stormwater fee by ordinance and impose it on residents and businesses in that
4 municipality. We understand that West Chester University challenged that ordinance, and
5 the Commonwealth Court of Pennsylvania has ruled that the Borough of West Chester's
6 proposed stormwater fee is an unlawful tax. We understand that case is presently on appeal
7 to the Pennsylvania Supreme Court. In the interim, the Commonwealth Court's opinion is
8 instructive on how the Commission should view the stormwater charge being imposed on
9 the School District and other customers by PWSA in this proceeding, particularly given
10 the adverse financial impacts that charge has and continues to have on the School District,
11 which is a governmental entity that is exempt from taxes.

12

13 V. **CONCLUSION**


14 Q. **Does this conclude your direct testimony?**

15 A. Yes, it does. However, I reserve the right to supplement my testimony should additional
16 issues and facts arise during the course of this proceeding.

VERIFICATION

I, Michael J. McNamara, Chief Operations Officer, Pittsburgh School District, have read the foregoing document, Direct Testimony of Michael J. McNamara, and verify that the facts set forth therein are true and correct to the best of my knowledge, information and belief.

I understand that any false statements made herein are subject to the penalties of 18 Pa. C.S.A. § 4904, relating to unsworn falsification to authorities.

By: 

Name: Michael J. McNamara

DATE: 8-9-2023

School District Exhibit MJM-1

MICHAEL J. MCNAMARA

A: 4100 Kleber St. Pittsburgh, PA 15212

P: (814)-449-0493

E: mmcnamara1@pghschools.org

EDUCATION

PENN STATE UNIVERSITY

MASTERS: PROJECT MANAGEMENT

August 2012 – August 2014

EDINBORO UNIVERSITY OF PA

B.A.: INDIVIDUALIZED STUDIES

August 2003 - May 2009

PROFESSIONAL EXPERIENCE

PITTSBURGH PUBLIC SCHOOLS

Chief Operations Officer 2020 - Current

- Oversees and supervises the following departments:
 - Facilities and Maintenance
 - Plant Operations
 - Food Service
 - Transportation
 - School Safety
 - M/WBE Business

Assistant Director – Construction 2019 - 2020

- Supervises Construction Supervisors and Building Inspectors on multi-prime projects
- Develops and updates the School District's 7-year capital plan
- Provides project management guidance to staff and contractors
- Develops and updates project management standards, metrics and tools for the department

Project Manager 2015 – 2019

- Manages multi-million dollar renovation projects involving multiple contractors
- Coordinates all construction bidding and contracting
- Reviews architectural and engineering proposals and makes recommendations to the Board
- Point-of-contact for external companies under contract with PPS

Contract Manager 2010 – 2015

- Prepares contract documents for PPS's professional consultants and construction contractors
- Mediates contract disputes with project designers and contractors
- Manages the construction bid process and provides recommendations to the Board
- Implemented and manages a web-based project management database to increase efficiency

Substitute Teacher 2009 – 2010

- Responsible for delivering instruction and managing classroom activities
- Experienced with students in grades K-8 in all subject areas
- Tutored students in small groups in preparation for standardized assessments

TECHNICAL

Excellence in: Windows and Macintosh operating systems, e-Builder, BoardDocs
Microsoft Office: Word, Excel, PowerPoint, Publisher, Outlook

Experience in: SAP, Access, Project, AutoCad, Microsoft Teams, Munis

School District Exhibit MJM-2

SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	0		BAXTER ST	PITTSBURGH	PA	15208	NSFR	992.2	1	Student Achievement (Baxter)
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	0		BAXTER ST	PITTSBURGH	PA	15208	NSFR	992.4	1	Student Achievement (Baxter)
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	0		BAXTER ST	PITTSBURGH	PA	15208	NSFR	1,181.7	1	Student Achievement (Baxter)
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	0		PRIVATE ST	PITTSBURGH	PA	15208	NSFR	558.6	1	Student Achievement (Baxter)
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	0		BRUXTON AVE	PITTSBURGH	PA	15208	NSFR	5,556.2	4	Student Achievement (Baxter)
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	1460		PAGE ST	PITTSBURGH	PA	15233	NSFR	444.5	1	Conroy - Nearby Parking Lot
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	1460		PAGE ST	PITTSBURGH	PA	15233	NSFR	797.7	1	Conroy - Nearby Parking Lot
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	1460		PAGE ST	PITTSBURGH	PA	15233	NSFR	1,714.0	2	Conroy - Nearby Parking Lot
PITTSBURGH BOARD OF EDUCATION	SCHOOL DISTRICT OF PITTSBURGH	1460		PAGE ST	PITTSBURGH	PA	15233	NSFR	641.0	1	Conroy - Nearby Parking Lot
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	1460		PAGE ST	PITTSBURGH	PA	15233	NSFR	889.1	1	Conroy - Nearby Parking Lot
PITTSBURGH BOARD OF EDUCATION	SCHOOL DISTRICT OF PITTSBURGH	1445		FAULSEY WAY	PITTSBURGH	PA	15233	NSFR	1,347.3	1	Conroy - Nearby Parking Lot
SCHOOL DISTRICT OF PITTSBURGH	SCHOOL DISTRICT OF PITTSBURGH	0		NOBLESTOWN RD	PITTSBURGH	PA	15205	NSFR	142,421.3	87	Westwood
BOARD OF PUBLIC EDUCATION CITY OF P	SCHOOL DISTRICT OF PITTSBURGH	0		PORTMAN AVE	PITTSBURGH	PA	15214	NSFR	31,260.1	14	Perry Field
BOARD OF PUBLIC EDUCATION	SCHOOL DISTRICT OF PITTSBURGH	252		FORDYCE	PITTSBURGH	PA	15210	NSFR	10,270.0	7	Bon Air
PITTSBURGH SCHOOL DIST	SCHOOL DISTRICT OF PITTSBURGH	80-88		13TH ST	PITTSBURGH	PA	15203	NSFR	NA	13	Food Kitchen
SCHOOL DISTRICT OF PITTSBURGH		800		E CARSON	PITTSBURGH	PA	15203	NSFR	NA	6	Couples
PITTSBURGH PUBLIC SCHOOLS		0		CARNAHAN	PITTSBURGH	PA	15216	NSFR	47,350	29	Banksville
SCHOOL DISTRICT OF PITTSBURGH		1001		CARNAHAN RD	PITTSBURGH	PA	15216	NSFR	11,552	8	Banksville
BOARD PUBLIC EDUCATION		0		GRIMES	PITTSBURGH	PA	15210	NSFR	48,476	29.5	Knoxville
PGH PUB SCHOOL		0		GRIMES	PITTSBURGH	PA	15210	NSFR	48,475	29.5	Knoxville
BOARD PUBLIC EDUCATION		0		MIFFLIN RD & ELWELL	PITTSBURGH	PA	15207	NSFR	98,377	60	Mifflin
TOTALS									6,881,985.5	4264.5	
SQ FT									ERU		

*It appears PWSA has not charged us for Stormwater on this account since Nov 2022 although I do not have any reason as to why

School District Exhibit MJM-3

3.2 WATER EFFICIENCY

There are several technologies available that can help with water efficiency, such as low flow plumbing fixtures, sensors, rainwater harvesting. Water efficiency practices in the buildings can greatly reduce wastewater, yielding low sewage volumes, reduce energy use and reduce utility costs.

3.2.1 Water efficient low flow plumbing fixtures

Facilities design standards require use of water efficient low flow plumbing fixtures to help reduce wastewater.

3.2.2 Rain Gardens

Rain garden is a shallow, constructed depressions that are planted with deep-rooted native plants and grasses, strategically located to capture runoff from hard surfaces such as a driveway, parking area, sidewalks or streets. It helps to filter pollutants from runoff, recharge groundwater and conserve water.

PPS has rain gardens installed on three District properties at Conroy Academy, Crescent Early Childhood Center and Lincoln PreK-5 to contribute to water conservation, to reduce surface runoff and easing storm water problems in the community.

At Conroy Academy, the rain garden was installed as part of a new parking lot. At Crescent, the rain garden was installed in partnership with Nine Mile Run Watershed Association.

At Lincoln PreK-5, the Western Pennsylvania Conservancy, in partnership with PPS and the City of Pittsburgh, installed a large rain garden system at Lincoln and Franktown avenues in Larimer. The rain garden is accessible to the students of Lincoln PreK-5. In addition to mitigating significant stormwater runoff, the large site features beautiful blooming perennials and offers an opportunity for teaching students about water conservation, green infrastructure, plants and pollinator insects.

3.2.3 Rainwater Harvesting

Rainwater Harvesting is collection and distribution of rainwater, which rather than going to sewage is reused. At Central Operations building, the rainwater is collected from the rooftop, deposited into a reservoir, filtered, sanitized and recycled for use in the building's cooling tower mechanical system.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	Docket Nos. R-2023 -3039920 (Water)
	:	R-2023-3039921 (Wastewater)
	:	R-2023-3039919 (Stormwater)
V.	:	
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	
	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the of the foregoing document upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party).

VIA E-MAIL

Hon. Gail M. Chiodo
Administrative Law Judge
Commonwealth of Pennsylvania
Pennsylvania Public Utility Commission
400 North Street, 2nd Floor West
Harrisburg, PA 17120
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susmarray@pa.gov

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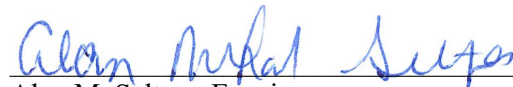
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August 9, 2023

VIA E-FILING

The Honorable Gail M. Chiodo
Administrative Law Judge
Pennsylvania Public Utility Commission
400 North Street, 2nd Floor West
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority; Docket Nos. R-2023-3039919 (Stormwater); R-2023-3039920 (Water); R-2023-3039921 (Wastewater)

Dear Secretary Chiavetta:

On behalf of The School District of Pittsburgh, enclosed please find the Direct Testimony and Exhibits of Michael J. McNamara, labeled School District Statement No. 1, and the Direct Testimony and Exhibits of Eric M. Callocchia, labeled as School District Statement No. 2 in the above-referenced proceeding.

This document is being served as indicated in the attached Certificate of Service.

Very truly yours,



Alan M. Seltzer, Esquire

AMS/kas
Enclosure

cc: Rosemary Chiavetta, Secretary (*Letter and Certificate of Service only*)
Certificate of Service

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	R-2023-3039919 (stormwater)
Office of Small Business Advocate	:	C-2023-3040789
Office of Consumer Advocate	:	C-2023-3040847
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

Pennsylvania Public Utility Commission	:	R-2023-3039920 (water)
Office of Small Business Advocate	:	C-2023-3040785
Office of Consumer Advocate	:	C-2023-3040845
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

Pennsylvania Public Utility Commission	:	R-2023-3039921 (wastewater)
Office of Small Business Advocate	:	C-2023-3040780
Office of Consumer Advocate	:	C-2023-3040846
	:	
v.	:	
	:	
The Pittsburgh Water and Sewer Authority	:	

DIRECT TESTIMONY OF

Eric M. Callocchia

With Regard To

**Pittsburgh Water and Sewer Authority's Proposed Stormwater Revenue Requirements,
Cost of Service Allocations, Rate Design, and the Factual Basis for Stormwater Charges**

August 9, 2023

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III.	PWSA’S STORMWATER COST OF SERVICE ALLOCATIONS AND RATES	12
IV.	BASIS FOR A STORMWATER FEE	18
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PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 **I. INTRODUCTION AND PURPOSE**

2 **Q. Please state your name and business address.**

3 A. My name is Eric M. Callocchia, and my business address is 911-A Commerce Road,
4 Annapolis, Maryland, 21401.

5
6 **Q. By whom are you employed and in what capacity?**

7 A. I am employed by NewGen Strategies and Solutions, LLC (“NewGen”) as a Partner of the
8 Firm’s Environmental Practice. NewGen provides management and economic consulting
9 services to water, wastewater, stormwater, energy, natural gas, and solid waste utilities.
10 My duties include managing and supervising our Annapolis, Maryland based consultants
11 and administrative staff and managing and performing client engagements.

12
13 **Q. Briefly describe your educational and professional work experience.**

14 A. I earned a Bachelor of Arts degree in Economics from Johns Hopkins University in May
15 2010. From July 2010 through June 2019, I was employed by Management and Financial
16 Services Group (“MFSG”) as a staff consultant assisting in performing cost of service and
17 rate design studies primarily for water, wastewater, and stormwater utilities. In July 2019,
18 MFSG merged with NewGen, and I became a Principal at NewGen tasked with managing
19 and performing client engagements. In January 2023, I became a Partner of NewGen’s
20 Environmental Practice. I am a member of the American Water Works Association
21 (“AWWA”) Rates and Charges Committee, and Chairman of the Cost Allocation

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 subcommittee. I am a contributing author to the Water Environment Federation (“WEF”)
2 Manual of Practice No. 27, *Financing and Charges for Wastewater Systems, Fourth*
3 *Edition*. My entire thirteen-year career thus far has focused on providing consulting
4 services to water, wastewater, and stormwater utilities around the nation. Such services
5 include, but are not limited to:

- 6 • Cost of service and rate design studies
- 7 • Revenue requirement development
- 8 • Rate case and other litigation support
- 9 • System valuations and appraisals
- 10 • Operational and organization studies
- 11 • Socioeconomic impact and affordability analysis
- 12 • Business and strategic plan development

13 School District Exhibit EMC-1 contains my resume summarizing my prior education and
14 professional experience.

15
16 **Q. What is the purpose of your testimony in this proceeding?**

17 A. The purpose of my testimony is to, on behalf of the Pittsburgh School District (“School
18 District”), provide my opinion of Pittsburgh Water and Sewer Authority’s (“PWSA”)
19 proposed stormwater revenue requirements, cost of service allocations, and rate design. I
20 will also provide the Commission with information regarding alternative approaches to
21 stormwater management, stormwater fee development, and the factual differences between
22 stormwater service and water and wastewater service.

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 The School District is concerned that the stormwater fees it is now obligated to pay
2 are large, growing, have a huge impact on the School District's operations and budget, and
3 ultimately adversely impact the District's ability to achieve its vision and mission.¹ The
4 District is exploring avenues of controlling or eliminating costs particularly when it comes
5 to stormwater, including intervening and participating in this proceeding, and as described
6 further by Michael McNamara in School District Statement No. 1.

7 The charge given to me by the School District was to evaluate PWSA's proposed
8 stormwater fees and determine all reasonable and just avenues of reducing or eliminating
9 costs and charges for the School District. Therefore, my conclusions and recommendations
10 stated herein are unique to this case and the School District's unique position as a PWSA
11 stormwater ratepayer.

12
13 **Q. If you do not discuss a specific topic, does that mean you agree with PWSA on that**
14 **topic?**

15 A. No. My silence on any specific topic does not indicate my approval or agreement. My
16 testimony is limited only to the issues I discuss herein. Moreover, I am advised by School
17 District counsel that there is a legal question in this case as to whether PWSA's stormwater
18 charge is a lawful fee or an unlawful tax that cannot be imposed on tax-exempt entities
19 such as the School District. While I am not providing an opinion on the merits of this
20 Pennsylvania legal issue, I will describe several of the differences between traditional water
21 and wastewater utility service and PWSA's stormwater service. My Direct Testimony

¹ <https://www.pghschools.org/districtvision/mission>

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 regarding PWSA’s stormwater revenue requirements, cost allocation, and rate design is
2 presented under the legal assumption that the Pennsylvania Public Utility Commission
3 (“PUC” or “Commission”) may set stormwater rates for PWSA.
4

5 **Q. What is stormwater and stormwater management?**

6 A. “Stormwater,” as defined by the Clean Water Act regulations, includes “stormwater runoff,
7 snow melt runoff, and surface runoff and drainage.” 40 C.F.R. §122.26(b)(13). Stormwater
8 management refers to the control of stormwater runoff. It includes planning for runoff,
9 maintaining stormwater systems, and regulating the collection, storage, and movement of
10 stormwater. Good stormwater management controls flooding, reduces erosion, and
11 improves water quality.
12

13 **Q. Who are the beneficiaries of good stormwater management?**

14 A. The United States Environmental Protection Agency (“EPA”) highlights the following five
15 benefits of an effective stormwater management program²:

- 16 • Protection of wetlands and aquatic ecosystems;
- 17 • Improved quality of receiving waterbodies;
- 18 • Conservation of water resources;
- 19 • Protection of public health, and;
- 20 • Flood control

² <https://www.epa.gov/npdes/npdes-stormwater-program>

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 In addition, the EPA’s 2017 guide titled *Community Solutions for Stormwater Management*
2 (attached hereto as School District Exhibit EMC-2) concludes that:

3 “Long-term stormwater plans can support community efforts to prioritize
4 and implement effective stormwater management practices. Integrating
5 these plans with broader community goals such as economic development,
6 infrastructure investment and environmental compliance leverages the
7 planning effort to support resilience, economic growth and quality of life.”
8 (School District Exhibit EMC-2 at p. 14)

9 Therefore, good stormwater management provides a community-wide benefit.

10
11 **Q. Who has historically provided stormwater management services and who has paid**
12 **for it?**

13 Humans have been dealing with the issue of rainwater runoff for thousands of years, as
14 evidenced by modern discoveries of stormwater management infrastructure in Greece and
15 Rome that date to ancient times. Stormwater management has been a regulatory issue in
16 the United States since the passage of the Clean Water Act in 1972. Initial federal
17 regulations under the Clean Water Act were limited in scope and addressed only major
18 manufacturing facilities with discharges that included the potential for contaminated
19 stormwater runoff.

20 In 1990, the EPA issued a stormwater rule based on the 1987 Stormwater
21 Amendments to the Clean Water Act that defined classifications of stormwater systems
22 subject to regulation, which included combined sewer overflows (i.e., sewer systems in
23 which both sanitary sewage and industrial process wastewater are mixed with rainwater
24 and land runoff, primarily found in older urban areas); municipal separate stormwater
25 systems (i.e., storm sewer systems owned or operated by municipalities that receive only

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 stormwater runoff); separate stormwater systems (i.e., storm sewer systems that serve
2 industrial facilities and were historically subject to or part of the industry’s National
3 Pollutant Discharge Elimination System (“NPDES”)³ permit); and non-point source runoff
4 (i.e., all runoff that is not discharged to surface waters via a discrete pipe or conduit).

5 Since that time, entities that manage stormwater systems of all kinds have raised
6 revenue to fund stormwater management using various methods, including ad valorem
7 taxes, special service districts, incorporating stormwater costs into water and/or wastewater
8 rates, and stormwater specific fees.

9
10 **II. PWSA’s STORMWATER REVENUE REQUIREMENTS**

11 **Q. How does PWSA develop the revenue requirement of its stormwater system?**

12 A. PWSA’s stormwater revenue requirement was developed for a Fully Projected Future Test
13 Year (“FPFTY”) 2024 by allocating system-wide costs to the stormwater system based on
14 factors developed for specific budget categories, including factors related to Customer
15 Bills, Engineering and Construction, Existing Debt Service, and Wastewater Conveyance.
16 In addition, administrative costs are allocated to the stormwater system based on composite
17 allocators developed based on the results of the allocation of the specific budget categories.
18 PWSA Schedule HJS-2 shows the factors used to allocate system revenue requirements to
19 the stormwater system. PWSA Schedule HJS-1 shows the results of the allocation of
20 revenue requirements among the water, wastewater, and stormwater systems. The total

³ The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the United States. The NPDES program was created in 1972 by the Clean Water Act. <https://www.epa.gov/npdes>

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 stormwater revenue requirement as allocated by PWSA for the FPFTY 2024 is about \$40
2 million.

3

4 **Q. Do you challenge or have any issue with PWSA’s claimed \$40 million revenue**
5 **requirement for stormwater?**

6 A. No. I have not made any evaluation of the costs PWSA has assigned to the stormwater
7 system. Other intervenors in this case may provide recommendations regarding the
8 proposed stormwater system revenue requirement.

9

10 **Q. Does PWSA propose adopting rates to collect the full \$40 million stormwater revenue**
11 **requirement in FY 2024?**

12 A. No. PWSA includes several adjustments to the total proposed revenue requirement to
13 develop the basis for the proposed FY 2024 stormwater rates, called the “Net Costs to
14 Recover for Ratemaking.” The first adjustment is a decrease based on an allocated offset
15 of about \$689,000 for miscellaneous revenues, such as meter sales, meter test fees, lien
16 filing fees, and other miscellaneous revenues. The FY 2024 stormwater Net Costs to
17 Recover for Ratemaking also include adjustments for bad debt expense, the cost of credits
18 and incentives, the cost of PWSA’s bill discount program, and an adjustment to reflect
19 PWSA’s application of the concept of rate “gradualism.” I address each of these
20 adjustments in Section III of my testimony.

21

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 **Q. Has PWSA done everything reasonably possible and practical to reduce its**
2 **stormwater revenue requirement?**

3 A. No, not everything. Although PWSA’s witnesses speak to efforts PWSA has undertaken
4 to reduce the costs of planned stormwater capital improvements via the use of Water
5 Infrastructure Finance and Innovation Act of 2014 (“WIFIA”) and Pennsylvania
6 Infrastructure Investment Authority (“PENNVEST”) loans, PWSA’s witnesses do not
7 discuss any other efforts that PWSA could have made to investigate or implement other
8 programs that could reduce its stormwater revenue requirement and save PWSA’s
9 stormwater ratepayers money.

10

11 **Q. Are there any programs or approaches available to PWSA that would likely reduce**
12 **stormwater costs for PWSA’s ratepayers that are not discussed in PWSA’s direct**
13 **testimony?**

14 A. Yes. The EPA recommends that “communities should consider whether a Community-
15 Based Public-Private Partnerships (“CBP3”) will help achieve their goals when evaluating
16 stormwater financing and infrastructure needs.” According to the EPA, “A CBP3 is a
17 partnership between a local government and a private entity. The primary goal of CBP3
18 is to provide high quality services in a cost effective way. The partnership is designed to:

- 19 • provide flexibility;
- 20 • provide access to advanced technology;
- 21 • address dynamic community development trends and goals;

PITTSBURGH WATER AND SEWER AUTHORITY
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- 1 • encourage long-term financial and regulatory commitments for integrating
2 green infrastructure into stormwater management programs.”⁴

3 PWSA does not mention any consideration of implementing any CBP3 to reduce the cost
4 of planned stormwater capital improvements.

5
6 **Q. Have any other stormwater utilities in the Commonwealth realized cost savings using
7 a CBP3 model?**

8 **A.** Yes. In 2017, the City of Chester announced a CBP3 to plan, finance, build and maintain
9 up to \$50 million in green stormwater infrastructure over the next 20- 30 years.⁵ The City
10 created the Stormwater Authority of the City of Chester (“SAC”) and engaged a private
11 sector partner, Covias, to secure approximately \$35 million in long-term, low-interest-rate
12 loans for the SAC in addition to more than \$11 million in grants.⁶

13 Also, although not in the Commonwealth, Prince George's County, Maryland
14 entered into the "first of its kind" innovative 30-year CBP3 agreement in March 2015,
15 referred to as the Clean Water Partnership. The Clean Water Partnership was the first-ever
16 CBP3 model to address stormwater management at such a large scale. The Prince George’s
17 County's Department of the Environment is expected to benefit from the partnership by
18 reducing administrative and procurement costs of green infrastructure practices (estimated

⁴ <https://www.epa.gov/G3/financing-green-infrastructure-community-based-public-private-partnerships-cbp3-right-you>

⁵ https://www.chestercity.com/wp-content/uploads/2017/05/Chester_CCBP3_Announce_FactSheet_v5.pdf

⁶ <https://www.corvias.com/projects/stormwater-authority-city-chester>

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1 reductions of 60 to 80 percent) and creating efficiencies only available through private
2 business and market forces.⁷

3 In my opinion, PWSA has a duty to investigate and, if feasible and likely to reduce
4 costs, implement a CBP3 to fund stormwater infrastructure investment.

5
6 **III. PWSA’S STORMWATER COST OF SERVICE ALLOCATIONS AND RATES**

7 **Q. How does PWSA allocate stormwater costs to customer classes?**

8 A. The basis for PWSA’s allocation of stormwater costs to customer classes is “Equivalent
9 Residential Units” or “ERUs.” PWSA Statement No. 8, p. 8 describes PWSA’s definition
10 of an ERU. One ERU is equivalent to 1,650 square feet. For Residential parcels, PWSA’s
11 methodology of assigning ERUs is as follows:

12 “PWSA decided on a structure in which the middle tier contains 70% of all
13 the SFR properties, making it by far the largest group. Properties with less
14 than 1,015 square feet of impervious area are considered the low tier and
15 are billed for the median amount of impervious area found on parcels in that
16 tier, which is about 830 square feet of impervious area, or 0.5 ERUs.
17 Properties in the middle tier are billed for 1 ERU. Those properties with
18 2,710 square feet or more of impervious area fall into the high tier and are
19 billed for the median amount of impervious area found on parcels in that
20 tier, which is about 3,355 square feet of impervious area, or 2 ERUs.”
21 (PWSA Statement No. 8 at p. 11, lines 2-9)

22 Non-Residential parcels are assigned ERUs by calculating the number of ERUs on each
23 parcel and rounding up to the nearest whole ERU (PWSA Statement No. 8 at p. 12, lines 1
24 – 18.) The calculation of Non-Residential ERUs are also based on a standard ERU of 1,650
25 square feet.

⁷ <https://www.epa.gov/G3/prince-georges-county-maryland-clean-water-partnership>

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Q. How does PWSA use ERUs to allocate stormwater costs to customer classes?

A. The process by which PWSA allocates stormwater costs to customer classes is set forth in PWSA Schedules HJS-4SW and HJS-5SW. PWSA Schedule HJS-4SW allocates the total stormwater revenue requirement to customer classes based solely on each class’s total assigned ERU’s, resulting in what PWSA calls the “unadjusted” cost of service. PWSA Schedule HJS-5SW then adjusts the unadjusted cost of service for:

- Gradualism in Ratemaking
- Bad Debt Expense
- Bad Debt Expense (Stormwater Only)
- Cost of Credits and Incentives
- Bill Discount Program (“BDP”) Foregone Revenue

Each adjustment is made based on the proportion of unadjusted cost of service, as reflected in PWSA Schedule HJS-4SW, except for Bad Debt Expense (Stormwater Only), which is weighted based on the number of Stormwater Only ERUs in PWSA’s Residential and Non-Residential Classes.

Q. Does PWSA make any adjustment to its proposed stormwater rates to align class revenues with the results of the stormwater cost of service allocations?

A. No. PWSA developed its proposed stormwater fee as a system-wide fee based on ERUs. Therefore, PWSA calculates a system-wide stormwater fee per ERU and applies it to all stormwater customers. This calculation is shown in PWSA Schedule HJS-6SW. Therefore,

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 the revenue generated per customer class is driven by the calculation of Net Costs to
2 Recover for Ratemaking, i.e., the net revenue requirement plus the cost of the Bill Discount
3 Program, and two rate design decisions made by PWSA, specifically:

- 4 • The method used to assign ERUs to parcels, and
- 5 • The level of discount provided to customers that are enrolled in PWSA’s Customer
6 Assistance Program (“CAP”)⁸ who are not charged the full fee per assigned ERUs.

7
8 **Q. What justification does PWSA provide for not adjusting class stormwater rates to**
9 **align with the results of the stormwater cost of service allocations?**

10 A. In its response to School District Data Request I-7 (School District Exhibit EMC-3), PWSA
11 states:

12 “While it is true that ... Bad Debt Expense, Cost of Credit and Incentives,
13 and Cost of Bill Discount Foregone Revenue [are] being allocated to
14 customer classes based on Unadjusted COS, **it should be recognized that**
15 **that allocation has no bearing on the calculated rate** because the
16 stormwater rate is determined by dividing Net Costs to Recover for
17 Ratemaking by Stormwater ERUs as shown on Schedule HJS-6SW. **As**
18 **such, allocating these costs based on Class Contribution would have no**
19 **impact on the calculated stormwater rate.”** (emphasis added)
20

21 **Q. Do you agree with the justification provided by PWSA?**

22 A. Not entirely. PWSA’s justification highlights a key issue regarding the use of impervious
23 area based ERUs to allocate stormwater costs to customer classes. In traditional water and
24 or wastewater ratemaking, rate design choices are driven by the results of a cost-of-service

⁸ PWSA’s Customer Assistance Program allows qualified customers to be charged a reduced bill for water, wastewater, and stormwater service. Therefore, there is a cost related to foregone revenue that results from this program.

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1 analysis in which costs are functionalized into system functions, allocated to cost causative
2 components, and then distributed to customer classes based on their individual
3 contributions to the cost causative components. In the case of a purely ERU based
4 stormwater fee, it is the rate design that defines the costs allocated to each customer class,
5 which is the reverse of the traditional water or wastewater cost of service process.

6 Having said that, PWSA is not prohibited from adjusting the ERU assignment on a
7 class basis to align the results of the cost-of-service analysis with the revenue generated by
8 each class's stormwater fee. If PWSA were to do so, then the particular assignment of
9 adjustments to cost of service would indeed have an impact on the fee levied on each
10 customer class, resulting in different costs per ERU for different classes based on their
11 individual cost contribution.

12
13 **Q. Is there a more equitable method for adjusting the stormwater cost allocation to**
14 **customer classes?**

15 A. Yes. A more equitable allocation would be to distribute all adjustments except Gradualism
16 based on Class Contribution. Class Contribution represents the amount of a particular cost
17 that is caused by each rate class. Using Class Contribution as the basis for allocation of all
18 stormwater adjustments except Gradualism would better reflect a distribution of costs to
19 those customer classes that cause them. It should be noted that for PWSA's water and
20 wastewater cost of service allocations, Bad Debt expense is allocated to customer classes
21 based on Class Contribution.

22

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 **Q. What would the impact be on stormwater charges to customers if PWSA used a more**
2 **equitable cost allocation adjustment method and aligned the proposed ERU fees with**
3 **the more equitable cost allocation method?**

4 A. The result would be an increase in the Residential charge per ERU and a decrease in Non-
5 Residential charge per ERU. School District Exhibit EMC-4 demonstrates a more equitable
6 allocation of adjustments to customer classes. The primary differences between PWSA's
7 methodology and what I am proposing are the following:

- 8 1. Bad Debt Expense is allocated to Customer classes in a manner consistent with
9 the "Class Contribution" allocation used by PWSA in its proposed Wastewater
10 cost of service (Schedule HJS-9WW). In my suggested approach, the weighting
11 of Bad Debt Expense for Stormwater Only customers is maintained but revised
12 to be based on percentage of Class Contribution.
- 13 2. In my suggested approach, costs related to the foregone revenue resulting from
14 PWSA's Bill Discount Program are allocated 100% to the Residential class,
15 which reflects a more reasonable relationship between the customers who cause
16 those costs, i.e., Residential customers, and those who should pay them, i.e.,
17 Residential customers.

18 School District Exhibit EMC-5 demonstrates the estimated result of aligning ERU charges
19 on a class basis with the more equitable adjustments while maintaining the 85% discount
20 for Residential – CAP customers. Note that this analysis produces an estimated result
21 because PWSA's Cost of Service and Rate Design model was not provided with its full

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 capabilities.⁹ Specifically, in the model provided by PWSA, the cost of Bad Debt Expense
2 does not adjust in proportion to my suggested change in stormwater rates.

3
4 **Q. Are there any other stormwater rate design choices made by PWSA that impact rates**
5 **in FY 2025 and FY 2026?**

6 A. Yes. PWSA is proposing to adopt a Customer Assistance Charge (“CAC”) in FY 2025 and
7 FY 2026 that is intended to recover the costs incurred to administer the CAP and to recover
8 forgone revenue resulting from discounts provided to customers participating in PWSA’s
9 CAP (PWSA St. No. 7, p. 48, lines 14-16). The Stormwater CAC is calculated by dividing
10 the annual forgone revenue and allocated operations costs by the total number of
11 stormwater ERUs to arrive at a rate per ERU (PWSA St. No. 7, p. 48, lines 23-24). PWSA
12 proposes that the CAC apply to all stormwater ratepayers in all classes.

13
14 **Q. Do you agree with PWSA’s proposed application of the CAC to all stormwater**
15 **ratepayers?**

16 A. No. PWSA is proposing to adopt a Customer Assistance Charge (“CAC”) in FY 2025 and
17 FY 2026 that is intended to recover the costs incurred to administer the CAP and to recover
18 forgone revenue resulting from discounts provided to customers participating in PWSA’s

⁹ PWSA’s Cost of Service and Rate Design Model was developed by Raftelis and provided with the following disclaimer: “Note: This comprehensive Cost-of-Service and Rate Design model is being submitted to support PWSA’s 2023 Rate Case Filing. Due to the size and comprehensive nature of the model, Raftelis has taken several steps to avoid circular references. This has resulted in numerous manual steps to appropriately run rate scenarios. For this reason Raftelis and PWSA recommend that the model be used for informational purposes only. Any rate scenarios developed by users unauthorized by PWSA may not be valid and will need to be fully vetted by PWSA and Raftelis staff.”

PITTSBURGH WATER AND SEWER AUTHORITY
TESTIMONY OF ERIC M. CALLOCCHIA

1 CAP (PWSA St. No. 7, p. 48, lines 14-16). The Stormwater CAC is calculated by dividing
2 the annual forgone revenue and allocated operations costs by the total number of
3 stormwater ERUs to arrive at a rate per ERU (PWSA St. No. 7, p. 48, lines 23-24). PWSA
4 proposes that the CAC apply to all stormwater ratepayers in all classes. In my view, the
5 costs of the CAC should be allocated to residential customers only since that rate class is
6 responsible for the costs incurred under this program.

7
8 **Q. What is the overall impact on stormwater rates of your recommended changes to**
9 **PWSA's stormwater cost allocation and rate design?**

10 A. School District Exhibit EMC-6 shows PWSA's proposed FY 2024, FY 2025, and FY 2026
11 stormwater rates and the estimated FY 2024, FY 2025, and FY 2026 stormwater rates
12 resulting from my recommended adjustments. Under my recommended adjustments,
13 PWSA's stormwater fees per ERU for Non-residential customers will go from \$10.26 to
14 \$10.04 in 2024, from \$12.50 to \$11.88 in 2025 and from \$14.62 to \$13.89 in 2026.

15
16 **IV. BASIS FOR A STORMWATER FEE**

17 **Q. How does PWSA propose to charge customers to collect revenue to pay for its**
18 **proposed stormwater revenue requirement?**

19 PWSA proposes to charge customers based on each customer's assigned ERUs, as
20 described previously in my testimony. PWSA calculates each parcel's ERUs based on that
21 parcel's impervious area. PWSA St. No. 8, Section III describes how PWSA defines and
22 calculates impervious area.

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Q. What data did PWSA rely upon to determine the amount of impervious area on each parcel in its service area?

A. In its response to School District Data Request I-6 (School District Exhibit EMC-7), PWSA states the three data sets relied upon by PWSA to develop calculations of impervious area:

- 2017 aerial imagery sourced from Allegheny County
- 2022 parcel outlines sourced from Allegheny County
- 2021 aerial imagery to develop impervious area calculations for each parcel.

Information gathered from each data set was combined to develop a calculation of impervious area for each parcel within PWSA’s stormwater service area.

Q. Does PWSA propose to assign ERUs in the same manner to all parcels?

A. No. PWSA proposes to assign ERUs to Residential customers in a tiered ERU structure, as described in PWSA Statement No. 8 at p. 11, lines 2-9 and previously in my testimony.

PWSA states that this tiered structure was developed because:

“The impervious area found on a residential lot in Pittsburgh varies from about 400 square feet to more than 4,000 square feet. Using tiers instead of one flat rate allows PWSA to differentiate among SFR ratepayers and maintain an equitable approach across the various types of development and homes.” (PWSA Statement No. 8, p. 11, lines 11-19.)

Q. Does PWSA propose to assign ERUs to Non-Residential customers based on actual parcel impervious area?

A. No. PWSA proposes to assign ERUs to Non-Residential parcels by rounding up to the nearest integer ERU value (PWSA St. No 8, p.12, lines 13-15). As a justification for this

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1 rate design decision, PWSA states that “a flat rate or tiered rate such as used with SFR
2 properties is not equitable across such a wide range of [Non-Residential] classifications.”
3 (PWSA St. No. 8, p. 12, lines 24-25).
4

5 **Q. What is your response to PWSA’s decision to assign Residential ERUs in a tier**
6 **structure but not Non-Residential ERUs?**

7 A. I find it inconsistent that PWSA applies a value judgement to arrive at an “equitable
8 approach across various types of development” within the Residential class but not within
9 the Non-Residential classes. If a tiered ERU structure does indeed result in an “equitable
10 approach across various types of development” within the Residential class, then a tiered
11 ERU structure for Non-Residential classes may also be an equitable approach. PWSA does
12 not clearly define what it considers intra-class equity. I recommend that PWSA clearly
13 define what it considers intra-class equity and investigate whether there exists a tiered Non-
14 Residential ERU rate structure that would result in a more equitable distribution of costs
15 to non-residential customers.

16 I also find it inconsistent to assign ERUs to residential parcels using a tiered
17 structure in which some parcels are rounded down to the nearest half ERU and non-
18 residential ERUs using a structure that rounds up every parcel to a whole ERU greater than
19 its actual ERU value. I recommend PWSA adopt a more consistent approach by rounding
20 non-residential parcels up or down to the nearest half ERU. For the School District,
21 rounding ERU assignments up or down to the nearest half ERU would result in a reduction

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1 of 52 ERUs, or about 1.3%. This amounts to an annual savings of \$6,402, \$7,800, and
2 \$9,123 in years FY 2024, FY 2025, and FY 2026 respectively at PWSA’s proposed rates.

3
4 **Q. Are there any other generally accepted methods to allocate stormwater costs based**
5 **on something other than just impervious area?**

6 A. Yes. There are several stormwater rate designs that are based on calculations considering
7 both impervious and pervious areas. The Pennsylvania Environmental Council (“PEC”)
8 endeavors to protect and restore the natural and built environments through innovation,
9 collaboration, education, and advocacy. Historically, PEC has worked to bring all sides on
10 environmental issues to the table to search for common ground, and has played a significant
11 role in the development, passage and implementation of landmark environmental
12 legislation and regulation in Pennsylvania.¹⁰ The PEC’s 2017 publication titled *Stormwater*
13 *Fees: Overview of Municipal Stormwater Fee Programs* (attached hereto as School District
14 Exhibit EMC-8), a publication I find to be authoritative, describes both the Intensity of
15 Development Factor (“IDF”) and Equivalent Hydraulic Area (“EHA”) methods of
16 developing stormwater fees. The IDF and EHA approaches both consider the pervious and
17 impervious area of a parcel.

18 The IDF approach assigns costs based on the relative percentage of impervious to
19 pervious area on each parcel. For example, a parcel within PWSA’s service area with an
20 impervious area of 1,650 sq. ft. and pervious area of 3,000 sq. ft. (50% impervious) would
21 be assigned more cost than a parcel with an impervious area of 1,650 sq. ft. and pervious

¹⁰ <https://pecpa.org/home/about>

PITTSBURGH WATER AND SEWER AUTHORITY
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1 area of 6,600 sq. ft. (25% impervious). In this manner, IDF can be more equitable than an
2 ERU based rate structure.

3 The EHA approach assigns a cost to both impervious and pervious area for each
4 parcel. Therefore, there is a separate fee for impervious and pervious area. The fee for the
5 impervious area is typically much higher than the fee for the pervious area. Because each
6 parcel is assessed a fee for both impervious and pervious area, this fee structure distributes
7 costs in a manner more detailed than the ERU approach.

8 In *Stormwater Fees: Overview of Municipal Stormwater Fee Programs* (School
9 District Exhibit EMC-8), the PEC notes that the IDF and EHA approaches may be more
10 equitable than an ERU fee calculated entirely based on parcel impervious area.

11
12 **Q. Do any entities that levy stormwater fees charge fees based on gross parcel area rather**
13 **than just impervious parcel area?**

14 A. Yes. Black & Veatch Management Consulting, LLC (“Black & Veatch” or “B&V”) is a
15 wholly owned subsidiary of Black & Veatch Holding Company that focuses exclusively
16 on the utility sector. B&V provides financial management services to the water,
17 wastewater, and stormwater utility sectors. Each year, B&V conducts a Stormwater Utility
18 Survey in which it compiles data from numerous entities providing stormwater services in
19 the United States related to stormwater financing, fees, stakeholder engagement programs,
20 and other stormwater issues. I routinely consult the B&V Stormwater Utility Survey when
21 investigating how entities providing stormwater services adopt rates.

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1 Black and Veatch’s 2021 Stormwater Utility Survey (attached to this testimony as
2 School District Exhibit EMC-9) indicates that in 2020, 25% of stormwater entities that
3 responded to the survey use gross parcel (property) area as the basis for their stormwater
4 user fees (School District Exhibit EMC-9 at p. 33). While the survey does not indicate the
5 particular method used, it should be noted that both the IDF and EHA approach consider
6 gross parcel area in the assignment of stormwater costs.

7
8 **Q. How would an entity typically determine which, if any, alternative approach should**
9 **be used in billing customers and/or allocating stormwater costs?**

10 A. First, an entity would clearly define what it determines to be an equitable distribution of
11 costs between classes. Then, based on that definition, the entity would calculate stormwater
12 fees using several different approaches, thereby determining the cost assigned to each
13 customer class under each approach. The entity would then determine the most appropriate
14 and equitable approach based on its judgement and application of its definition of equity.

15
16 **Q. To your knowledge, are there any entities actually measuring or metering stormwater**
17 **runoff for the purpose of billing customers for stormwater service?**

18 A. No. The direct measurement of stormwater runoff on a parcel-by-parcel basis is generally
19 considered to be too difficult, if not impossible, to achieve in any manner that would
20 produce an acceptable level of accuracy that could be used as a basis for a stormwater fee.

21

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1 **Q. Did PWSA indicate that they investigated whether any alternative stormwater fee**
2 **approaches would result in a more equitable distribution of stormwater costs to**
3 **customers?**

4 A. No. Not only has PWSA not defined what it considers equitable, PWSA has not indicated
5 whether it considered any approach other than the Residential tiered ERU and Non-
6 Residential flat ERU method previously described in my testimony for the purposes of
7 assigning stormwater costs to customers.

8

9 **Q. Do any entities that levy stormwater fees exempt school districts from paying**
10 **stormwater fees?**

11 A. Yes. The Black & Veatch 2021 Stormwater Utility Survey indicates that 16% of survey
12 respondents exempt school districts (School District Exhibit EMC-9 at p. 40). Of those,
13 45% indicate that this exemption is based on a specific policy and not any enabling
14 legislation (Id.).

15

16 **Q. What is the rationale for a policy exempting school districts from paying stormwater**
17 **fees?**

18 A. Entities that levy fees routinely make policy decisions related to fee exemptions for certain
19 customers.

20 For example, Maryland law allows municipalities to exempt “property owned by
21 the State, a unit of State government, a county, a municipality, [or] a veterans’ organization
22 that is exempt from taxation” from stormwater fees (MD Code, Environment, § 4-

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1 202.1(e)(2)(i) (2019). Based on this allowance, the City of Baltimore adopted a policy to
2 exempt Veterans Organizations from stormwater fees.

3 The City of Takoma Park, Maryland exempts property used for public purposes and
4 owned by the state, county, or city agency as well as volunteer fire departments.

5 The City of Jacksonville, Florida exempts charitable organizations as defined by
6 the Internal Revenue Code section 501(c)(3) and recognized by the IRS as such.

7
8 **Q. Have you seen any indication in this proceeding that PWSA considered exempting**
9 **school districts from PWSA's stormwater fees?**

10 A. No. PWSA includes no discussion in its stormwater rate proposal regarding stormwater fee
11 exemptions for any customer class or specific customer.

12 In my opinion, such an exemption for school districts would not result in undue
13 discrimination in PWSA's stormwater rates because it would be a reflection of PWSA's
14 acknowledgement that reducing costs to school districts, a unique customer that has no
15 other direct counterpart as a quasi-municipal entity focused on the education of children,
16 would result in more resources being spent on the education of students, and therefore a
17 net increase in public benefit when compared to charging school districts stormwater fees.

18
19 **Q. Are there any value judgments implied by PWSA's calculation of stormwater rates?**

20 A. Yes. There are several value judgements implied by PWSA's proposed stormwater fees.

21 First, there is a comment contained within PWSA's Cost of Service and Rate
22 Design model, tab "SW>RateDesign24", cell E63 that states the value in that cell is the

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1 “Estimated credit program cost + cost of cemeteries receiving exemptions.”, which
2 indicates PWSA assigns costs related to exempting cemeteries from stormwater fees to all
3 other stormwater customers. This judgment provides some support for the School District’s
4 recommendation that it also be exempted from any stormwater fees in recognition of its
5 public education mission.

6 Second, PWSA implicitly does not charge stormwater fees to a very large
7 contributor to stormwater runoff in their service area, which is the impervious area within
8 the public right-of-way, namely City-owned streets and sidewalks. Of course, there is a
9 cost to managing the stormwater runoff resulting from the impervious area within the
10 public right-of-way. However, PWSA implicitly embeds those costs as a system-wide
11 benefit by not defining a fee related to the public right-of-way. All stormwater ratepayers
12 pay for the benefits of managing stormwater resulting from the impervious area within the
13 public right-of-way via the fees levied on them by PWSA. This implied policy is analogous
14 to municipalities not charging for Public Fire Protection within their corporate limits. In
15 many cases, municipally owned systems do not charge themselves, i.e., the owner of the
16 utility, for public fire protection, but rather build costs related to public fire protection into
17 rates charged to system users. In this manner, municipally owned water utilities recognize
18 the widespread public benefit of public fire protection and distribute those costs
19 accordingly. This rationale applies to the School District as well.

20

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1 **Q. What additional credit mechanisms should PWSA be deploying in the administration**
2 **of its stormwater charge to incentivize customers to proactively address stormwater**
3 **runoff on their properties?**

4 A. Given the substantial financial impacts stormwater fees have on its customers, like the
5 School District, who traditionally have not paid for stormwater management as a discrete
6 service offering, PWSA should leave no stone unturned in identifying simple, easy to
7 understand, and easy to implement customer credit mechanisms that can mitigate the
8 economic impact of stormwater fees. PWSA's current Stormwater Credit Fee Manual only
9 includes stormwater fee credits for Non-Residential customers that require costly
10 investments to capture and detain runoff on-site to meet or exceed certain development
11 standards.

12 PWSA should offer simple, easy to understand and implement credits specific to
13 educational customers like the School District. It is common for credits ranging from 10%
14 to 20% to be offered to public and private schools that inform students on the importance
15 of stormwater management. The following entities in the Commonwealth offer such
16 credits:

- 17 1. Capital Region Water (Harrisburg)
- 18 2. Derry Township
- 19 3. Ebensburg Borough
- 20 4. City of Lancaster
- 21 5. Mt. Lebanon Township

22

PITTSBURGH WATER AND SEWER AUTHORITY
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1 **Q. Can you contrast PWSA's stormwater service with traditional water and wastewater**
2 **utility services?**

3 A. There are a number of factual differences between traditional water/wastewater services
4 and the relatively new PWSA stormwater service.

5 First, customers do not request and apply for stormwater service. No meters or other
6 equipment measures the amount of stormwater service provided by PWSA and PWSA's
7 stormwater infrastructure is not designed, constructed, or utilized based on customer class
8 differences such as the relative size of the facilities used for water service.

9 Second, in contrast to water and wastewater service, individual customer factors
10 that influence to what extent an individual customer could be said to cause stormwater
11 runoff such as meter size, average and peak demand, concentration of runoff pollutant
12 loadings, are neither under the control of or measurable by PWSA or its customers. It is
13 therefore not possible to calculate individual customer contribution to the costs of
14 stormwater mitigation, and benefit from stormwater facility investment. Therefore, the
15 traditional cost allocation process of Functionalization, Allocation, and Distribution
16 presented in publications such as AWWA Manual M1 – *Principles of Water Rates, Fees*
17 *and Charges* and WEF Manual of Practice 27 - *Financing and Charges for Wastewater*
18 *Systems* is not applicable when determining the allocation of stormwater system costs to
19 customers. However, the process of allocating certain other stormwater program costs,
20 such as those discussed previously in my testimony, are able to be reasonably allocated to
21 those customer classes that cause them, such as Bad Debt and the Cost of Credits and
22 Incentives.

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1 Third, while it is simple to identify the benefits of stormwater infrastructure for a
2 large area such as a municipality in terms of improvements in water quality and reductions
3 in flooding, connecting the costs and benefits of a stormwater system to individual
4 residential and non-residential customers is not possible with the precision one can apply
5 to water and wastewater service.

6 **V. CONCLUSION**

7 **Q. Please summarize your conclusions and recommendations.**

8 A. My conclusions based on my understanding of PWSA's proposed stormwater fees are as
9 follows:

- 10 1. There is a legal question in this case as to whether PWSA's stormwater charge
11 is a lawful fee or an unlawful tax that cannot be imposed on tax-exempt entities
12 such as the School District.
- 13 2. PWSA's proposed stormwater fees, including the addition of the CAC in FY
14 2025 and FY 2026, would result in an increase in bills of 29.1% in FY 2024,
15 21.8% in FY 2025, and 17.0% in FY 2026 for all stormwater ratepayers. (HJS-
16 13SW). These are substantial increases which, if billed to the School District
17 and not otherwise eliminated, would require the School District to divert funds
18 from other educational and operational imperatives as noted by School District
19 Witness McNamara.
- 20 3. PWSA did not investigate all available programs and approaches that could
21 reduce the cost of stormwater for its ratepayers, such as a CBP3, to reduce the
22 cost of planned stormwater capital improvements.

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1 4. PWSA did not consider a reasonable and justifiable exemption for school
2 districts when developing its stormwater rates.

3 5. PWSA did not consider adjusting stormwater rates to reflect reasonable
4 differences in costs incurred by customer classes.

5 6. PWSA distributed all adjustments to its cost allocation for stormwater, except
6 Gradualism, based on the unadjusted cost of service result.

7 7. PWSA did not adjust the charge per ERU on a class basis to align each class's
8 revenue with the adjusted cost developed for each class.

9 8. PWSA does not define "equity" in regard to both inter and intra-class cost
10 allocation.

11 9. PWSA uses a tiered ERU structure to assign ERUs to residential customers and
12 a flat ERU structure to non-residential customers, without a clear explanation
13 for this inconsistent treatment.

14 10. PWSA did not consider alternative stormwater fee methodologies that industry
15 experts have identified as potentially being more equitable than PWSA's
16 chosen ERU based design.

17 My recommendations are based on my understanding of PWSA's proposed stormwater
18 fees and my conclusions. Assuming the legal issue identified earlier is not resolved in a
19 manner that effectively eliminates any obligation of the School District to pay PWSA's
20 stormwater fees, I recommend that PWSA:

PITTSBURGH WATER AND SEWER AUTHORITY
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- 1 1. Establish an exemption from payment of any stormwater fees for the School
2 District given its unique educational and public/governmental status/mission in
3 PWSA's service territory.
- 4 2. Investigate and implement all available programs and approaches that could
5 reduce the cost of stormwater for its ratepayers.
- 6 3. Consider developing a reasonable and justifiable policy to exempt school
7 districts from stormwater fees.
- 8 4. Adjust PWSA's stormwater rates to reflect reasonable differences in costs
9 incurred by customer classes as described in my testimony as follows:
 - 10 a. Allocate costs related to Bad Debt Expense based on Class
11 Contribution.
 - 12 b. Allocate costs related to PWSA's BDP 100% to the Residential
13 Class.
 - 14 c. Adjust Residential and Non-Residential fees per ERU to reflect the
15 results of the above mentioned cost-of-service adjustments.
 - 16 d. Levy the proposed FY 2025 and FY 2026 CAC only on Residential
17 customers.
- 18 5. Define "equity" in regard to both inter and intra-class cost allocation.
- 19 6. Investigate whether a tiered ERU structure can be developed to assign ERUs to
20 non-residential customers that more equitably allocates costs to non-residential
21 customers.

PITTSBURGH WATER AND SEWER AUTHORITY
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- 1 7. Consider alternative stormwater fee methodologies that industry experts have
2 identified as potentially being more equitable than PWSA's chosen ERU based
3 design.

4
5 **Q. What are the impacts of your recommendations on stormwater rates and the**
6 **allocation of PWSA's proposed revenue requirements?**

7 A. The estimated impacts to rates of my recommendation regarding the reduction in the Non-
8 residential stormwater fees are as follows:

- 9 1. Stormwater fees per ERU for Residential customers would go from \$10.26 to
10 \$10.69 in 2024, from \$12.50 to \$13.64 in 2025 and from \$14.62 to \$15.96 in
11 2026.
12 2. Stormwater fees per ERU for Non-residential customers would go from \$10.26
13 to \$10.04 in 2024, from \$12.50 to \$11.88 in 2025 and from \$14.62 to \$13.89 in
14 2026.

15 The estimated impacts to class revenues of my recommendation regarding the reduction in
16 the Non-residential stormwater fees are as follows:

- 17 3. Stormwater revenues from Residential customers would go from \$10.95 million
18 to \$11.71 million in 2024, from \$13.39 million to \$13.95 million in 2025 and
19 from \$15.65 million to \$16.32 million in 2026.
20 4. Stormwater revenues from Non-residential customers would go from \$18.88
21 million to \$18.11 million in 2024, from \$21.91 million to \$21.43 million in
22 2025 and from \$25.61 million to \$25.07 million in 2026.

PITTSBURGH WATER AND SEWER AUTHORITY
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1 As for my other recommendations, PWSA should be required to consider them as
2 noted and report quarterly over the period the rates set in this case are in effect to the PUC
3 and the parties to this proceeding the results of their good faith efforts to reduce costs to
4 non-residential stormwater customers, the parties should be permitted to respond to such
5 quarterly reports and all of the reports and responses should be addressed by the PUC in
6 PWSA's next base rate proceeding.

7

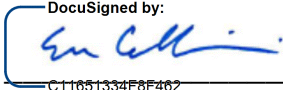
8 **Q. Does this conclude your direct testimony?**

9 A. Yes, it does. However, I reserve the right to submit additional testimony if it is necessary
10 or appropriate to do so.

VERIFICATION

I, Eric M. Callocchia, Partner, NewGen Strategies and Solutions, LLC., have read the foregoing document, Direct Testimony of Eric M. Callocchia, and verify that the facts set forth therein are true and correct to the best of my knowledge, information and belief.

I understand that any false statements made herein are subject to the penalties of 18 Pa. C.S.A. § 4904, relating to unsworn falsification to authorities.

By: 
C11651334F8F462...

Name: Eric M. Callocchia

DATE: 8/8/2023

School District Exhibit EMC-1



Eric CALLOCCHIA

PARTNER

Mr. Eric Callocchia has over eleven years of utility cost of service and financial consulting experience. His expertise involves a broad range of industry issues, including revenue stability, customer affordability, cost of service rate making, and public engagement and education. His expertise in utility cost of service is rooted in his exceptional analytic skills and broad experience, which ensure that the recommendations he develops are understandable and withstand legal scrutiny.

Mr. Callocchia is a contributing author to the most recent edition of the Water Environment Federation's Manual of Practice 27 – Financing and Charges for Wastewater Systems. He is an active member of the American Water Works Association (AWWA) Rates and Charges Committee and a contributing author to the upcoming eighth edition of AWWA's Manual M1 – Principles of Water Rates, Fees, and Charges.

CONTACT

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EDUCATION

Bachelor of Arts in Economics and
Mathematics, Johns Hopkins University

PROFESSIONAL REGISTRATIONS/ CERTIFICATIONS/ AWARDS

American Water Works Association –
Active member of the AWWA Rates and
Charges Committee and Cost of Service
Subcommittee

Government Finance Officers Association
Water Environment Federation

KEY EXPERTISE

Cash Flow Sensitivity Analysis
Econometrics
Economic Impact Analysis
Financial Modeling
Public Finance
Utility Management
Utility Rate and Fee Design
Water and Wastewater Cost of Service
Analyses

> RELEVANT EXPERIENCE

Water/Sewer/Stormwater Rate Studies

Mr. Callocchia provides water, wastewater, and stormwater industry expertise and policy guidance to NewGen's clients. His rate study approach involves the development of customized financial models that focus on the policy issues, cash needs, revenue requirements, and key performance indicators of each client. His models equip clients with the necessary information to make critical capital financing decisions and rate adjustments to fully finance their system's operation, asset maintenance, and replacement needs while maintaining fund balance policies based on industry best practices. The models also have the capability of scenario analysis and can be incorporated with operating and capital expense and revenue projects. Mr. Callocchia develops and recommends alternative rate structures and assists with implementing phased-in rate plans that address client issues and maintain the financial health of utility funds. Mr. Callocchia also provides expert guidance on managing water, sewer, and stormwater utilities, including developing policies and procedures related to customer service, organizational communication, and public outreach.

Clients that Mr. Callocchia has provided these services to include:

- Albemarle County, VA
- Anne Arundel County, MD
- Bloomington and Normal Water Reclamation District, IL
- City of Annapolis, MD
- City of Brea, CA
- City of Charlottesville, VA
- City of Concord, CA
- City of Dover, DE
- City of Falls Church, VA
- City of Frederick, MD
- City of Fredericksburg, VA
- City of Hagerstown, MD
- City of Hampton, VA
- City of Naperville, IL
- City of North Kingstown, RI
- City of Park Ridge, IL
- City of Portsmouth, VA
- City of Prospect Heights, IL
- City of Richmond, VA
- City of Rockville, MD

Eric CALLOCCHIA

PARTNER

- City of Salisbury, MD
- City of Westminster, MD
- Coachella Valley Water District, CA
- Delaware County Regional Water Quality Control Authority (DELCROA), PA
- Frederick County, MD
- Jericho Water District, NY
- Jurupa Community Services District, CA
- King George County Service Authority, VA
- Loudoun Water, VA
- Rivanna Water and Sewer Authority, VA
- Somerset County Sanitary District, MD
- Town of Barnstable, MA
- Town of Colonial Beach, VA
- Township of East Brunswick, NJ
- Town of Elkton, MD
- Town of Fairfield WPCA, CT
- Town of Herndon, VA
- Town of Lovettsville, VA
- Town of Middleburg, VA
- Town of Pound, VA
- Town of Purcellville, VA
- Town of Wallingford, CT
- Town of Vienna, VA
- Village of Addison, IL
- Village of Fox Lake, IL
- Village of Libertyville, IL
- Village of Lindenhurst, IL
- Village of Lombard, IL
- Village of Orland Park, IL
- Village of Westchester, IL
- Washington Suburban Sanitary Commission, MD
- Wise County Public Service Authority, VA

Stormwater Feasibility and Fee Studies

Libertyville, IL

In 2019, the Village engaged NewGen to complete a feasibility study to project the costs of implementing a Master Stormwater Management Plan (MSM) and to determine the appropriate methodology to charge Village citizens the fees for the MSM planned projects. The Village also tasked NewGen with developing credit policies and manuals, appeal procedures, and an appropriate Stormwater Ordinance. Mr. Callocchia developed a financial model that projected the twenty-year cost of the Village's MSM and the various impervious area-based cost allocation methods the Village could adopt as a funding mechanism. Mr. Callocchia's feasibility study allowed Village staff and elected officials to evaluate the various stormwater funding alternatives and implement industry best practices for the administration of its stormwater management program. Mr. Callocchia finalized the impervious area and utility billing databases and coordinated with Village staff to develop an interactive online fee lookup tool that allowed Village citizens to see their potential stormwater fee before it became effective. Mr. Callocchia also worked with Village staff to conduct two Town Hall style public information sessions before the fee became effective.

Westminster, MD

The City of Westminster serves as the County Seat. It is in the center of Carroll County, conveniently located near Maryland's largest cities, two state capitals, Annapolis and Harrisburg, and the nation's Capital. The City had historically faced challenges when funding stormwater operating and capital costs. In the past, the City had not accounted in a detailed fashion for the actual stormwater management costs, with most of the costs absorbed by the City's streets and road maintenance accounted for in the General Fund. The City engaged NewGen in 2019 to complete a feasibility study with several tasks:

- Identify and isolate the actual cost of stormwater maintenance.
- Develop and recommend a ten-year stormwater CIP given the City's asset listing and future stormwater needs.
- Recommend policies regarding stormwater fees and credits.
- Engage in a public information campaign to educate the City's citizens on the need for additional resources for stormwater management.
- Assist in implementing a Stormwater Utility that properly accounts for the City's stormwater costs.

Mr. Callocchia developed a financial model detailing the City's stormwater costs and helped the City implement a stormwater fee tied to the account information of City sewer users.

Eric **CALLOCCHIA**

PARTNER

Frederick County, MD

Frederick County, Maryland, was anticipating the issuance of a Municipal Separate Storm Sewer System (MS4) Permit from the Maryland Department of the Environment (MDE) that would place a particular cost burden on the County's 48,000 stormwater fee payers. Mr. Callocchia developed a financial model that determined the Maximum Extent Practicable (MEP) level the County could reasonably fund given current funding levels, median household income, and the County's procurement limitations. Mr. Callocchia's financial model allowed for a sensitivity analysis to determine the increase in funding that would be possible given several factors. The County used Mr. Callocchia's analysis to appeal the permit requirements and reduce the financial impact on the County's customers by reducing the mandated spending related to the permit and lengthening the required implementation timeframe.

Geneva, IL

The City of Geneva was actively involved in developing the Kane county Stormwater Management Ordinance dating back to 1998. Geneva became a "certified community" in 2001 with the adoption of the final version of the City's stormwater ordinance. The Lake County Stormwater Management Commission provided a template that was the basis of the City's Stormwater Management Program Plan (SMPP). The plan's purpose was to meet the minimum standards required by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) Phase II program.

Mr. Callocchia led a team that conducted a financial analysis as a part of a Citywide Watershed Study. The City supported the drainage and stormwater-related costs through its General Fund. His role in the Watershed Study was to support and participate in the initial City staff meeting to establish a City Vision document. Mr. Callocchia also identified current grants and funding sources and developed funding strategies to facilitate the City's Public Works Department's capital and operational needs related to their drainage infrastructure responsibilities. He recommended funding gap strategies associated with an annual program and budget and participated in and supported a City Council strategic planning workshop topic related to the Citywide Stormwater Report and financial perspectives.

Water and Sewer Revenue Bond Feasibility Study

Mr. Callocchia developed a water and sewer rate model for the City of Annapolis, Maryland, that projected various debt scenarios, including bond coverage calculations and cash-on-hand target projections. The City was able to generate ratings of AA-, Aa3, and AA- from the three major rating agencies and issue the revenue bonds in the amount of \$30,755,000 on schedule, thanks to the feasibility report generated by Mr. Callocchia's team.

Litigation Support

Utility Billing Dispute

Silgan Plastics is the leading manufacturer of metal containers in North America and Europe and the largest manufacturer of metal food containers in North America, with a volume of approximately half the market share in the United States of America. They are also a leading worldwide manufacturer of metal, composite and plastic closures for food and beverage products. Mr. Callocchia led a team to evaluate the utility rates charges to a selection of Silgan's manufacturing plants and assist Silgan in settling rate disputes with local utility providers. Mr. Callocchia's detailed evaluations and expert analysis resulted in a settlement agreement for more than \$500,000 above the amount previously offered to Silgan before Mr. Callocchia's involvement.

Eric CALLOCCHIA

PARTNER

Water Rate Litigation

The San Diego County Water Authority (SDCWA) and The Metropolitan Water District of California (MWD) were engaged in litigation regarding the water rates charged to SDCWA by MWD. Mr. Callocchia developed a report on MWD's rate setting methodology and how it relates to the principles and industry standard practices detailed in the American Water Works Association (AWWA) Manual M1 - Principles of Water Rates, Fees, and Charges. Mr. Callocchia's evaluation assisted SDCWA in its efforts to show the illegality of MWD's rates based on their non-conformity to both AWWA standards and California Law (Proposition 26). Mr. Callocchia's work involved cost-of-service analysis and knowledgeable explanation of industry standards to the Superior Courts of California. After Mr. Callocchia's report, a judge ruled in favor of the Water Authority, saying MWD's rates for 2011-2014 were illegal, and awarded SDCWA \$235 million. Upon appeal, the appellate court ruled in favor of MWD on one of twelve issues. The California Supreme Court denied a petition by SDCWA to review the appellate court ruling. The results of the dispute in which Mr. Callocchia was involved as an expert were:

- MWD must pay the Water Authority approximately \$51 million for the so-called "Water Stewardship" charges that MWD added to the transportation rates it charged the Water Authority from 2011-2014. The decision prevents MWD from imposing more than \$20 million in illegal charges annually in the future. By 2047, those unlawful charges would have amounted to approximately \$1.1 billion.
- MWD unlawfully under-calculated the Water Authority's statutory water right to MWD's water supply.
- A contract clause MWD used to disqualify local water supply projects in San Diego County from receiving funding from MWD was unconstitutional.
- Engage in a public information campaign to educate the City's citizens on the need for additional resources for stormwater management.
- Assist in implementing a Stormwater Utility that properly accounts for the City's stormwater costs.

Benefit Assessment Dispute

The City of Westminster, Maryland, was sued by a new customer who alleged that the methodology used by the City to calculate its water and sewer benefit assessments, commonly known in the utility industry as System Development Charges, was unlawful. Mr. Callocchia served as an expert witness detailing the industry standard methodologies used to calculate these fees and provided the Court with the rationale and basis for the City's fees. The Court ultimately found that the City's fees were not illegally calculated based on the City's testimony, which included Mr. Callocchia's expert witness statements.

> PRESENTATIONS AND PUBLICATIONS

WEF Manual 27, Financing and Charges for Wastewater Systems, Contributing Author

Setting Water and Sewer Rates in New York State While Addressing the Challenges of 2020

New York State GFOA 2020 Northeast Holiday Seminar, 2020

Setting Water and Sewer Rates

New York State GFOA 38th Annual Conference, 2017

A World without Crystal Balls: Attempting to Forecast Operating Expenses

Tri-Association Conference, 2016

Enhanced General Fund Reimbursement by Enterprise Funds


Brown Edwards Conference, 2014

School District Exhibit EMC-2

COMMUNITY SOLUTIONS FOR STORMWATER MANAGEMENT

A Guide for Voluntary Long-Term Planning





The purpose of this guide is to assist EPA, states and local governments in developing new or improving existing long-term stormwater plans that inform stormwater management implemented by communities on the ground. The document describes how to develop a comprehensive long-term community stormwater plan that integrates stormwater management with communities' broader plans for economic development, infrastructure investment and environmental compliance. Through this approach, communities can prioritize actions related to stormwater management as part of capital improvement plans, integrated plans, master plans or other planning efforts. Early and effective stormwater planning and management by communities as they develop will provide significant long-term cost savings while supporting resilience, economic growth and quality of life.

EPA considers this guide a draft that will be supplemented with an integrated online tool to assist communities in implementing the planning process, piloted through community-based technical assistance efforts, and updated over time with feedback from users.



Photography courtesy of Alisha Goldstein

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I. INTRODUCTION

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Stormwater management is a major and growing challenge nationwide, with stormwater pollution, flooding and other impacts imposing serious impacts on water quality, public health and local economies. EPA recognizes the technical and financial challenges that communities face in appropriately addressing stormwater pollution. At the same time, managing stormwater over the long term can create opportunities for communities to rediscover rainwater as a resource, invest in resilient infrastructure, revitalize urban waterways and introduce green space that makes communities more livable. The agency is introducing this voluntary guide to lay out a path forward that any community¹ can use to facilitate cost-effective, sustainable and holistic solutions that protect human health and manage stormwater as a resource. This guide offers a comprehensive approach for communities looking to achieve multiple community goals simultaneously. The agency understands that effectively managing stormwater will require long-term investments. This guide provides EPA's support for comprehensive stormwater planning for investments spanning many years. Communities using this long-term approach have the potential to identify new and broader financial resources and to get out in front of future regulatory commitments through forward-looking planning and investments. Planning and investing in this way can help to proactively address the costly and difficult water pollution problem and public health concern that urban stormwater continues to pose.

In the face of climate change, it is increasingly important that communities reevaluate how best to make use of their water resources and treat rain and stormwater as the resource they are. Communities can no longer afford to allow stormwater laden with trash, metals and pollutants to contaminate local waters. A new generation of management practices has emerged to effectively manage stormwater while simultaneously building vibrant, attractive communities. Green infrastructure (e.g., green roofs, permeable pavement, bioswales, rainwater harvesting, green streets, stormwater parks, conservation areas) can effectively address stormwater pollution and mitigate flooding, while at the same time providing open space for recreation, habitat, improved air quality, climate resiliency and aesthetic benefits. When used in conjunction with gray infrastructure, these approaches, can create an effective stormwater infrastructure network. These innovative practices also help to revitalize community economies, particularly for communities in need, by supporting sustainable local jobs, improving community assets and reducing blight.

As communities grow and develop their local economies, they're looking for sustainable and effective approaches to reduce existing and emerging sources of stormwater pollution while balancing other community priorities. Sound investments in systems to manage stormwater can complement community development initiatives and promote economic vitality.

¹ A community can include entities like cities, towns, townships, boroughs, transportation departments, universities and counties.

Many communities are rediscovering that stormwater is a valuable freshwater resource to combat drought conditions, while others are using green infrastructure to reduce localized flooding events. Cities and towns across the nation are evaluating and adopting integrated approaches to managing stormwater in order to reduce water and wastewater treatment costs, provide adequate water supplies and protect local waterbodies.

Across the country, forward-thinking communities are proving that revitalized water resources and smart green infrastructure solutions can be central drivers of economic development, community vitality and resiliency. Every community is different, but all share the ultimate goal of having clean water that is safe for people to use and enjoy. Developing a long-term plan for stormwater management can help communities find new opportunities for improvements and address these challenges. While identifying planning and management approaches that are economically and environmentally effective is a significant hurdle for many communities, well thought-out plans can help to guide smart policies and investments. These plans also can help open the door to potential new sources of funding by strategically identifying long-term community goals and better aligning activities with a comprehensive water resource management focus.



II. CONCEPTS GUIDING SMART INFRASTRUCTURE INVESTMENTS

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EPA recognizes that each community has a set of unique circumstances that influence the planning process and the community's ability to finance and implement appropriate solutions for long-term stormwater management. Differences in regulatory status, governance, financial status, community size, geography and technical and programmatic expertise require a process that can be tailored to the needs of individual communities.

Any community may develop a long-term stormwater plan. Because of the multiple benefits of long-term stormwater plans, especially the resiliency-focused benefits of reduced flooding and augmentation of local water supplies, communities with unregulated MS4s may want to consider developing these plans to make proactive infrastructure decisions.

The approaches in this guide are built on a foundation of input from sustained engagement with key partners including states, communities, business/industry groups, academia and nongovernmental organizations. This foundation, comprised of the following concepts, undergirds the overall process:

1 By adopting a long-term approach to planning, communities can provide for plan implementation that allows for the integration of selected projects within other community development plans such as capital improvement plans and master plans.

2 Managing stormwater close to where precipitation falls, such as with retention or a similar hydrologically focused approach, has been shown to be an effective stormwater control method.

3 Innovative technologies, including green infrastructure, are important tools that can generate many benefits ranging from improved air and water quality to cost savings to more community amenities. They also may be fundamental aspects of communities' plans for integrated solutions.

4 The voluntary approach to long-term planning described in this guide can be a useful part of the larger effort to comply with any Clean Water Act (CWA) requirements (e.g., over multiple permit cycles). For example, a regulated municipal separate storm sewer system (MS4) that has developed an initial plan may work with EPA and/or the state to consider how the plan can help satisfy the requirements of their permits.^{2,3}

² EPA recognizes that states, as our partners in the implementation of the CWA stormwater management programs, have the lead for the day-to-day activities in approved NPDES states.

³ EPA understands that communities need sufficient time to implement flexible, community-integrated approaches within effective and comprehensive long-term stormwater plans.

III. COMPONENTS OF A LONG-TERM STORMWATER PLAN

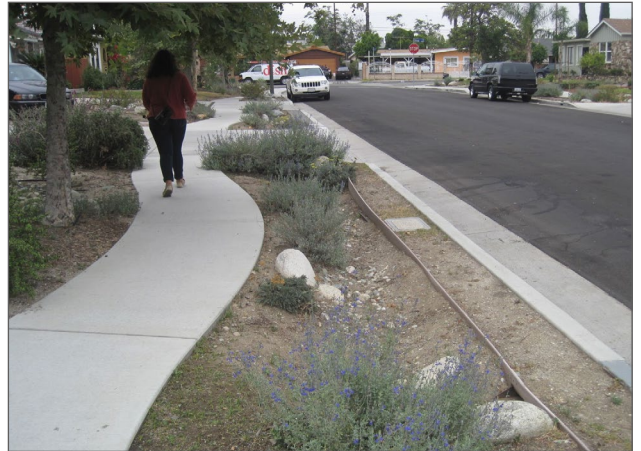
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This section sets forth the key steps in the development of a long-term plan, including elements to include in the plan and related questions to explore for laying the groundwork of the planning process.

For those communities that are regulated under the NPDES program, stormwater discharge requirements for regulated MS4s are included in permits that are effective for a maximum of five years. Regulated communities should consider how long-term stormwater planning can assist them in meeting specific permit requirements.

Long-term stormwater plans may address source water protection efforts and reduce nonpoint source pollutants through proposed trading approaches or other mechanisms. These plans may also address stormwater contributions causing localized flooding and sewer overflows.

When developing the plan, a community should determine and define the scope of the integration effort, ensure the active participation of entities that are needed to implement the plan, and identify the role each entity will have in implementing the plan.



Long-term stormwater planning does not remove obligations to comply with the CWA, nor does it change existing regulatory or permitting standards or requirements. Rather this approach recognizes the flexibilities in the CWA for the appropriate sequencing and scheduling of work to meet the requirements of the Act and implementing regulations.



STEP 1 - ASSESS WHERE YOU ARE NOW

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ELEMENT 1

Identify the goals of the long-term stormwater planning effort, incorporating existing community objectives, such as the following:

- Stormwater runoff volume reduction, increasing infiltration, groundwater recharge and rainwater harvesting.
- Water quality.
- Capital improvements (including transportation, complete streets and public schools).
- Flooding reduction.
- Resiliency.
- Economic development to attract resources to the community.
- Social amenities for health or wellbeing of the community (including parks, urban gardens, green space, public art space, bike lanes and other transportation).
- Open space preservation.
- Natural channel, watershed, shoreline and/or natural floodplain functions protection.



STEP 1 - ASSESS WHERE YOU ARE NOW

DRAFT

ELEMENT 2

Describe any applicable water quality and human health issues to be addressed in the plan, including the following:

- Identification and characterization of the chemical, physical and biological quality of the waterbodies, including unimpaired waters, impaired waters, water quality threats and, where available, applicable wasteload allocations (WLAs) of an approved total maximum daily load (TMDL) or an equivalent analysis.
- An assessment of existing and long-term stormwater management challenges in meeting CWA requirements and projected future CWA requirements (e.g., water quality-based requirements based on a new TMDL).
- Identification and characterization of human health risks.
- Identification of sensitive areas and environmental justice concerns.
- Linkages to goals in local planning documents.

GROUNDWORK QUESTIONS

Are there applicable state requirements and planning efforts and can they incorporate state input on priority setting and other key implementation issues?

For regulated MS4s, what are water quality standards and other provisions of the CWA including existing flexibilities in the CWA and its implementing regulations, policies and guidance to consider?

How is the plan consistent with, and designed to meet the objectives of, any applicable total maximum daily loads (TMDLs)?



STEP 1 - ASSESS WHERE YOU ARE NOW

DRAFT

ELEMENT 3

Describe existing stormwater systems and their performance, including the following:

- Identification of communities and utilities that are participating in the planning effort and a characterization of their systems.
- Characterization of flows into and from the systems.
- Consideration of how current system performance may be impacted by changes in local climate (e.g., changes in precipitation and temperature).
- Assessment of new development, redevelopment and areas without adequate stormwater management that could use improvement.



STEP 2 - ANALYZE OPPORTUNITIES

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ELEMENT 4

Institute and document how open communication with relevant stakeholders will be maintained in order to facilitate full consideration of all viewpoints in the planning and implementation of the plan. This process can be part of other on-going public involvement efforts that consider the following:

- Identify target audience groups and potential partners like watershed, industry, development and community groups (particularly those related to identified goals).
- Create opportunities for meaningful input during the identification, evaluation and selection of alternatives and other appropriate aspects of plan development.
- Make new information available to the public and any proposed modifications to the plan.
- Evaluate the implementation of the approach for communities with green infrastructure requirements in their permits or an enforcement order.

GROUNDWORK QUESTIONS

What are the community impacts and will there be disproportionate burdens resulting from current approaches as well as proposed options?



STEP 2 - ANALYZE OPPORTUNITIES

DRAFT

ELEMENT 5

Identify, evaluate and select stormwater management alternatives based on identified goals and objectives that address the following:

- Sustainable infrastructure planning approaches, such as asset management, to assist in tracking the necessary information for prioritizing investments in and renewal of major stormwater systems.
- A systematic process to consider green infrastructure and other innovative measures where they provide more sustainable solutions.
- Criteria to be used for comparing alternative projects, including those related to sustainability, and a process used for comparing alternatives and selecting priorities.
- Potential and planned non-structural and structural investments.
- Rate and document all options including: cost estimates, potential disproportionate burdens on portions of the community, projected pollutant reductions, benefits of receiving waters and other environmental and public health benefits associated with each option.
- A description of the relative priorities and optimization of the projects selected including a description of how the proposed priorities address adverse impacts on public health and water quality.

GROUNDWORK QUESTIONS

Where can effective watershed approaches and sustainable technologies, particularly green infrastructure be incorporated for stormwater control, resiliency and hazard mitigation?

Are there approaches to control stormwater in the long term from new development and redevelopment in the early planning phases and after construction ends to minimize stormwater runoff and potential sources of stormwater pollution?

Can existing stormwater discharges from already developed areas be reduced through retrofits and/or redevelopment on public and/or private land?

What projects are part of planned public works investments? Can they catalyze retrofits, promote comprehensive community-focused outcomes that address human health and water quality, and capitalize on cost efficiencies?



STEP 3 - MOVE TOWARD IMPLEMENTATION

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ELEMENT 6

Document a process for proposing investments and implementation schedules. Include consideration of the following:

- Stakeholder groups – other communities, local groups, states, federal agencies, planning organizations and universities – in order to coordinate resources and actions.
- Life-cycle costs, including capital and operation and maintenance investments that help implement the plan.
- Proposed implementation schedules and, if applicable, alignment of implementation schedules with other existing efforts.
- A financial strategy for each entity participating in the plan to ensure investments are sufficiently funded, operated, maintained and replaced over time.

GROUNDWORK QUESTIONS

How do we provide appropriate opportunity for meaningful stakeholder input when proposing investments and implementation schedules?

Is there a financial strategy in place, including appropriate fee structures, to support capital investments and long-term operations and maintenance?



STEP 3 - MOVE TOWARD IMPLEMENTATION

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ELEMENT 7

Document a process for evaluating the performance/success of the plan's projects. Evaluate projects as they are being implemented, which may involve evaluation of monitoring data, information developed by pilot studies and other studies and other relevant information, including the following:

- Propose performance metrics: Track metrics using modeling and monitoring results and costs to measure the success of human health and water quality objectives and the effectiveness of controls.
- Evaluate the performance of site-specific and large-scale green infrastructure and other innovative measures to inform adaptive design and management. Include identification of barriers to full implementation.
- Track cost savings gained due to long-term planning efforts.

IV. THE PLAN IS FINISHED - WHAT'S NEXT?

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BUILD IT

Identify, evaluate and select new projects or modifications to ongoing or planned projects and implementation schedules:

- In situations where a community is seeking modification to a plan, or to the permit that is requiring implementation of the plan, the community should collect the appropriate information to support the modification and should be consistent with Elements 1 – 7 discussed above.
- This long-term stormwater planning approach can also inform the recently embraced integrated planning approach to municipal wastewater and stormwater management. Integrated planning encourages communities to take a comprehensive planning approach to clean water management by making strategic, long-term investments in their wastewater and stormwater systems.
- These planning approaches will assist communities on their critical paths to achieving the human health and water quality objectives of the CWA by identifying efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs, including how best to make capital investments.

INCORPORATE IT INTO AN NPDES PERMIT

All or part of a long-term stormwater plan can inform an NPDES permit as appropriate. Permit writers can use the proposed implementation schedules included in the plan to develop clear, specific and measurable permit requirements that are consistent with applicable regulations. Identifying milestones of a long-term stormwater plan in NPDES permits can support the community's goals while simultaneously providing regulatory predictability.

Limitations and considerations for incorporating long-term stormwater plans into permits include:

- Specific activities to be implemented during the permit term.
- Measurable goals and metrics for tracking progress with the plan.
- Reopener provisions in permits consistent with section 122.62(a) may better facilitate adaptive management approaches.
- Securing funding.
- Green infrastructure approaches at site-specific and larger scales and related innovative practices that provide more sustainable solutions by managing stormwater as a resource should be considered and incorporated, where appropriate, where they provide more sustainable solutions for municipal wet weather control.
- Appropriate water quality trading may be reflected in NPDES permits.
- Annual reporting requirements.

COMMUNICATE IT

Communities may want to coordinate with their state and federal partners when getting ready to implement their long-term approaches. For example, some of these other partners may be able to help a community determine if it's eligible for certain funding to complete projects or parts of projects.

EPA recognizes the importance of and encourages early coordination between NPDES states and EPA on key implementation issues that may arise in individual plans. This will ensure that plans will not need to be revised in order for them to be implemented.

REFINE IT

Establish a process for periodically reviewing the plan to consider the results of performance metrics. Continue to identify opportunities to integrate with new community goals, public works projects and integrated planning efforts.

V. CONCLUSION

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EPA considers this guide a draft and encourages feedback. EPA will also provide an online toolkit to assist communities in implementing the planning process, piloted through community-based technical assistance efforts, and updated over time with feedback from users. For additional information go to: www.epa.gov/npdes/stormwater-planning

Long-term stormwater plans can support community efforts to prioritize and implement effective stormwater management practices. Integrating these plans with broader community goals such as economic development, infrastructure investment and environmental compliance leverages the planning effort to support resilience, economic growth and quality of life.

With this guide, any community can lay out a path forward to cost-effective, sustainable and comprehensive solutions that protect human health and manage stormwater as a resource.



School District Exhibit EMC-3

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of The School District of Pittsburgh (“_”), Set I

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: School District -I-7 Referring to the PWSA FPFTY 2024 COS and Rate Design Model, “SW>RateDesign24”, lines 61-64: Please explain in detail why Bad Debt Expense, Cost of Credit and Incentives, and Cost of Bill Discount Foregone Revenue are allocated to customer classes based on the proportion of Unadjusted COS and not Class Contribution.

Response:

While it is true that the “SW>RateDesign24” sheet and Schedule HJS-5SW show Bad Debt Expense, Cost of Credit and Incentives, and Cost of Bill Discount Foregone Revenue being allocated to customer classes based on Unadjusted COS, it should be recognized that that allocation has no bearing on the calculated rate because the stormwater rate is determined by dividing Net Costs to Recover for Ratemaking by Stormwater ERUs as shown on Schedule HJS-6SW. As such, allocating these costs based on Class Contribution would have no impact on the calculated stormwater rate.

Response provided by: Harold J Smith

Date response provided: August 1, 2023

School District Exhibit EMC-4

COS Adjustments		Allocation Method	Residential	Residential - CAP	Commercial	Industrial	Health or Education	Municipal	Other	Total
<u>Adjustments to Cost of Service</u>										
Gradualism - Between WW/Storm	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Add: Bad Debt Expense	Class Contibution		85.2%		12.7%	0.2%	1.9%	0.1%		100.0%
Add: Bad Debt Expense (SWO)	Class Contibution (Weighted by SWO)		3.2%		83.0%	1.2%	12.1%	0.5%		100.0%
Add: Cost of Credits and Incentives	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
BDP Forgone Revenue	100% Residential		100.0%							100.0%
Customer Assistance Charge	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
PENNVEST Surcharge	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Gradualism - Between Classes	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Cost of Service by Class										
Allocated Cost of Service (Unadjusted)			\$ 14,343,579	\$ 1,220,834	\$ 16,299,284	\$ 238,952	\$ 1,832,437	\$ 951,540	\$ 4,444,943	\$ 39,331,569
Exclude: Bad Debt & Credit Program			(624,933)	(53,190)	(710,141)	(10,411)	(79,837)	(41,457)	(193,661)	(1,713,631)
Net Cost of Service (1)			\$ 13,718,646	\$ 1,167,644	\$ 15,589,143	\$ 228,541	\$ 1,752,600	\$ 910,082	\$ 4,251,282	\$ 37,617,938
% of COS			36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
<u>Adjustments to Cost of Service</u>										
Gradualism - Between WW/Storm	\$	(9,500,000)	\$ (3,464,494)	\$ (294,876)	\$ (3,936,868)	\$ (57,715)	\$ (442,600)	\$ (229,831)	\$ (1,073,615)	\$ (9,500,000)
Add: Bad Debt Expense (NSWO)		573,351	488,389	-	72,784	1,065	10,639	474	-	573,351
Add: Bad Debt Expense (SWO)		959,791	30,328	-	796,235	11,656	116,382	5,190	-	959,791
Add: Cost of Credits and Incentives		180,489	65,821	5,602	74,796	1,097	8,409	4,367	20,397	180,489
BDP Forgone Revenue		808,292	808,292	(808,292)	-	-	-	-	-	-
Total: Adjusted Cost of Service			\$ 11,646,981	\$ 70,079	\$12,596,090	\$ 184,643	\$ 1,445,430	\$ 690,281	\$ 3,198,065	\$ 29,831,569
% of COS			39.0%	0.2%	42.2%	0.6%	4.8%	2.3%	10.7%	100.0%

(1) Net Cost of Service excludes Bad Debt Expense and Cost of Credits and Incentives since these costs vary based on the amount of the Stormwater fee.

School District Exhibit EMC-5

Pittsburgh Water and Sewer Authority
 FPPTY 2024 COS & Rate Design Model
 Alternative Stormwater Rate Design

Unit Cost for Ratemaking

FY 2024

Net Stormwater Revenue Requirements	\$ 29,831,569
Add: Cost of BDP Forgone Revenue	808,292
Net Costs to Recover for Ratemaking	\$ 30,639,860
Stormwater ERUs	248,876
Annual Stormwater Cost per ERU for Ratemaking	\$ 123.11
Monthly Stormwater Charge per ERU	\$ 10.26

Monthly Stormwater Rates

	Units	Unadjusted Rate (\$/ERU)	Adjustment to Align with COS	Adjusted Rate (\$/ERU)	Revenues	Class COS	Difference (\$)	Difference (%)
Residential								
Tier 1	11,638	\$ 5.13	4.2%	\$ 5.35	\$ 746,728			
Tier 2	59,136	10.26	4.2%	10.69	7,588,676			
Tier 3	12,903	20.52	4.2%	21.39	3,311,576			
Other	-	10.26	4.2%	10.69	-			
<i>Subtotal: Residential</i>	83,677				11,646,981	\$ 11,646,981	\$ -	0.0%
Residential - CAP								
Tier 1	1,457	\$ 0.77	4.2%	\$ 0.80	\$ 14,032			
Tier 2	5,658	1.54	4.2%	1.61	108,981			
Tier 3	669	3.08	4.2%	3.21	25,772			
Other	-	1.54	4.2%	1.61	-			
<i>Subtotal: Residential - CAP</i>	7,784				148,785	\$ 70,079	\$ 78,706	52.9%
Non-Residential								
Commercial	103,136	\$ 10.26	-2.2%	\$ 10.04	\$ 12,422,754			
Industrial	1,512	10.26	-2.2%	10.04	182,121			
Health or Education	11,595	10.26	-2.2%	10.04	1,396,620			
Municipal	6,021	10.26	-2.2%	10.04	725,231			
Other	28,126	10.26	-2.2%	10.04	3,387,783			
<i>Subtotal: Non-Residential</i>	150,390				18,114,509	\$ 18,114,509	\$ -	0.0%
<i>Total Stormwater</i>	241,851				29,910,274	\$ 29,831,569	\$ 78,706	0.3%

School District Exhibit EMC-6

School District Exhibit EMC-6

Monthly Stormwater Rates (1)	Actual 2023	PWSA Proposed FY 2024	PWSA Proposed FY 2025	PWSA Proposed FY 2026	Recommended FY 2024	Recommended FY 2025	Recommended FY 2026	Recommended FY 2024 CAP	Recommended FY 2025 CAP	Recommended FY 2026 CAP
	<u>Residential</u>									
Tier 1	\$ 3.98	\$ 5.13	\$ 6.25	\$ 7.31	\$ 5.13	\$ 6.82	\$ 7.98	\$ -	\$ 0.50	\$ 0.58
Tier 2	7.95	10.26	12.50	14.62	10.26	13.64	15.96	-	0.99	1.16
Tier 3	15.90	20.52	25.00	29.24	20.52	27.29	31.92	-	1.98	2.32
Other	7.95	10.26	12.50	14.62	10.26	13.64	15.96	-	0.99	1.16
<u>Residential - CAP</u>										
Tier 1	\$ 0.60	\$ 0.77	\$ 1.09	\$ 1.27	\$ 0.77	\$ 0.95	\$ 1.11	\$ -	\$ -	\$ -
Tier 2	1.20	1.54	2.18	2.55	1.54	1.90	2.22	-	-	-
Tier 3	2.40	3.08	4.36	5.10	3.08	3.79	4.44	-	-	-
Other	1.20	1.54	2.18	2.55	1.54	1.90	2.22	-	-	-
<u>Non-Residential</u>										
Commercial	\$ 7.95	\$ 10.26	\$ 12.50	\$ 14.62	\$ 10.26	\$ 11.88	\$ 13.89	\$ -	\$ -	\$ -
Industrial	\$ 7.95	10.26	12.50	14.62	10.26	11.88	13.89	-	-	-
Health or Education	\$ 7.95	10.26	12.50	14.62	10.26	11.88	13.89	-	-	-
Municipal	\$ 7.95	10.26	12.50	14.62	10.26	11.88	13.89	-	-	-
Other	\$ 7.95	10.26	12.50	14.62	10.26	11.88	13.89	-	-	-

(1) PWSA Proposed rates include addition of CAC in FY 2025 and FY 2026 to all classes. Recommended rates include a recalculated CAC applied to Residential Class only in FY 2025 and FY 2026.

School District Exhibit EMC-7

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of The School District of Pittsburgh (“SD”), Set I

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: School District -I-6 Referring to PWSA’s Prepared Testimony Statement No. 8 at page 8, lines 18-24 and page 9 lines 1-2: Please describe and explain in detail how, and to what extent, the data sets PWSA’s parcel impervious area information is based on. In your answer please specifically address the following data sets and any other data sets utilized as impervious surface information:

- a. 2017 Allegheny County data, as updated by PWSA; or
- b. 2022 aerial imagery; or
- c. building permits; or
- d. A combination of the above, or
- e. Some other data set.

Response:

The following three datasets or layers used for determining the billable impervious area on a parcel – aerial imagery, parcel impervious surface areas, and parcel lines – are discussed below.

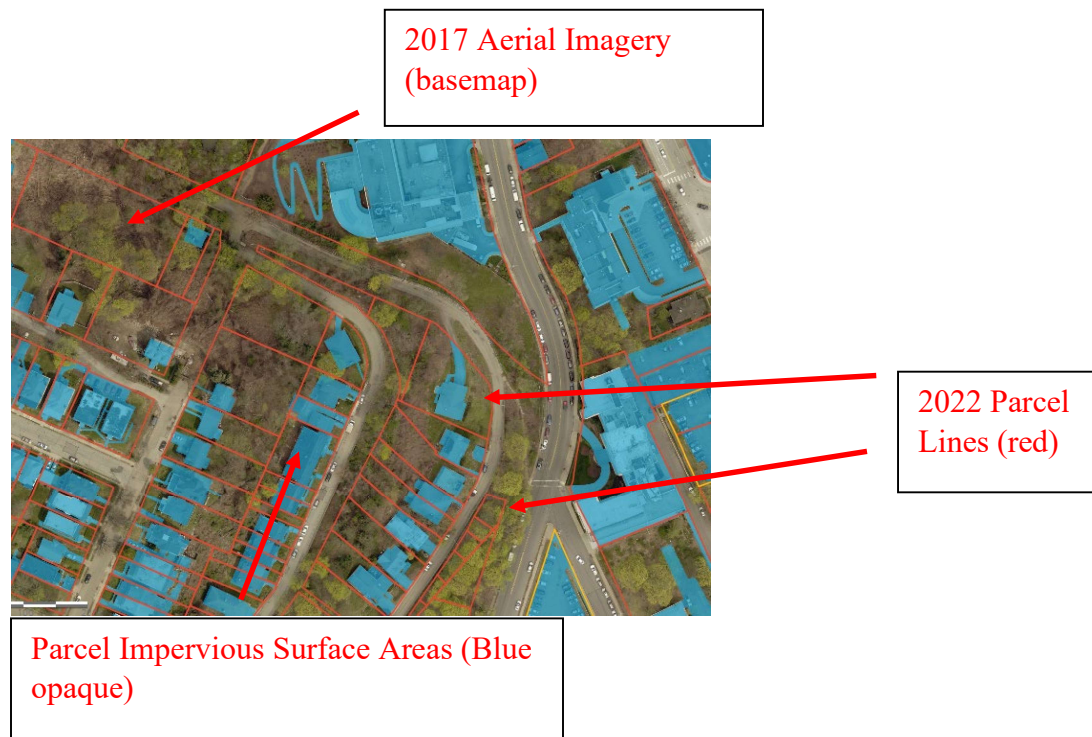


Figure 1. Types of mapping data in PWSA’s Stormwater Billing and Information System and the public Stormwater Fee Finder Map

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of The School District of Pittsburgh (“_”), Set I**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Aerial Imagery - The primary aerial imagery used by Michael Baker International (MBI) to generate the Parcel Impervious Surface Area data layer for PWSA’s stormwater billing was originally from 2017. This ultra high-quality imagery is 3” Pixel data. Allegheny County is generally the source of aerial imagery data.

Parcel Impervious Surface Areas - The PWSA GIS Department references the newest version of aerial imagery, when it becomes available, to continually update the parcel impervious surface area data layer. We have been using 2021 (2” Pixels) aerial imagery to update impervious surfaces, and are currently confirming the quality and suitability of 2023 aerial imagery data, which is now available. It is anticipated that future updates of impervious surface data will take place every five years, provided that high quality imagery is available. The GIS Department is also using building permits to identify parcels where changes may have been made in terms of constructed/removed impervious features. Finally, changes to impervious area may also be made at the request of customers with documentation such as engineering drawings and photos, validated by current imagery or site visits.

PWSA will not change the impervious area on a parcel unless things have changed on the ground due to construction, demolition, or other site modifications, or to correct a mistake.

Parcel Lines - For the parcel lines, Allegheny County continuously edits parcels, and the data is made available quarterly. PWSA updates the County parcel data once per year. As of July 24, 2023, the County parcel data used in the Stormwater Fee Billing and Information System is as of August 2022. PWSA is currently in the process of updating the parcel line data, and it should be completed by the end of October 2023. A data reconciliation process is in place to ensure that bulk parcel updates from the County do not overwrite the limited number of parcel line or impervious area updates that have been made by PWSA to better align with features on the ground.

The current impervious area and data is available on PWSA’s Stormwater Fee Finder <https://www.pgh2o.com/your-water/stormwater/stormwater-fee/stormwater-fee-finder>.

Response provided by: Tony Igwe

Date response provided: August 1, 2023


School District Exhibit EMC-8

Stormwater Fees:

Overview of Municipal Stormwater Fee Programs

DRAFT: March 2017





Created by the Pennsylvania Environmental Council with support from the William Penn Foundation. March, 2017.

The Pennsylvania Environmental Council (PEC) protects and restores the natural and built environments through innovation, collaboration, education, and advocacy. PEC believes in the value of partnerships with the private sector, government, communities, and individuals to improve the quality of life for all Pennsylvanians.



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I. Overview

Stormwater management is a growing challenge for local governments. With the impact of past development on water quality and stream health, and federal and state permit requirements for new development and redevelopment, municipalities must implement approaches that protect and restore the water resources within their communities. To support these efforts, many municipalities are considering a dedicated funding stream to address flooding, water quality, and other concerns caused by unmanaged or poorly managed stormwater runoff.

The purpose of this handbook is to provide an overview of stormwater management fee programs. It describes how a stormwater fee program can be structured within your municipality, approaches for calculating fees, and a summary of stormwater fee development and implementation steps. For more information, please feel free to contact the Pennsylvania Environmental Council (PEC) or use the references provided in the back of this handbook.

What is stormwater?

Stormwater results from a rain storm or snow melt runoff. Higher volumes of precipitation cannot all be absorbed by plants and soils. Land covered by impervious surfaces such as roads, parking lots, and buildings also cannot absorb rain. Collectively, water that cannot be absorbed rushes to the municipality's storm water system and eventually into local creeks and streams.



Figure A illustrates typical runoff occurring during a rain event in a residential neighborhood. Take note how more runoff occurs than infiltration.

Why does it matter?

As stormwater travels to local creeks and streams, it picks up pollutants which degrade water quality. The pollutants found in the creeks and streams come from everyday items. From oil leaking from a car to pesticides used in a yard, these pollutants contribute to the degradation of water quality during storms. These impurities are referred to as non-point source pollutants, meaning pollution that results from runoff, precipitation, atmospheric deposition, drainage, seepage, or landscape modifications (U.S. EPA). High volumes of runoff also erode stream banks and deposit sediments that are damaging to aquatic life. Due to the variety of non-point sources, it is hard to pin point specific pollutants back to specific source(s).

In the case of combined sanitary and storm sewer systems, municipal water treatment facilities are unable to treat the increased flow to treatment plants. As a result the plants may have to redirect the flow of untreated waste water directly to local creeks and streams.

A stormwater fee can help a municipality address the collective impact of non-point source pollution caused by stormwater runoff.

What is a stormwater fee?

Municipalities in the past have relied on grants, loans and general funds to finance their stormwater programs. More recently, cities, townships, and boroughs are considering dedicated and stable sources of funding for stormwater programs including the formation of municipal stormwater authorities and/or the establishment of stormwater fees.

Municipalities across the country are establishing stormwater fees to fund stormwater management and associated non-point source pollution control programs. See Western Kentucky University Stormwater Utility Surveys report for summary of location and types of fee programs (<http://www.wku.edu/engineering/civil/fpm/swsurvey/>). Stormwater fees are typically levied on landowners based on the potential for their property to generate runoff (e.g. based on the size of the property and the amount of development on the property). The municipalities use money collected by fees to fund stormwater management projects and programs that reduce runoff and associated non-point source pollutants. One common stormwater management strategy is to install green infrastructure (e.g. rain gardens, naturalized basins, green roofs, and bioswales) that slow and infiltrate runoff to reduce pollution and mitigate flooding. Unlike general tax revenue, revenues generated via stormwater fees must be dedicated solely to stormwater management programs and projects.

The following information is provided to help guide your municipality's decision to assess and implement a stormwater fee program.

Pennsylvania Fee Programs

As noted in the Western Kentucky University Study, almost 1,600 stormwater utilities exist nationwide, in 39 states and in Canada. To remove stumbling blocks to fee creation, the survey recommends that states develop clear statutory authority allowing for stormwater fee programs for all categories of governing jurisdictions.

Stakeholders in Pennsylvania have recognized the need for clarifying legislation allowing for the creation of both stormwater authorities and municipal stormwater fees. In 2013 and 2014 the State's Municipal Authorities Act was amended to allow for the creation of authorities that can collect fees to perform "storm water planning, management and implementation."

Additional legislation is being pursued that specifically enables townships, boroughs, and cities to create and assess stormwater fees without the need to form an authority. In 2016, legislation was passed permitting Second Class Townships to assess reasonable and uniform fees for stormwater management activities and facilities. Similar legislation is being considered for other government entities such as Boroughs, First Class Townships, and Cities. Some municipalities with Home Rule Charters have already moved forward with stormwater fee programs.

As of March 2017, there are eight Pennsylvania municipalities with stormwater fee programs. This includes a mix of home rule communities (Philadelphia, Mount Lebanon, Radnor Township, and West Chester Borough), two third class cities (Meadville and Lancaster), one second class township (Derry Township Municipal Authority), and a first class township via their sewer authority (Hampden Township Sewer Authority). The following chapters provide some basic information to help guide your municipality's decision to create and implement a stormwater fee program.

II. Structure within Your Municipality

Setting up a stormwater fee requires a significant amount of time and resources. The following sections delve into different ways you can organize a stormwater authority or fee within your municipality.

Stormwater Authority

A stormwater authority is a separate government unit within one or more municipalities that can assess fees in order to develop and deliver stormwater management services. Pennsylvania's Municipality Authorities Act sets forth specific statutory power for municipalities to create a stormwater authority. The authority can generate fees that provide an operating revenue. The revenue from the authority is used to pay employees, operate and maintain stormwater facilities, fund green infrastructure projects and provide other related services. These dedicated stormwater authority fees cannot be diverted into the general operating budget. This can be a key selling point in setting up the authority; municipal officials can highlight flooding, erosion, and pollution problem areas and explain how the stormwater fee will be spent on programs and projects that directly address these community concerns.

It takes a great deal of thought and time to implement a stormwater authority. Many municipalities will have to restructure their water programs and hire more employees. It can be costly upfront with no initial revenue during feasibility assessment and start-up phases.

Water Department/Authority

Many municipalities in Pennsylvania already have a water department/authority within their government structure. A stormwater division can fit within the existing structure of a water department. However, additional employees may need to be hired to run the stormwater program effectively including setting up and implementing a stormwater fee program. In addition, the clarity of the revenue may become muddled within the organization. A new charge to residents will likely take some convincing. When billing to residents, it may be best to itemize the water bill showcasing the specific amount directed to stormwater management and related restoration programs. For an example of a itemized bill, visit Philadelphia Water's website (http://www.phila.gov/Revenue/waterbills/Documents/Sample_Water_Bill_John_Doe.pdf).

Multiple Departments

Another option is that a municipality can pool personnel from several departments to help administer the stormwater program. The existing or new employees should have specialized stormwater management skills. However, their allocation of time may be distorted and may be spread thin between other projects in their specific departments and their new role implementing and managing the stormwater program.

Creating a Stormwater Management Position

If you feel your municipality is able to do so, you can create a stormwater position. This person would be in charge of running the stormwater management and associated fee program. No department would exist. This structure may work for a smaller municipality, but the stormwater position can easily get overwhelmed with implementation, monitoring, and financial management tasks.

All these organizational structures depend on what works best for your community. Residents may better understand one structure versus another. To make a decision of the stormwater structure, it is important to involve the public.

III. Stormwater Fee Calculation

Stormwater fees can be calculated several different ways. The following subsections discuss each calculation's methodology and its pros/cons. A stormwater fee calculation program can be chosen based on your community's resources, land use characteristics, and population preferences. Fee calculation methods were drawn from US EPA's Funding Stormwater document. For further information regarding fee calculation, visit (<https://www.epa.gov/sites/production/files/2015-10/documents/fundingstormwater.pdf>).

Equivalent Residential Unit (ERU)

An Equivalent Residential Unit (ERU) is a unit of measure used to equate non-residential or multi-family residential properties to a specific number of single-family residences. An ERU is usually the average impervious area on a single-family residential parcel, although some communities define it as the average of all residential parcels. The definition will depend on the housing stock of your community.

Municipalities can calculate ERUs fees two different ways for residential properties. Once an average impervious area is determined, a municipality may charge all residential parcels the standard 1.0 ERU rate. This tends to be inequitable. If you are a large impervious landowner, you benefit from the standard. In contrast, smaller parcel impervious landowners will pay more in comparison to their impervious land cover. To make the ERU accounting method more equitable, municipalities can calculate each resident's impervious area within their parcel. If their property has less impervious coverage, they will have a fee lower than the 1.0 ERU average. The opposite applies for large land owners. The money generated from each accounting system will total the same.

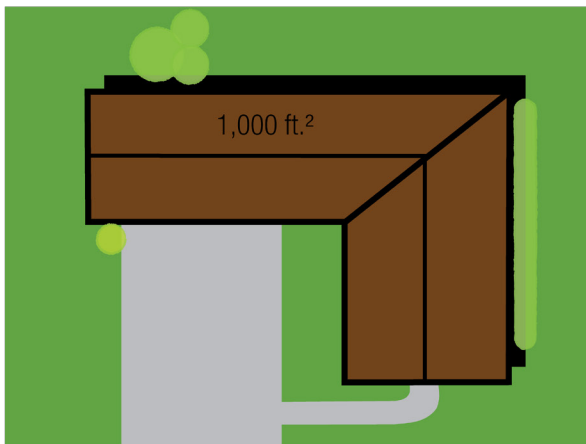
For multi-family and non-residential properties, the municipality calculates the impervious surface of each parcel. The impervious area will be compared to the average impervious surface of a residential property, the ERU. The fee will be charged based on the ratio.

Advantages

The relationship (or nexus) between impervious area and stormwater impact is relatively easy to explain to the public – you pave, you pay. The number of billable ERUs can be determined by limiting the parcel area review to impervious area only. Because pervious area analysis is not required, this approach requires the least amount of time to determine the total number of billing units.

Disadvantages

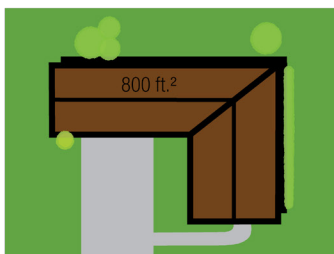
The potential effect of stormwater runoff from the pervious area of a parcel is not reviewed. Runoff still occurs on pervious surface, especially traditional lawn grass. In addition, this method is sometimes considered to be less equitable because runoff-related expenses are recovered from a smaller area base. Vacant properties with no impervious cover do not get charged under the ERU fee system.



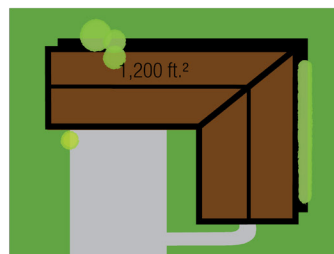
1 ERU = 1,000 ft.² of impervious area

The municipality will set a standard for impervious area and equate it to one equivalent residential unit. From this number, the municipality will be able to assess each parcel and determine the fee. For this example, we will assume that
1 ERU = \$1.00 stormwater utility fee.

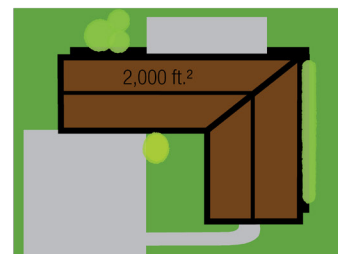
Advantages: The relationship between impervious area and stormwater impact is relatively easy to explain to the public - you pave, you pay.



.80 ERU = 800 ft.² of impervious area
.80 cents



1.2 ERU = 1,200 ft.² of impervious area
\$1.20



2.0 ERU = 2,000 ft.² of impervious area
\$2.00

** ERU calculation includes all impervious surface (buildings, paved surfaces, etc.)*

Residential Tier System

The tier system is an alternative to the ERU. It uses the same calculation method as ERU. The fees increase in steps, depending on whether the property falls within a particular impervious size range. A typical tiered approach creates small, medium, and large categories for single-family residential properties, charging a different fee for each class. The average impervious surface ERU would be considered within the medium classification. From the average, the tier system will establish a range for the small, medium, and large impervious parcels.

Advantages

Tiered residential fee offers more equity than a flat ERU rate based only on the average. It may buy more political support for the approach. A tiered-system is easy to understand and administer. Use of ranges requires less precise impervious surface mapping – providing time and cost savings.

Disadvantages

Tiered systems may be vulnerable to legal challenges. Residences may feel like they are subsidizing large commercial users. Setting a maximum “ceiling” size for non-residential properties may keep the revenue stream relatively low.



* For non-residential and multi-family (e.g. apartment complexes), the ERU calculation is used. Properties in these categories do not use the tier system. The standard residential impervious square footage, ERU, will be divided by the larger parcel impervious cover to determine their unique fee.

Intensity Development Factor (IDF)

Intensity of Development Factor (IDF) adds a land use component to the stormwater fee calculation. The stormwater cost allocation system is based on the percentage of impervious area relative to the entire parcel's size. All parcels, including vacant/undeveloped parcels, are subject to a fee assessment. In addition to the ERU calculation, fees are based on their intensity of development, which is defined as a land use classification.

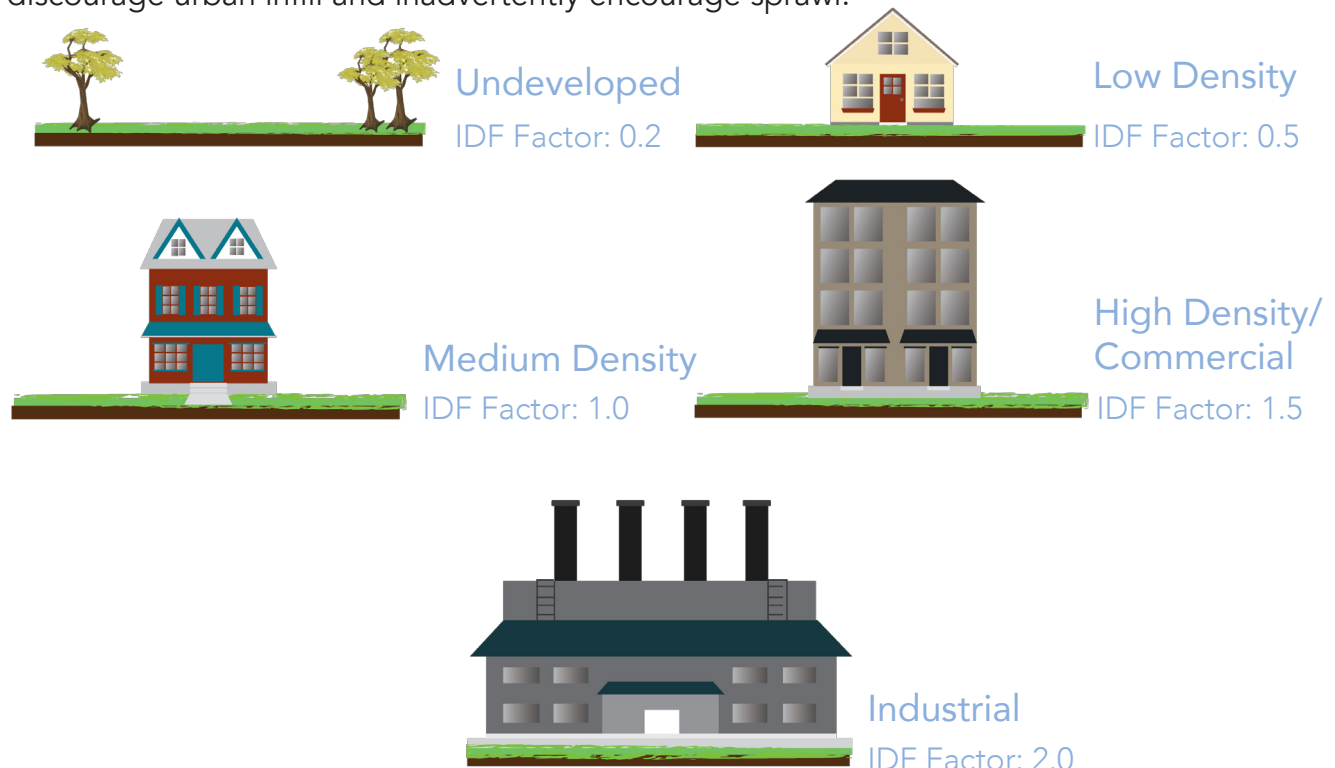
$$\text{Stormwater Fee} = (\text{ERU} * \text{Standard 1.0 ERU Rate}) + (\text{IDF} * \text{Standard 1.0 ERU Rate})$$
$$\text{ERU} = (\text{Parcel Impervious Cover} / \text{Avg. Residential Impervious Parcel})$$

Advantages

The IDF method accounts for stormwater from the pervious portion of the parcels. Therefore, it can be more equitable than the ERU method. If a parcel's impervious area is increased slightly because of minor construction modification, it probably would not be bounced into the next higher IDF category. This reduces the time required for staff to maintain the billable unit master file.

Disadvantages

The IDF categories are broad, and parcels are not billed in direct proportion to their relative stormwater discharges. This method can be more difficult to implement than the ERU method because parcel's pervious and impervious areas need to be reviewed. It is also more complicated to explain to customers than the ERU method. This method might discourage urban infill and inadvertently encourage sprawl.



Equivalent Hydraulic Area (EHA)

This fee method also accounts for pervious portions of the parcel (like the IDF fee). It is often considered fairer than the IDF method because parcels are billed on the basis of individual measurements of pervious and impervious surfaces rather than on a land use scale.

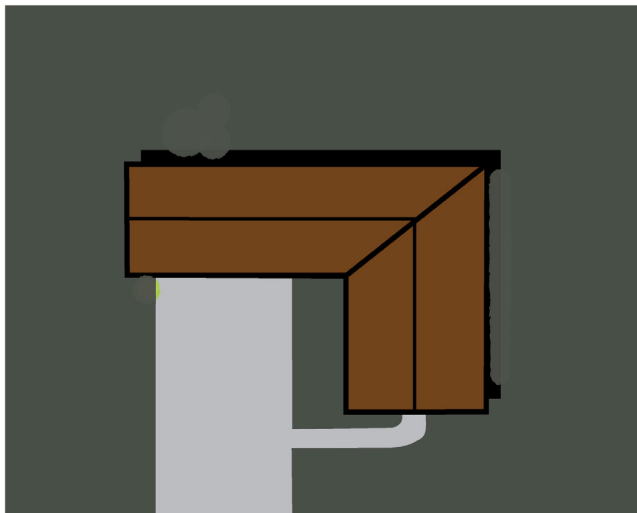
Advantages

The EHA method accounts for flow from the pervious portions of a parcel. Therefore, it might be more equitable than the ERU method. Like the IDF method, it accounts for undeveloped/vacant parcels and allows them to be billed, but it is fairer than the IDF method because parcels are billed on the basis of individual measurements of pervious and impervious areas.

Disadvantages

Since the pervious area analysis is required in addition to impervious area, this approach requires more time to determine the total number of billing units. It is more complicated to explain to customers than the ERU method.

Step 1: Measure the impervious surface of a parcel.



Step 2: Measure the pervious surface of a parcel.



Step 3: Set a fee per sq. ft. for pervious and impervious. Multiply the individual parcels measurements by the standard rates to get the total cost for the parcel's stormwater fee.

Residential Equivalent Factor (REF)

The Residential Equivalent Factor takes a scientific perspective on calculating a stormwater utility fee. The fee is based on the Natural Resources Conservation Service (NRCS) method of calculating runoff. In the equation, it calculates runoff (Q) in inches, taking into account how much the parcel can absorb and store water before and after runoff occurs. The potential for runoff (i.e. the runoff curve number [CN]) depends on the soil type and land use. The NRCS divides soil up into four hydrologic soil groups: A, B, C, and D (ranging from more water absorbent sands (Type A) to less water absorbent clays (Type D)). The runoff curve numbers range from 0-100 in theory, but in practice range from 30-98. A curve number of 98 corresponds to parking lots and streets and 30 corresponds to bushy land in type A soil. The more hard surface a parcel has, the higher its curve number and the greater the runoff. For a detailed explanation of NRCS Calculation, visit http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044171.pdf.

Advantages

The REF takes a scientific approach to stormwater fees. Due to its complexity and details, it thinks of everything that contributes to stormwater runoff. Its calculations are the most exact and most equitable to land owners within a municipality.

Disadvantages

An issue for the REF system is the rainfall amount to use. While calculating the average annual runoff is more tedious, it may be the fairest way to set up a REF system. Municipalities in Minnesota use the REF system to calculate stormwater fees. Minnesota municipalities use the 1-year (presumably 24-hour storm) to calculate runoff in a REF equation. However, you need to use the best rainfall standard for your municipality.

The REF is scientific and heavy in calculations. Due to its complexity, it may be harder to explain to the general population. In addition, the data and information required for the calculation is greater than the others. If the resources do not exist, you may want to consider using a simpler method that takes less time to calculate and implement.

IV. Development & Implementation

The stormwater utility should first evaluate and determine costs to implement and maintain its stormwater program. Some communities make the mistake of working in the other direction. They determine the fee that is politically feasible and collect as much as they can. Usually the amount is less than needed for the program. Expectations are not met and political resistance develops. This creates legal and political exposure for the utility. It is recommended to create a budget for the stormwater fee and then derive the price for each resident/landowner from the budget.

As a municipality, you need to assess the best choice based on feedback from your community. Prior to implementation, a municipality needs to develop and understand its stormwater system. Doing a feasibility assessment on a stormwater program will make for better understanding if charging a fee is appropriate for your municipality.

To better ascertain the community's choices, you must educate your municipal staff on financial options. Once employees understand and are on board with the financing mechanism, it is recommended that a steering committee of selected citizens be established. These citizens should exhibit an interest in solving stormwater pollution within your municipality. The committee and staff can collaboratively develop the fee system, create a public outreach and education program, and guide the adoption of an ordinance.

When implementing the stormwater utility fee, you can use the committee to test how well the proposed stormwater fee works for the community. By using a small sample of a municipality's population, the municipality can rule out potential errors within the fee system before a system-wide roll out.

V. References

<https://www.epa.gov/sites/production/files/2015-10/documents/fundingstormwater.pdf>

The United States Environmental Protection Agency outlines the different financing mechanisms to create a stormwater fee.

http://www.mapc.org/Stormwater_Financing

The Metropolitan Area Planning Council (MAPC) offers a stormwater financing kit for the Boston region. The kit guides municipalities on how to set up a fee from the government structure to implementation steps. MAPC is the regional planning agency serving the people who live and work in the 101 cities and towns of Metropolitan Boston. They work toward sound municipal management, sustainable land use, protection of natural resources, efficient and affordable transportation, a diverse housing stock, public safety, economic development, clean energy, healthy communities, an informed public, and equity and opportunity among people of all backgrounds.

<https://www.wku.edu/engineering/civil/fpm/swusurvey/>

Dr. C. Warren Campbell of Western Kentucky University releases annual information on stormwater utility fees. His research creates a catalog of fee systems throughout the United States. If your municipality is interested in learning more about Residential Equivalent Factor or any other fees, contact Dr. Campbell for more information.

<http://cityoflancasterpa.com/stormwater-management-0>

The City of Lancaster is one of several municipalities in Pennsylvania with a stormwater fee. Their website outlines the stormwater fee structure, the ordinance to create a fee, and provides updates about their stormwater systems improvements through green and grey infrastructure.

<http://www.downers.us/res/stormwater-management/stormwater-utility>

The Village of Downers Grove in Illinois uses the tier system to calculate stormwater utility fees within its jurisdiction. Their website highlights how the fee is calculated in an approachable format for its citizens.

<https://athensclarkecounty.com/1857/Fee-Calculation>

Athens-Clark County is a consolidated city-county government. Their stormwater program uses the Intensity Development Factor for its fee calculation. To help their residents understand, they offered a detailed description of land use intensities.

<https://www.youtube.com/watch?v=Ak-js9MPSMU>

The City of Durham, NC uses an animated video to explain stormwater and the fee system to its general public. This form of engagement helps the general public understand the stormwater fee and what the funds go toward.

School District Exhibit EMC-9



BLACK & VEATCH
MANAGEMENT CONSULTING

2021 Stormwater Utility Survey Report



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Welcome to Our 2021 Stormwater Utility Survey Report

Dear Industry Colleagues,

Stormwater is gaining recognition as an integral component of our natural resource management agenda. This resource needs to be protected and reused to enable economic, environmental and social resilience that helps to improve the quality of life in our communities. The Water Environment Federation's Stormwater Institute* (SWI) has identified the following six key stormwater management objectives:

- Working at the Watershed Scale
- Transforming Stormwater Governance
- Supporting Innovation and Best Practices
- Managing Assets and Resources
- Closing the Funding Gap
- Engaging the Community

While municipalities have a long way to go in achieving these objectives, many continue to strive to enhance stormwater management and develop dedicated funding. Over the past two decades, Black & Veatch Management Consulting, LLC (Black & Veatch) has been a consistent voice in shaping and sharing information on enhanced stormwater management planning, best practices and funding.

This 2021 report is our thirteenth national Stormwater Utility Survey Report. This industry-leading report presents our analysis of information gathered from utility leaders on stormwater management priorities, rate structure, billing, credit program practices and average monthly residential stormwater charges. Some notable findings include the following:

- Funding adequacy and public support continue to reign as the first and second-ranked major utility challenges. Nearly 77% of the survey respondents indicate that funding is not adequate to meet all of their operations and maintenance (O&M) and capital needs.
- Aging stormwater infrastructure is also becoming a critical challenge with 75% of the respondents citing that to be an equally important concern.

Recognizing these continuing trends and emerging challenges, Black & Veatch continues to innovate with comprehensive asset management and service delivery solutions that are integrated with the "concept to launch" stormwater funding framework.

New to this year's report is an industry leadership round table discussion with a panel of three stormwater utility managers. They share their real world perspectives on the benefits of user fee funding, capital program financing, affordability, stakeholder engagement and pandemic response.

We invite you to download the new report for a window into current trends and their implications for your utility. Your questions are always welcome at managementconsulting@bv.com.

Sincerely,



Deepa Poduval | Associate Vice President

*WEF "Rainfall to Results: The Future of Stormwater," 2015



About This Report

About This Report

Company Overview

Black & Veatch Management Consulting, LLC is a wholly-owned subsidiary of Black & Veatch Holding Company and focuses exclusively on the utility sector. We provide a comprehensive suite of integrated strategic and financial, infrastructure modernization and customer technology solutions for water, wastewater, stormwater, power, oil and gas and renewables utility sectors. Our seasoned subject matter specialists and consultants combine in-depth industry expertise, advanced analytics and first-hand practical business experience with extensive technology and engineering capabilities to deliver holistic solutions that work best for utility operations, organization, assets, fiscal resilience and customers.



Survey Design

This Stormwater Utility Survey Report was conducted online within the United States, during August and September 2020. Consistent with our previous surveys, the type of questions we included in the survey reflect the following six topic areas:

SECTION 1 ORGANIZATIONAL INFORMATION

Provides a general profile of the respondents including population, size and characteristics of the service area.

SECTION 2 PLANNING

Provides respondents' perspectives on the most important stormwater management issues and stormwater infrastructure investment drivers. This section also highlights utility governance, the types of permit requirements that utilities comply with and the types of planning utilities engage in to address stormwater management. In this survey, we added a new question to understand the prevalence of public-private partnerships in the provision of stormwater management services.

SECTION 3 FINANCING AND ACCOUNTING

Includes information that respondents shared on stormwater utility revenues, expenditures, sources of funding and the adequacy of stormwater funding to meet utility obligations.

SECTION 4 STORMWATER RATE STRUCTURE AND BILLING

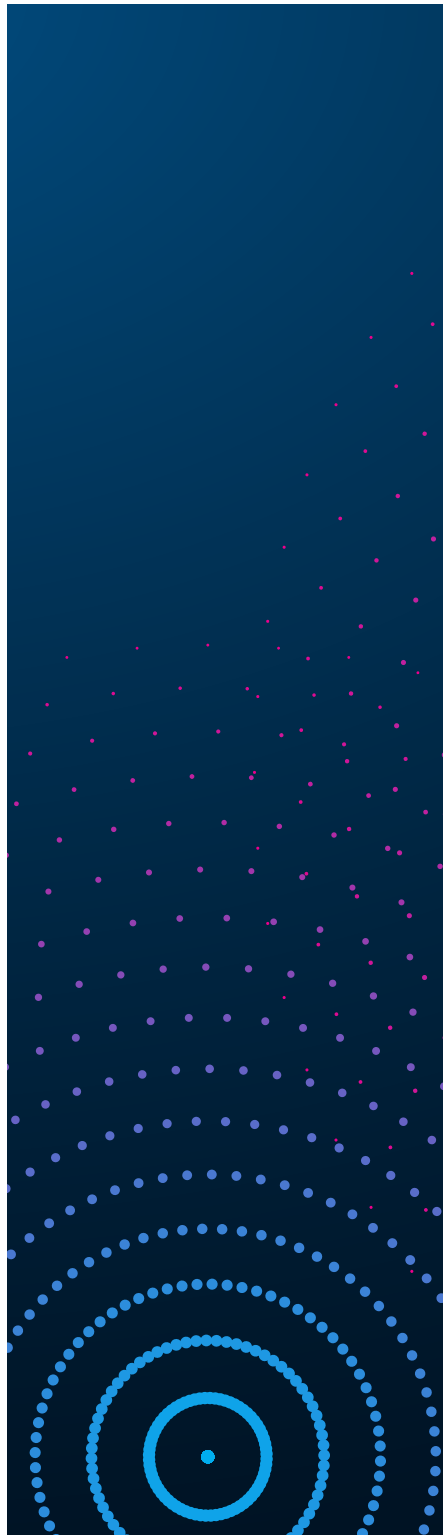
Presents the types of costs recovered through user fees, the fee methodology used in setting rates, the rate structures and the average monthly residential charge of each utility that participated in the survey. Information on the types of exemptions and discounts that utilities offer and insights on legal challenges are also provided. Calculated bills reflect rates in effect as of July 1, 2020. This year, we expanded the questions on rate structure to include non-residential rate structures.

SECTION 5 STORMWATER CREDITS AND INCENTIVES

Offers insights into the types of credits, criteria used in offering credits and any innovative credit programs.

SECTION 6 PUBLIC INFORMATION AND EDUCATION

Assesses the methods of education and multi-media sources used in educating and disseminating information.



Stormwater Roundtable

As part of this Stormwater Utility Survey initiative, the Black & Veatch survey team hosted a roundtable discussion with a panel of three utilities that participated in the survey. We gratefully acknowledge the participation of the City of Bremerton, Washington; City of Fort Collins, Colorado; and City of Raleigh, North Carolina.



The objective of the roundtable session was to have an in-depth discussion specifically on the funding and stakeholder support challenges that utilities have to plan for and manage. The panelists engaged in a robust discussion and shared their real-world perspectives on the following five topics:



Benefits of User Fee Funding



Capital Program Financing



Stakeholder Engagement



Customer Affordability



Covid-19 Pandemic Response

The round table discussion is presented as a feature article in this survey report in the section titled, “The Roundtable: The Practitioners’ Perspectives on Stormwater Utility Management.”



Prabha Kumar

Ms. Kumar is a Managing Director with Black & Veatch and is a national practice lead for stormwater utility consulting services. With over 21 years of experience, she specializes in providing the “concept to launch” suite of stormwater utility development and implementation services. Ms. Kumar’s comprehensive utility consulting expertise includes strategic advisory services, financial planning, cost of service and rate design studies, wholesale pricing studies and expert witness services in utility rate cases and litigation matters. Ms. Kumar served in the Environment Finance Advisory Board’s Stormwater Financing Task Force and is a member of NACWA’s Stormwater Management Committee.



Anna White

Ms. White is a Principal Consultant in Black & Veatch and has served as a Project Manager on projects involving the cost of service and rate determination, revenue bond determination and financial reviews of operations for water, wastewater and stormwater utilities in the public sector. Her economics background and experience with computer modeling and software applications have been utilized in developing financial analyses of municipal water and wastewater utilities.



Brian Merritt

Mr. Merritt, a Manager with Black & Veatch has over 18 years of experience in the engineering and consulting industry. With a background in civil engineering and extensive stormwater management expertise, Mr. Merritt understands the balance needed in communicating technical engineering topics and financial needs to the general public and building broader support for program change. Mr. Merritt has aided communities ranging in population size from 10,000 to 1.56 million in addressing their stormwater management and funding needs.

The background of the page is a dark, semi-transparent overlay of a report document. The report contains various data visualizations, including a bar chart at the top left, a line graph in the center, and a pie chart at the bottom right. The text 'Report Highlights' is overlaid in white on the left side of the report. A thin orange horizontal line is positioned below the text.

Report Highlights

Profile Of Respondents

A total of 73 participants from 20 states completed the online survey.

- Seventy-two participants fund stormwater management in whole or in part through stormwater user fees and one participant funds its stormwater program through a stormwater millage fee.
- This year's participants include 23 first time participants and 50 repeat participants.
- Ninety-seven percent (97%) of the respondents serve a city, rather than a county or a region.

In this survey, we had higher participation from smaller utilities (utilities with fewer than 25,000 customer accounts).

Figure 1 presents the distribution of the participants based on the number of accounts the utilities reported.

Figure 2 presents the general profile of the survey participants.

Figure 3 presents the number of participants by state.

Figure 4 presents the number of participants by Environmental Protection Agency (EPA) region.

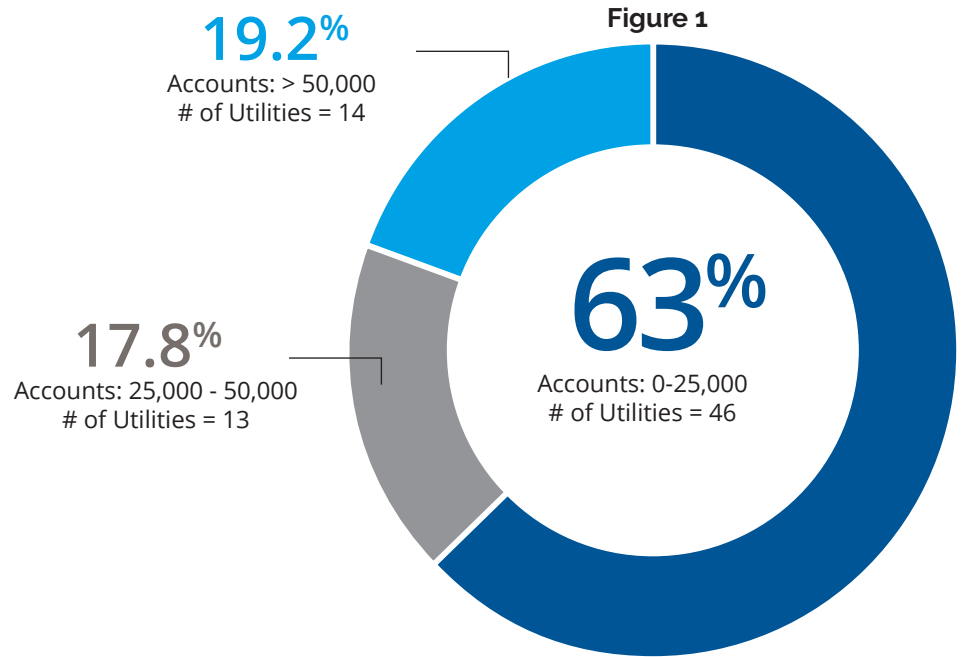


Figure 2

Characteristics	Median	Range
Population Served	46,000 people	86 – 1,584,000 people
Number of Accounts	14,000 accounts	41 – 552,400 accounts
Single Family Residential Gross Area (Lot Size)	8,599 sq ft of the total parcel area	2,074 – 22,000 sq ft of the total parcel area
Single Family Residential Impervious Area	2,629 sq ft of impervious area	910 – 13,000 sq ft of impervious area

Figure 3
NUMBER OF PARTICIPANTS BY STATE

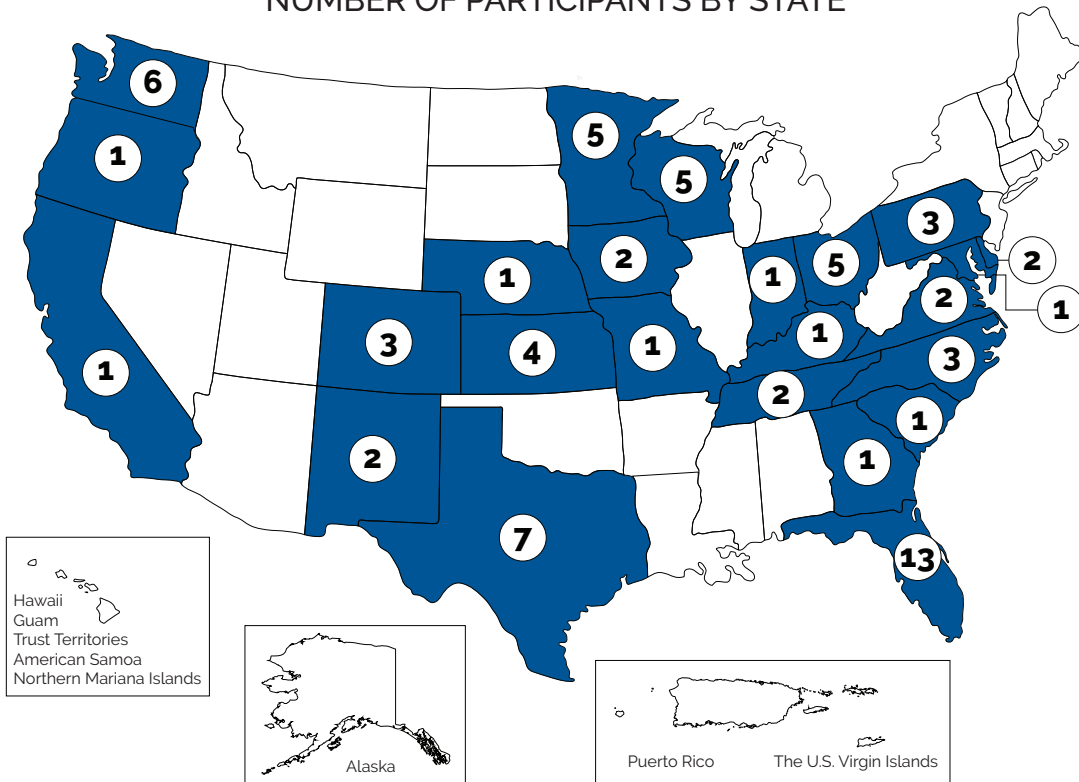
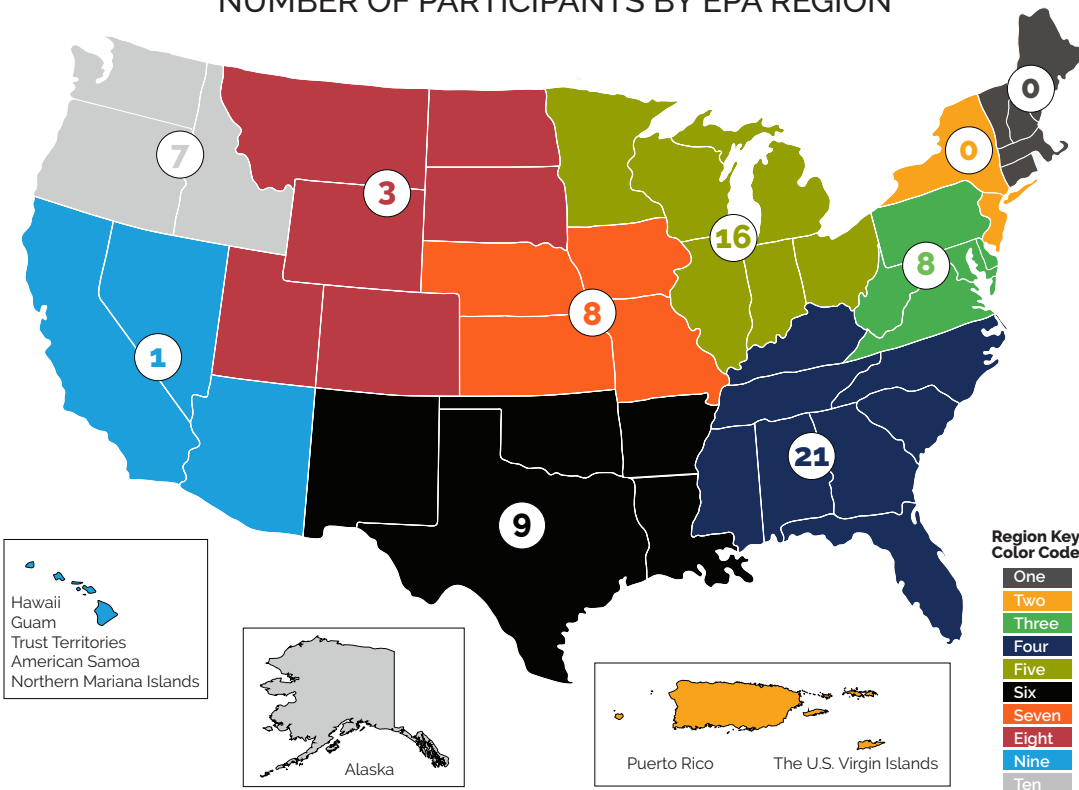


Figure 4
NUMBER OF PARTICIPANTS BY EPA REGION





The Roundtable: The Practitioners' Perspectives on Stormwater Utility Management

The Roundtable: The Practitioners' Perspectives on Stormwater Utility Management

Overview

Stormwater funding continues to pose a persistent challenge to communities of all sizes in the United States and it directly impacts program operations, regulatory compliance, infrastructure management, flooding resilience and overall quality of life and safety of communities. Even with funding needs increasing, many municipalities still find it hard to garner support for establishing a stormwater user fee funding program. Further, the advent of the COVID-19 pandemic in 2020 has added a stress test on most utilities in the nation. We also continue to find in our biennial surveys of municipalities, with a dedicated user fee funding mechanism, that there are differences in how those utilities plan for and manage aspects such as capital program financing, affordability concerns and stakeholder engagement.



To gain firsthand insights on these specific aspects by giving direct voice to stormwater utility practitioners, this year, the Black & Veatch Stormwater Survey Team hosted a roundtable with three Stormwater Utility Program Managers. This section presents a summary of the perspectives our panelists shared.

We express our deep appreciation to the three panelists for their interest in participating in the round table and sharing their perspectives on their stormwater utilities.



Scott Bryant, PE
**Stormwater Administrator/
Planning and Business Operations**

Engineering Services Department
City of Raleigh, North Carolina



Chance Berthiaume, CPMSM
Stormwater Permit Coordinator

Public Works and Utilities
City of Bremerton, Washington



Kenneth C. Sampley, PE
**Director, Stormwater Water
Wastewater Engineering**

Utilities
City of Fort Collins, Colorado

Editor's Note: We have edited the roundtable discussion for both length and clarity.

Panel Discussion



You all have a stormwater user fee program that has been in place for well over five years. Can each of you share some specific benefits this user fee funding mechanism has provided, to your community's stormwater management?

All three panelists confirmed that user fee funding has provided their utilities the following key benefits – (i) a dedicated and equitable source of revenues for stormwater management; (ii) their stormwater utility does not have to compete with the General Fund for funding; (iii) user fee funding has enabled them to grow their stormwater management program, with enhanced resources and implement a wide array of programs including stream rehabilitation, storm sewer maintenance, total maximum daily load (TMDL) permit requirements and state nutrient program requirements.

With respect to capital program funding, since the inception of the user fee, the utilities have been able to accomplish major capital improvements. Mr. Bryant indicated that Raleigh, North Carolina has spent over \$100 million specifically in pay-as-you-go funding for capital improvements, which was not available to them prior to establishing the user fee program. Mr. Sampley, Fort Collins, Colorado has been able to invest approximately \$120 million in the design and construction of stormwater infrastructure in the last 20 years. In Bremerton, Washington where many of the pipes are over 100 years old, Mr. Berthiaume indicated that they have been able to replace substandard mains, fund environmental restoration projects and fund a portion of the \$55 million investments in sewer separation in their combined sewer system.

Each of these three featured municipalities have user fees established.



Fort Collins, Colorado: 1980



Raleigh, North Carolina: 2004



Bremerton, Washington: 1994



On this key topic of the benefits of user fee funding, the panelists also shared some notable insights.



Mr. Bryant: “We in Raleigh have been able to focus on stormwater asset management

and are taking it to the next level in terms of managing assets and stormwater. We have also been able to develop focused programs for prioritized drainage assistance in neighborhoods where people live, work and play. One keynote, by having that utility funding, we’ve also been able to pursue external grants and other sources of outside funding with matching funds coming from the local stormwater utility.”



Mr. Berthiaume: “In our utility, I’m able to direct funding into not only the operation

and maintenance, but also environmental restoration. We are upsizing our stormwater system to meet our new design criteria, examining climate change, and transitioning to a 100-year storm event capacity for sizing our new pipes.”



Mr. Sampley: “What’s nice about our predictable user fee funding revenue source

is that we have less volatility and are more adaptable to changing work conditions. In addition to major CIP investments, we are able to spend approximately \$1.3 million on annual minor system (small) stormwater maintenance, and invest in the upgrades, maintenance and monitoring of our flood warning system.”



Black & Veatch: We have consistently found that stormwater utilities lean more heavily on cash financing of a capital program than debt financing. What practices and/or policies is your utility using with respect to capital program financing?

All three panelists indicated that their utilities do not have any specific written and approved policies on stormwater capital program financing. The utilities use different approaches and practices to effectively fund their respective capital programs.

Fort Collins, Colorado has historically used a combination of cash and debt financing for stormwater infrastructure. Typically, the utility has issued revenue bonds in a manner that supports and maintains the credit rating of the stormwater utility at AA+ rating. The debt service is part of the utility's \$18 million annual funding. In addition, the utility leverages pre-disaster mitigation Federal Emergency Management Agency grants and has received public assistance grants to respond to flooding emergencies, such as the 2013 flood. Generally, two-thirds of the capital improvement program (CIP) expenditures are on flood control and the remaining one-third is spent on inadequate public stormwater infrastructure in communities and on stream rehabilitation.

Bremerton, Washington relies primarily on cash financing for its capital investments. However, it classifies its CIP into three categories, namely, priority substandard pipe replacements that pose a risk of imminent failure, water quality retrofits to meet TMDL and permit compliance requirements and stream restoration related to fish habitat. By doing so, the utility can effectively leverage grant funding, when feasible, from the State Department of Ecology for water quality-oriented stormwater treatment/retrofit projects and Salmon Recovery Grant Funding for fish habitat restoration projects. Though it doesn't have a written financial policy, the utility strives to maintain 15% to 20% of its annual CIP budget in its capital reserve. As part of its 20-year capital program planning, the utility is looking to define some capital program financing policies.



Raleigh, North Carolina has leaned heavily on pay-as-you-go financing for its capital program, since the inception of the user fee in 2004. However, as part of its 10-year long-term capital financing program, the utility is likely to include a mix of pay-as-you-go and debt financing. Overall, the utility strives to maintain 25% of its annual stormwater budget as its fund balance. Approximately two-thirds of the capital investments go toward conveyance and related system improvements to reduce flooding hazards and the remaining one-third of the spending goes to water quality-related, stream stabilization/restoration and green infrastructure projects.



On this issue of capital program financing, the panelists also shared some additional insights.



Mr. Bryant: “With respect to capital financing, spreading some of the capital improvements costs over time in the form of debt financing would be beneficial, as the community would realize the benefits from those capital improvements over time. So, we do anticipate having some debt financing as appropriate in the future as part of our balanced CIP funding strategy.”



Mr. Berthiaume: “For a cost-effective capital program, we coordinate our water, sewer and stormwater utility upgrades with a lot of street redevelopment projects, so that everything is addressed at the same time. It complicates project execution, but we set aside a budget in our stormwater utility to support these types of capital needs whenever these projects happen in certain parts of the town.”



Mr. Sampley: “We have a 25-year CIP based on identified capital project needs and we strive to balance debt financing with cash financing to maintain modest annual rate adjustments with a realistic construction schedule. Just like water utilities do, it is important to have a debt financing component as part of the CIP funding mix. However, you have to also have enough flexibility to address emergencies and capital needs that arise and so it is important to have a percentage of your capital funding that is cash financed.”





What specific strategies have you found to be particularly effective in engaging with your citizens and decision makers?

The key takeaway from the panelists on the issue of effective engagement with rate payers and decision makers was that public and customer outreach is not an “afterthought” but an integral part of their Stormwater Management Program. The panelists indicated that direct work sessions with their respective city council leadership have helped them garner strong leadership support. Proactive, multi-channel communication through consistent and updated information channels like websites and social media are important. Direct customer communications through bill inserts and emails can also help create an effective, consistent and timely method to deliver information to seek community feedback.



The participants also shared about some of their engagement in unique outreach efforts.



Mr. Bryant: “We are very thankful for our dedicated and very engaged Stormwater

Management Advisory Committee, which was appointed by the City Council. They provide tremendous feedback to us at the staff level and also serve as a liaison for the City Council and the community. We also engage in floodplain outreach partnering and other programs. For example, we use utility bill inserts to advertise our “Raleigh Rainwater Rewards Program,” which has been extremely successful. Another way we interact with our customers is by seeking their feedback on our water quality protection programs. We also focus on addressing promptly customer “drainage requests” on water quantity and quality concerns and consider those issues in our capital project prioritization. All these efforts help lead to fostering community support for our program.”



Mr. Barthiaume: “We provide summary project reports to City Council, which they

then use to communicate with their district constituents and this serves as a wonderful way to get information out on our stormwater efforts. We also coordinate with the Stormwater Outreach Group in the Kitsap Peninsula and this way we share resources with other communities such as Seattle, Bellevue and Kirkland and send out common messages to the public on stormwater issues in Puget Sound. The online customer survey tool also enables us to interface effectively with our customers to obtain their input on issues and respond to their inquiries.”



Mr. Sampley: “We use messages with fewer words and engaging images in our outreach

through the “Bus Benches Program.” These are strategically located across the City in locations where potential flooding may occur. We find these are a key educational component for our program. The utility garnered the support of commercial customers through the Utilities’ One Planet Program where the program provides hands-on tours of facilities to foster an understanding of the City’s sustainability aspects and stormwater mitigation planning. Further, the utility also leverages schools to disseminate information to students who then raise awareness with parents. The key to fostering project support among decision makers is for them to understand what engagement initiatives have been used with their constituents.”



Affordability is often a major concern not only for residential properties but also for non-residential properties, especially in the case of impervious area-based stormwater user fees. How is your utility planning for and/or actively addressing that issue?

The panelists opined that affordability will continue to be an issue as the program needs increase. However, to balance funding needs and affordability, their utilities strive for modest gradual annual increases rather than large increases and regularly benchmark their rates with that of their neighbors. All three panelists also indicated balancing their capital program and other funding needs to keep their stormwater rates at reasonable levels.

The panelists also indicated using various approaches to address affordability:



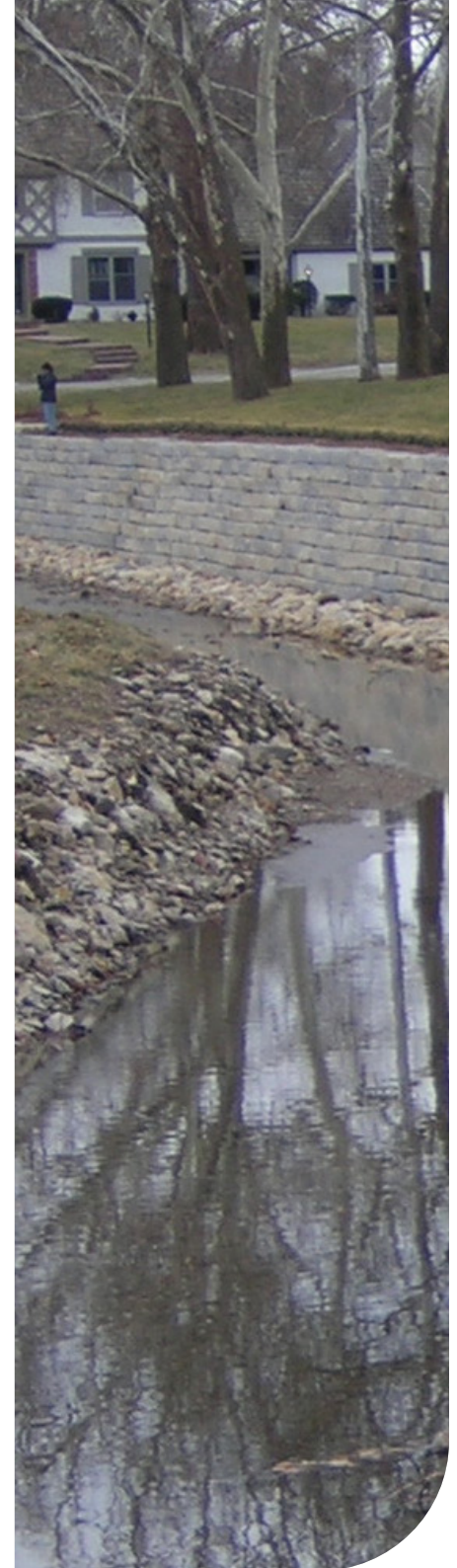
Mr. Bryant: "Raleigh stormwater has a Drainage Assistance Program, which is 100% city-funded and it supports customers' stormwater improvement needs based on priorities. The Raleigh Rainwater Rewards Program and the stormwater fee credits program provide some additional mechanisms for offering assistance for improvements or providing fee reduction. The City also offers a utility payment assistance program."



Mr. Berthiaume: "Bremerton also has a Rain Garden Program that offers up to \$3,000 assistance per residential property for onsite stormwater management. In addition to balancing CIP, leveraging grant funding whenever feasible helps with affordability and helps take the edge off on non-residential customer impact."



Mr. Sampley: "Allowing financial metrics to drive rates helps provide predictability and understanding. Planning a balanced 25-year CIP schedule and following it along with debt financing, enables the utility to mitigate large rate increases. Other key mechanisms such as discounts for residential properties with large lot sizes and having a policy where all properties are charged for stormwater without exemptions promotes equity."

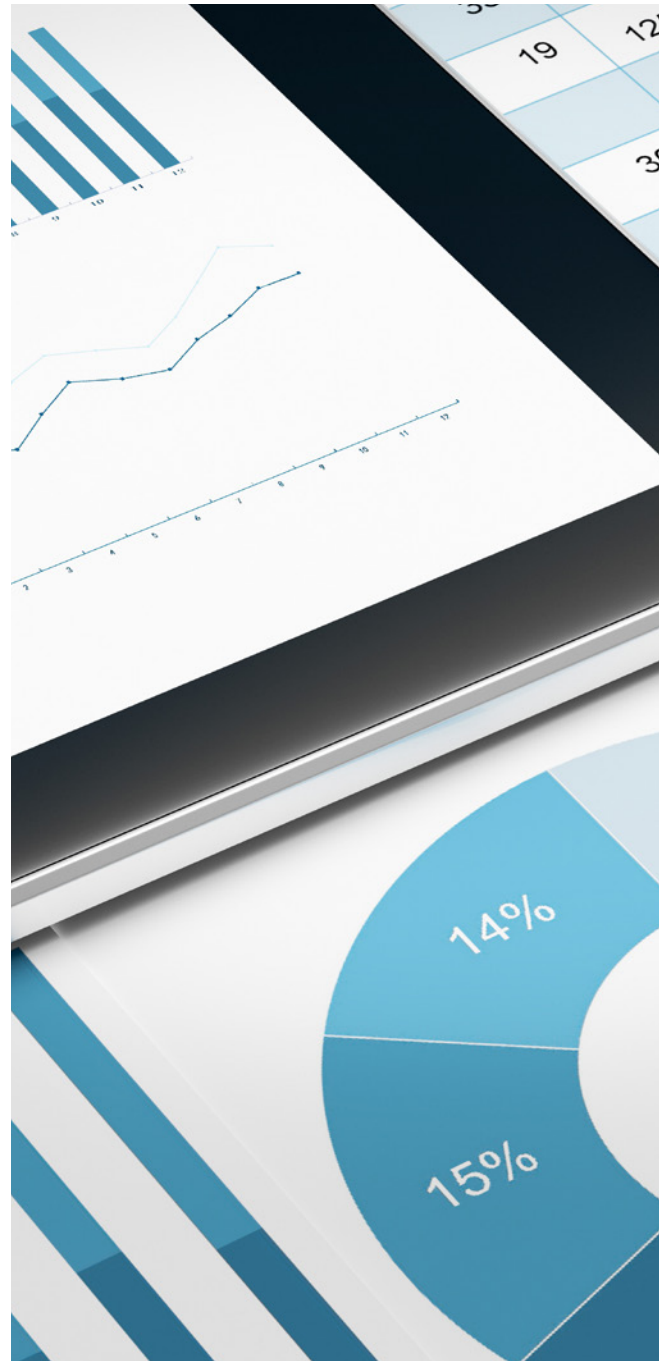




The COVID-19 pandemic continues to test the resiliency of utilities. Can you share insights on what worked well for pandemic response and what areas you feel you'd need to address to enhance pandemic response?

The participants acknowledged that they had to develop adaptive approaches in terms of policies and practices to manage the new normal of continuing service delivery during the pandemic. Another common perspective they expressed was that while the initial transition was a little difficult, once protocols and policies were defined, their utilities transitioned well to continue their operations. All three utilities experienced an increase in overall workforce productivity because of a combination of these factors:

- Effective adherence to safety protocols,
- Minimization of travel time,
- Enhanced use of technology in their day-to-day operations; and
- Virtual meetings and collaboration.





The panelists also shared about their engagement in specific actions.



Mr. Bryant: “The need to function virtually helped the team be more “intentional in communication” and learn technologies they had not used before. For instance, software tools were put to effective use in electronic contracting, project management and in gathering public input through online surveys. The City was able to garner a larger attendance online for Stormwater Management Advisory Commission meetings and was able to conduct a virtual town style meeting for floodplain management.”



Mr. Berthiaume: “Public works developed a pandemic response plan based on the City Mayor’s guidelines. With a single point of accountability in executing the plan and through effective monitoring of the plan and management of supplies, the City experienced just one incident of COVID-19. The City’s focus was on training the workforce in adapting to the pandemic plan. Virtual meetings provided the flexibility to attend regional meetings more efficiently.”



Mr. Sampley: “The City invoked an incident command structure (ICS) that is typically used for emergency response. However, the protocols defined in the ICS did not work that well in the context of the pandemic and were revised. Having a web-based work order management system with applications on tablets helped crews continue field operations. The development review team was able to continue their tasks effectively virtually. A key lesson from the pandemic is the need to reconfigure the work environment to increase efficiency and time management. Future issues and challenges include evolving work environments with a mix of office and home staffing a “blurring” of work-life balance, use of computers, communications and supplies.”

Summary

As the discussion highlights, there are differences among the three utilities concerning the capital program planning process, debt versus cash financing and the types of customer incentives and assistance the utilities provide. However, a key perspective that all three panelists shared is that garnering stakeholder support for sustaining user fee funding requires a continuously evolving proactive effort. Best practices help include prudent long-term capital program planning, proactive collaboration with and the education of decision makers and balancing of planned and modest rate increases while implementing quality stormwater services and improvements for their communities.



Section 1

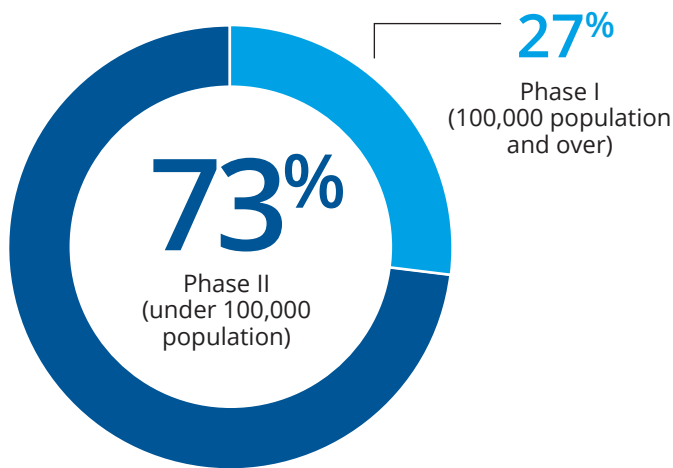
Organizational Information

Organizational Information

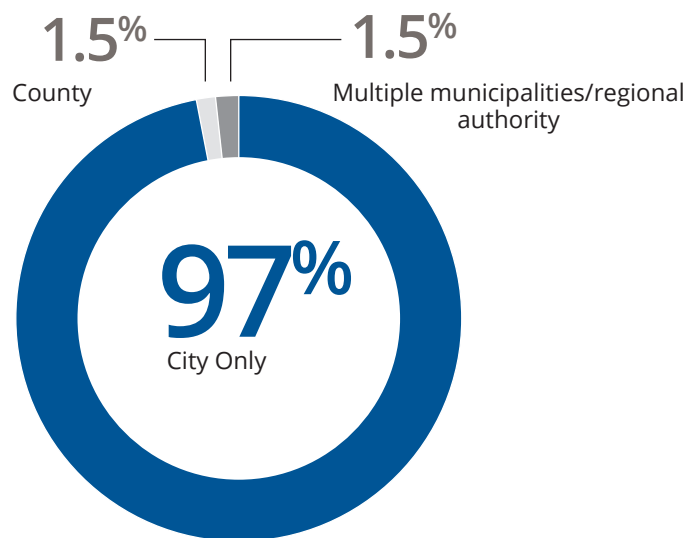
In the United States, according to the EPA, there are 855 Phase I MS4s and 6,695 Phase II MS4s that include numerous cities and counties subject to MS4* discharge regulations.¹

However, as validated again in this year's survey, user fee funded utilities continue to be prevalent in municipalities served by cities as opposed to counties or multi-jurisdictional authorities. Out of a total of 73 respondents, 71 had stormwater responsibilities within city jurisdiction. When compared with our previous surveys, this year a significant number of respondents (73%) were from smaller Phase II MS4 communities. Out of the 13 respondents that have a service area that included both a combined sewer system (CSS) and an MS4, nine indicated they are under a consent order for combined sewer overflows (CSOs) and four also had a consent order for MS4 requirements.

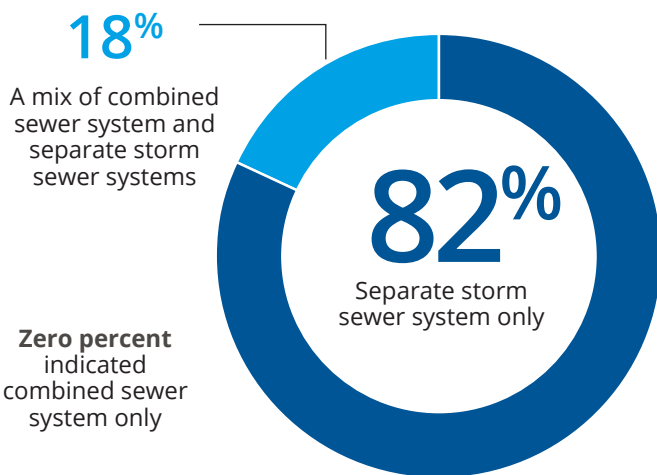
1. From an MS4 permitting perspective, are you classified as: (Select one)



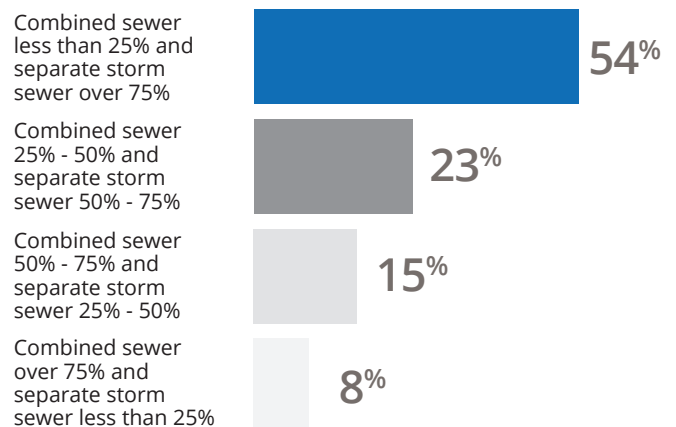
2. What jurisdictional area is your stormwater utility responsible for? (Select one)



3. What type of system is your utility served by? (Select one)



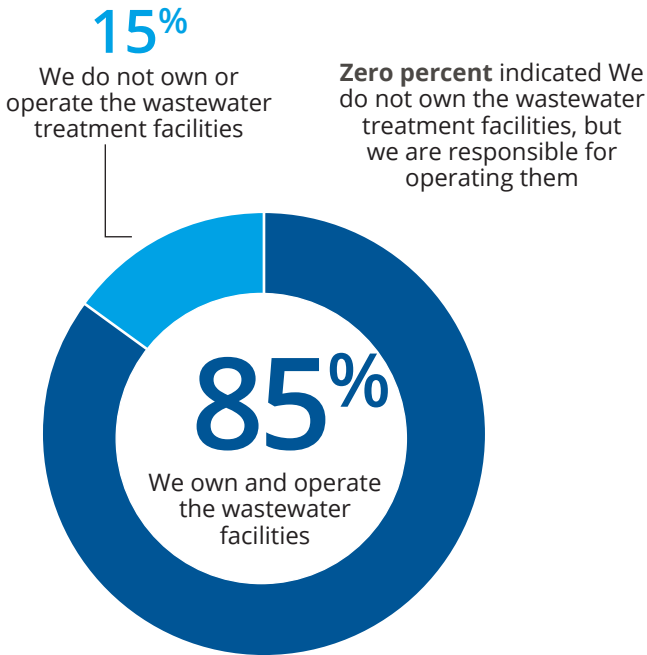
4. If you selected "Mix of combined sewer system and separate storm sewer systems" in Question 3, please indicate the percentage of combined sewer versus separate storm sewer system that exists within your jurisdiction.



* Municipal Separate Storm Sewer System
¹<https://www.epa.gov/npdes/stormwater-discharges-municipal-sources>

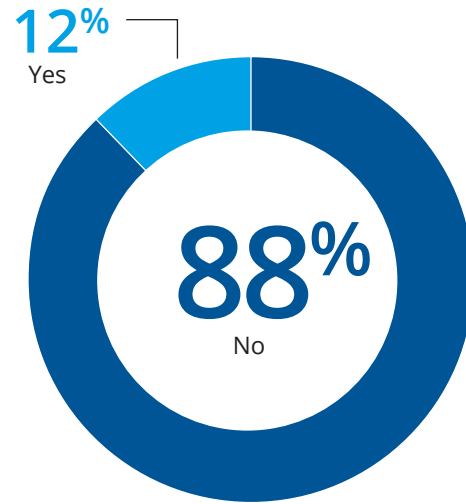
Percentage based on the number of utilities that selected "Mix of Combined Sewer System and Separate Storm Sewer Systems" in the previous question.

5. If you selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in question 3, which of the following best describes the wastewater treatment services within your jurisdiction?



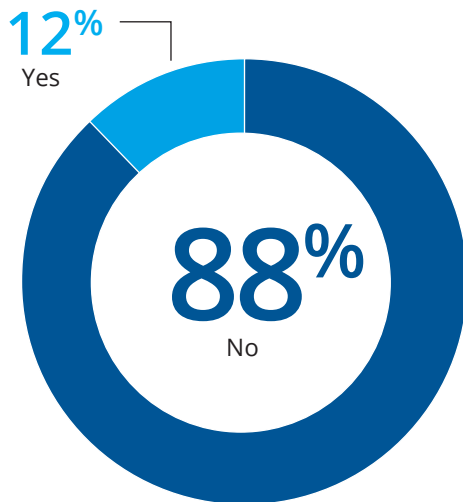
Percentage based on the number of utilities that selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in Q3.

6. Is your utility under any type of consent order decree or agreement for combined sewer overflow (CSO) issues?



Percentage based on the number of utilities that selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in Q3.

7. Is your utility under any type of consent order decree or agreement for MS4 compliance issues?



Percentage based on the number of utilities that selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in Q3.



Section 2
Planning

Planning

Actionable plans with measurable outcomes are a catalyst to transform innovative ideas to successful realities.

Over the last eight years, our survey respondents have consistently indicated funding adequacy, aging infrastructure, public awareness, increasing regulations and nutrient/TMDL requirements as part of the top five ranked challenges. For the first time, respondents in this survey have ranked Workforce Development and Succession Planning as part of the top five ranked issues. It is an important recognition that utilities consider workforce development as vital to effective stormwater management.

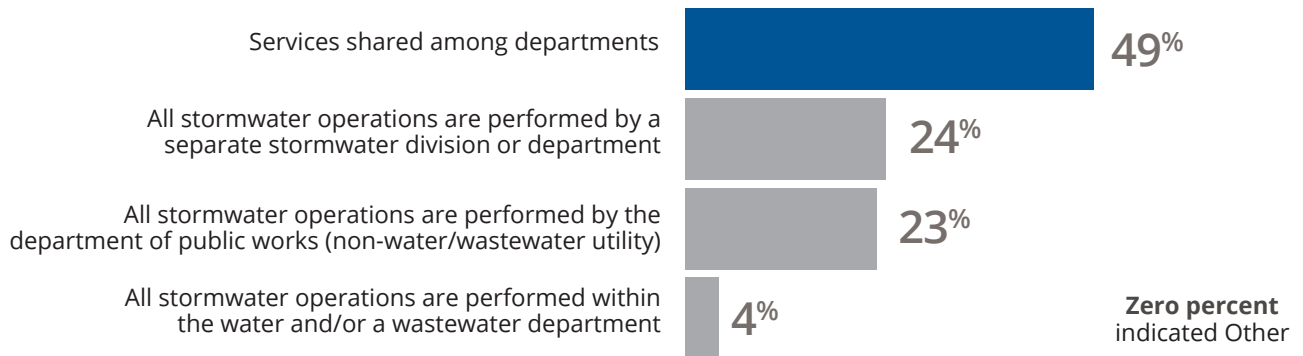
In respect to planning, the survey results indicate an interesting difference between the larger MS4 Phase I group of utilities and the smaller MS4 Phase II group of utilities.

Over 73% of the respondents in each of these two groups indicated aging infrastructure as one of the two highest ranked stormwater management issues. However, while 63% of the respondents in the MS4 Phase I group indicated having a stormwater asset management plan, only 35% of the respondents in the MS4 Phase II group had a stormwater asset management plan. Similarly, only 29% of these MS4 Phase II groups indicated having an emergency response plan.

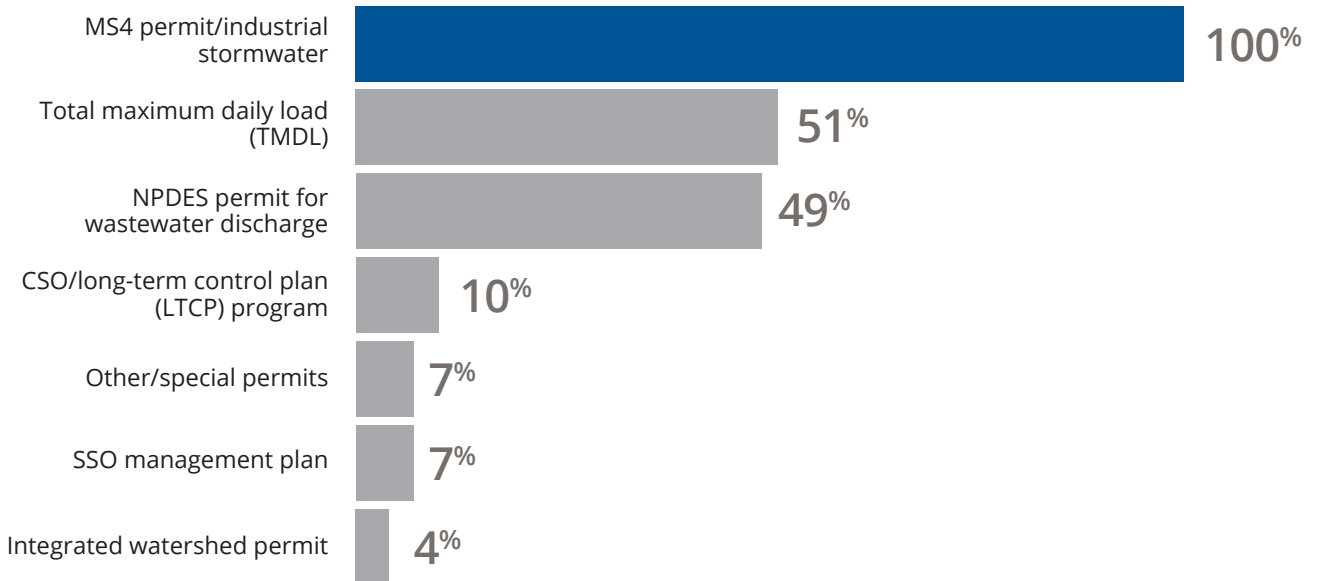
Smaller utilities must adopt standard asset management best practices to effectively manage aging infrastructure. Such an approach will not only help the utility leaders make a compelling case for increased funding but also help maximize the value of their capital investments by targeting it toward critical and prioritized capital projects. The recent pandemic further highlights the criticality of having emergency response plans to be agile and efficient in handling emergencies.



8. Please indicate how your current stormwater management operations (excluding street sweeping) are performed. (Select one)

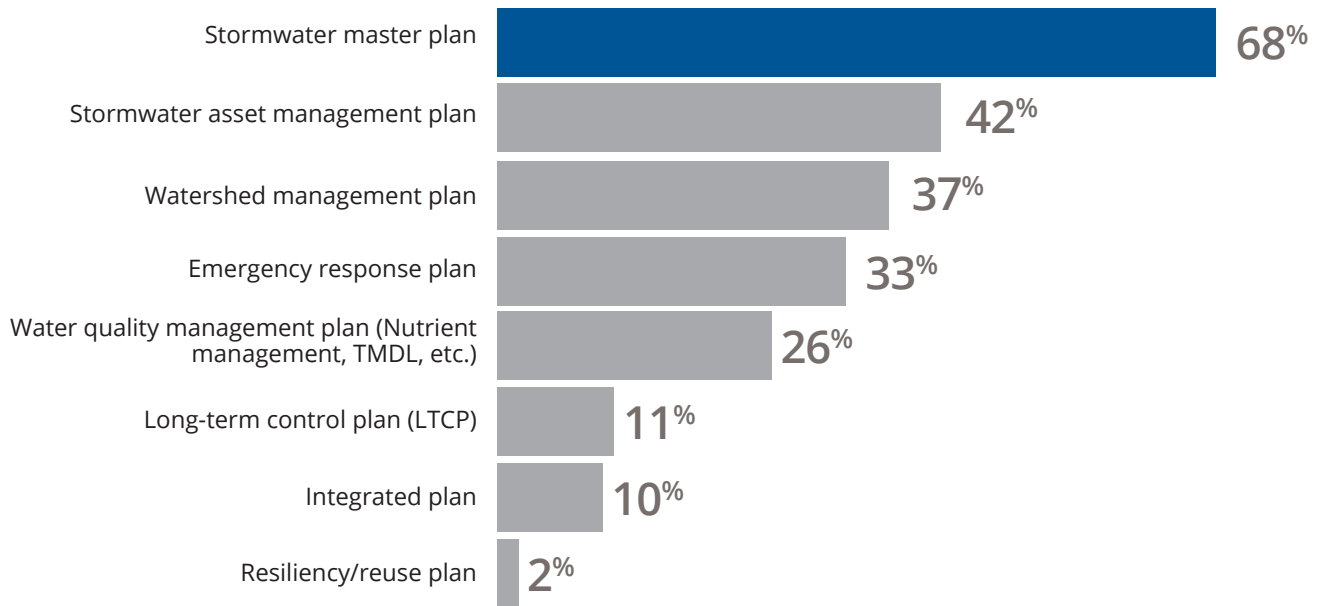


9. What regulatory permit requirements do you currently have to comply with? (Select all that apply)

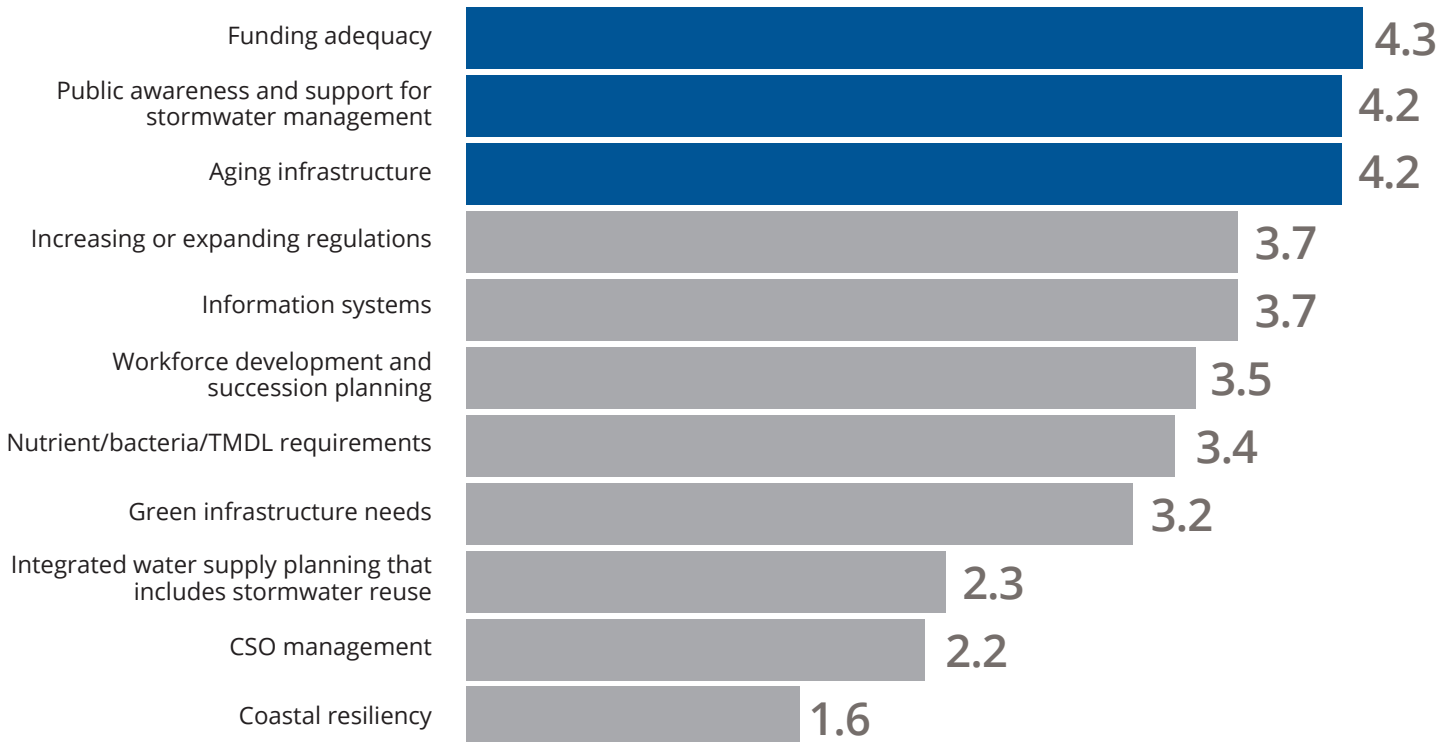


Percentage based on the number of utilities that indicated they have some type of permit.

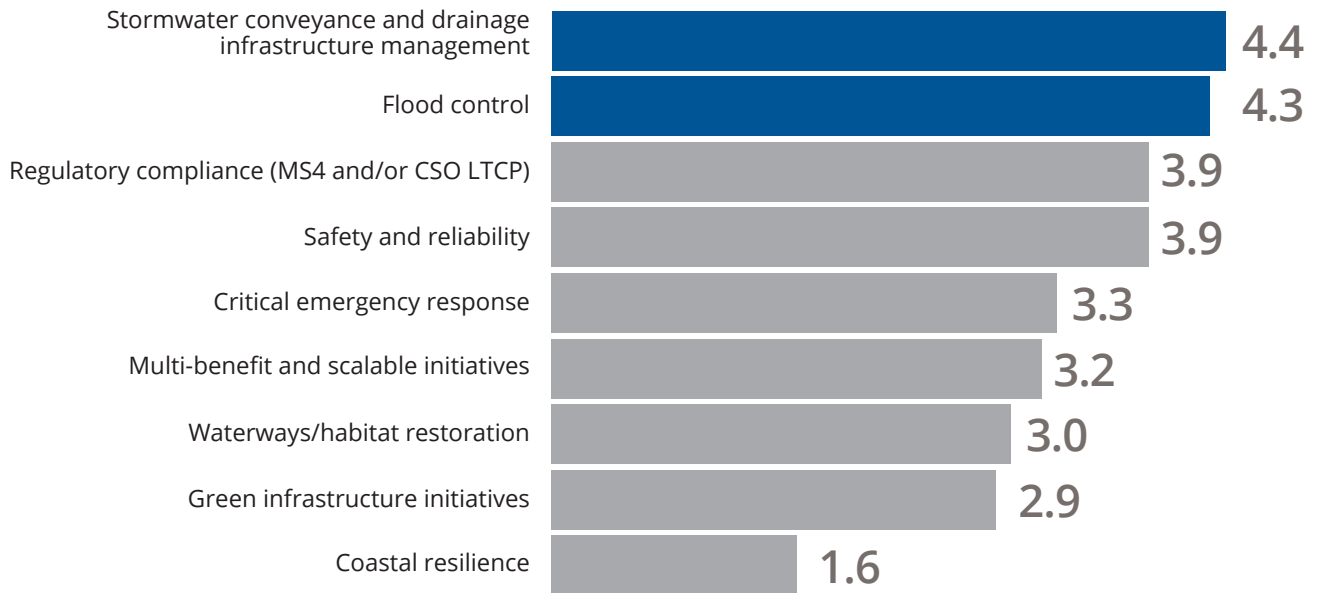
10. What types of plans has your utility developed? (Select all that apply)



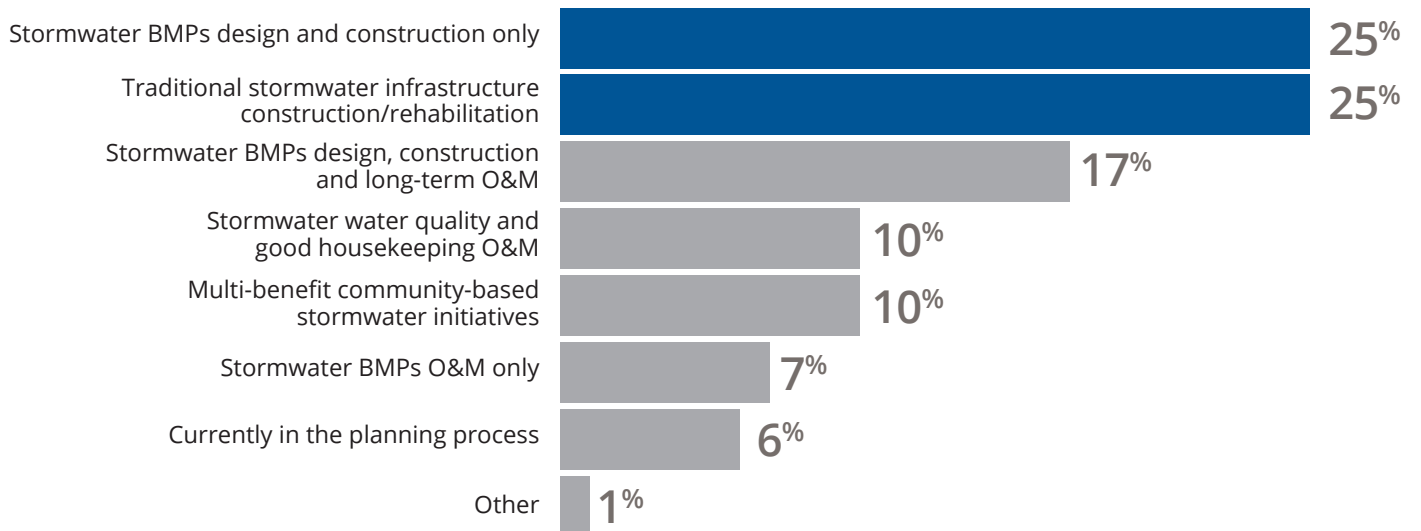
11. Please rank the issues listed below in order of importance for enhancing your utility's stormwater management. (1 = Least important; 5 = Most important)



12. Please rank how strongly the following issues drive capital program prioritization and the level of annual capital spending decisions within your stormwater utility. (1 = Very weak; 5 = Very strong)



13. Have you entered into any public-private partnership agreements for the provision of the following public utility services? (Select all that apply)



Section 3

Financing and Accounting

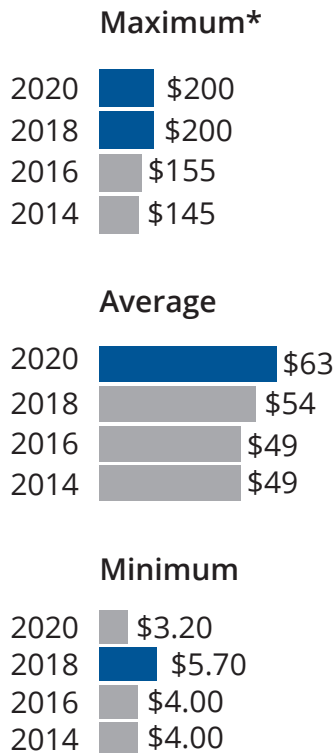
Financing and Accounting

Revenue certainty with dedicated user fee funding mechanisms helped utilities expand their stormwater management services, augment resources and alleviate the need to compete with other general fund supported priorities, as seen first-hand by the utility leaders that participated in the featured stormwater roundtable discussion.

While user fee funding can provide the revenue stability that utilities seek, rates need to be updated in a timely manner to fully align with a utility's forecasted revenue requirements. Funding adequacy continues to be a key challenge as nearly one-third (31%) of the respondents indicate that funding that they currently generate is inadequate to meet both their O&M and capital revenue requirements and 42% indicate that they can cover all of their O&M, but only limited levels of capital needs.

It should be noted that the mix of utilities that responded to this survey is different than our 2018 survey. However, the maximum revenue per capita reported in this survey is consistent with what we found in the 2018 survey. In this year's survey, we posed a new question to understand what activities utilities would focus on if they had adequate funding. Sixty percent (60%) of the respondents indicated proactive repair and rehabilitation, water quality improvements and developing resiliency measures to mitigate flooding as the three key potential areas of focus. The percent of utilities (22%) that reported using debt financing to fund capital improvements is higher than what we have seen in the previous three surveys.

14. What is the total annual stormwater revenue generated per capita by your stormwater utility (in dollars)?



*Indian Creek Village, with the lowest population among the respondents (86 residents), has a much higher revenue per capita than the maximum indicated.

Note: The mix of utilities is not the same for each survey.



The success of each utility's stormwater management plan is dependent upon a stable, certain and dedicated funding stream.

15. Please provide the approximate percent of revenue that your utility receives from each source listed.

	Over 75%	50% - 75%	25% - 50%	Less than 25%
Stormwater user fees	95%	3%	1%	1%
Stormwater impact fees	0%	0%	8%	92%
Miscellaneous stormwater fees	0%	0%	8%	92%
Taxes	25%	0%	25%	50%
Grants	0%	0%	0%	100%
Other	15%	0%	0%	85%

16. From the list below, please select all the stormwater management activities that you include in your annual O&M budget. (Select all that apply)

Description	Stormwater Utility Budget
1. Stream/habitat rehabilitation	91%
2. Water quality monitoring	85%
3. Public education	92%
4. Street sweeping	66%
5. Inlets/outfalls maintenance	83%
6. Combined sewer conveyance maintenance	66%
7. Separate storm sewer conveyance maintenance	90%
8. BMP inspections/maintenance (publicly owned BMPs)	92%
9. BMP Inspections/maintenance (In privately owned BMPs)	90%
10. Illicit discharge detection and elimination (IDDE) programs	96%
11. Erosion and sediment control	91%
12. Construction and/or post-construction monitoring	83%
13. Planning and engineering	83%
14. Rehabilitation and replacement	82%
15. Other	50%

Percentage based on the number of utilities that indicated the activity is included in their annual budget.

17. Please provide an approximate percentage of funding from each source used to finance your utility's stormwater capital improvement program.

	2014	2016	2018	2020
Majority cash financed	85%	88%	87%	78%
Majority debt financed	15%	12%	13%	22%

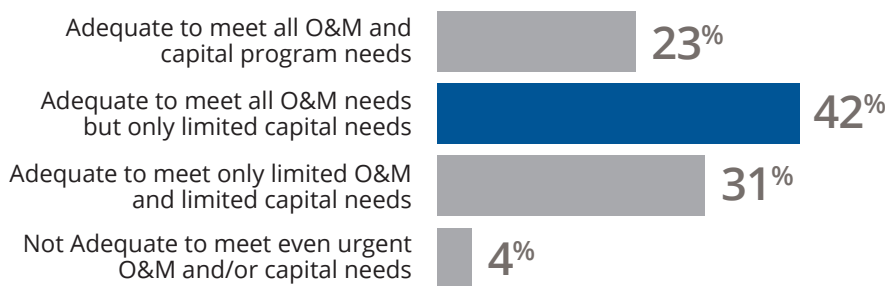
Note: The mix of utilities is not the same for each survey.

18. Please provide an approximate percentage of funding from one or more of the following sources that are used to finance your utility's stormwater capital improvement program.

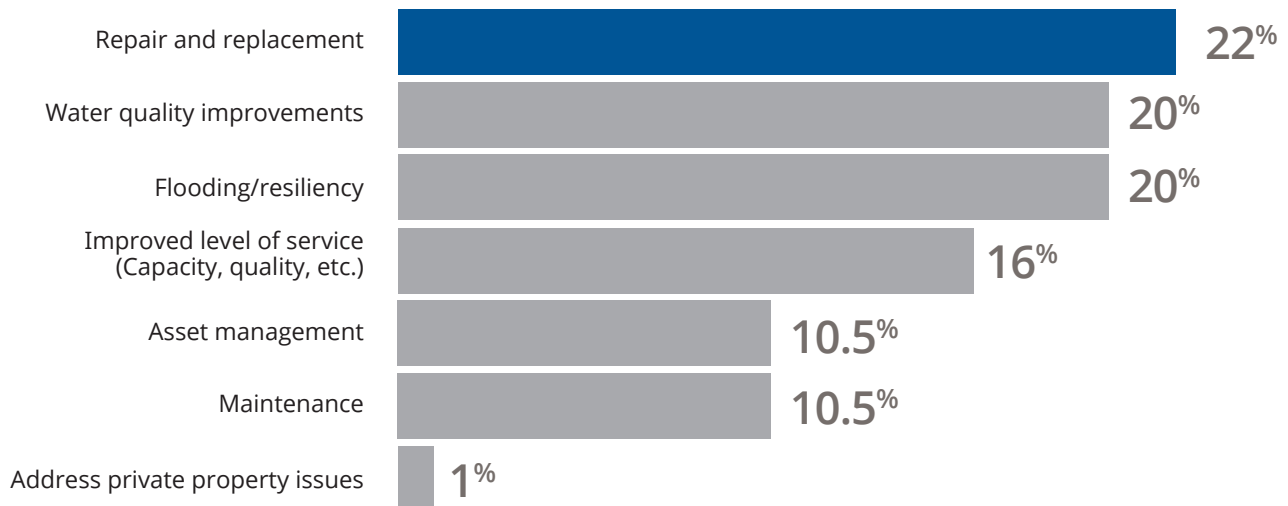
Majority Financed	22%	Majority Cash Financed	78%
General obligation (GO) bonds	18%	Stormwater user fees	84%
Wastewater or stormwater revenue bonds	11%	Grants	26%
Other debt	8%	Other cash	8%
Combined stormwater/other bonds	5%	Permitting and other fees	7%
Sales tax bonds	0%	New development impact fees	7%
Benefit district bonds	0%	Ad valorem taxes	3%
		Sales taxes	1%
		Special assessments districts	1%

Percentage based on the number of utilities that responded to the question.

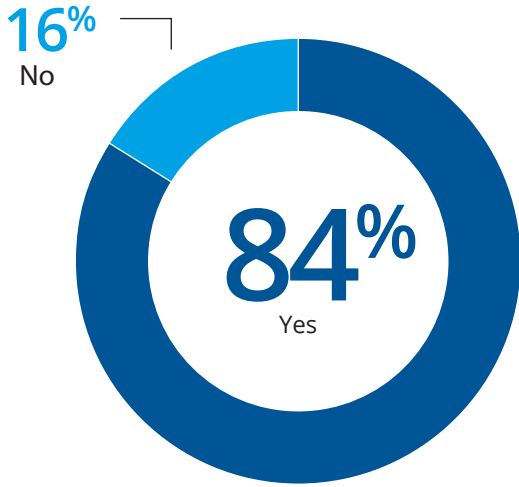
19. How would you rate your utility's stormwater funding to meet the utility's needs? (Select one)



20. If you had adequate funding, what types of O&M activities and/or capital projects would you pursue?

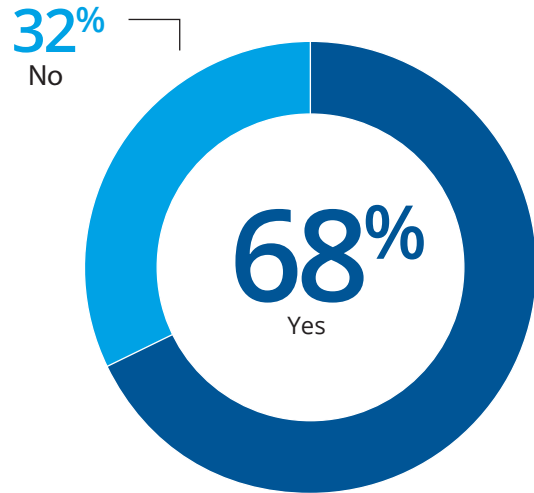


21. Does your state have enabling legislation that authorizes municipalities to charge a stormwater user fee?



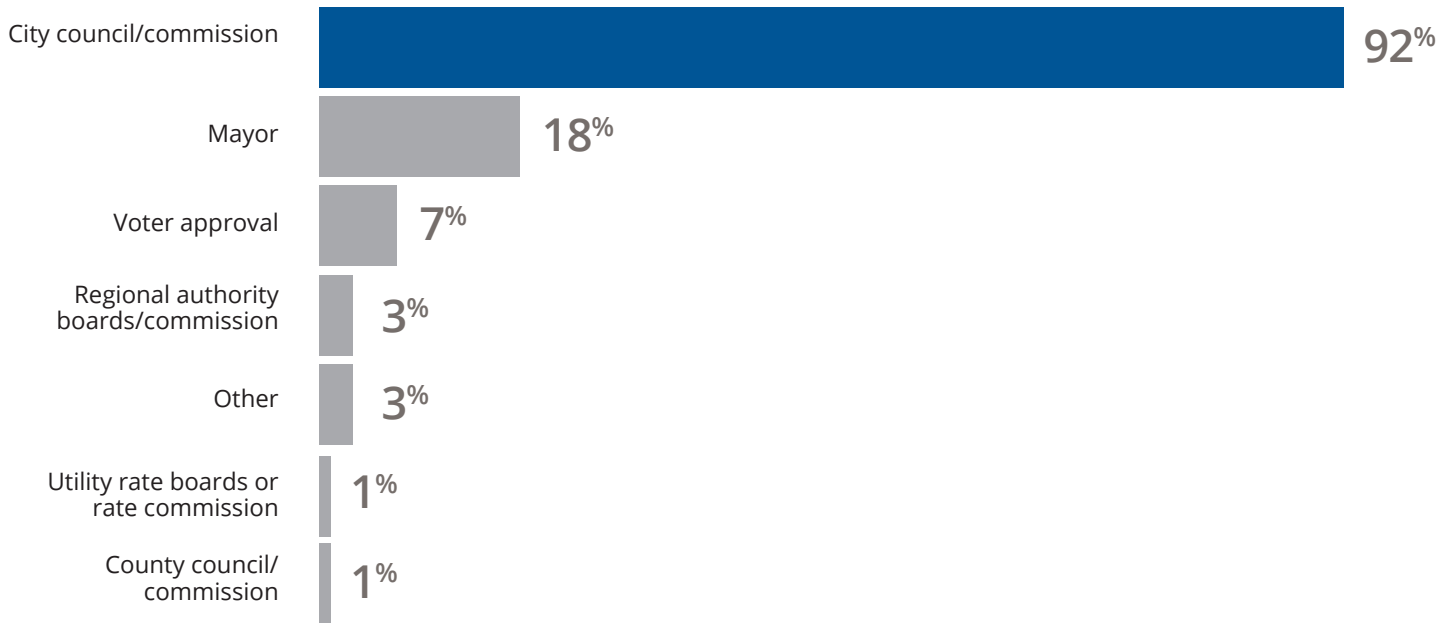
Percentage based on the number of utilities that responded to the question.

22. Does your state have enabling legislation that authorizes independent public utilities such as authorities, boards, and sewerage commissions/districts to charge a stormwater user fee?



Percentage based on the number of utilities that responded to the question.

23. What is the governing authority that approves your stormwater user fee rates and/or stormwater millage fee? (Select all that apply)



Zero percent indicated public utilities commission (PUC)

Percentage based on the number of utilities that responded to the question.

Section 4

Stormwater Rate Structure and Billing

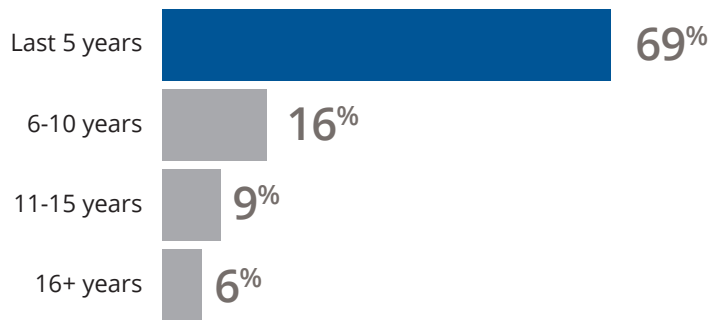
Stormwater Rate Structure and Billing

The median average monthly single-family residential charge continues to increase relative to our previous biennial surveys, with the charge increasing to \$6.08 from the \$5.71 that we reported in our 2018 stormwater survey.

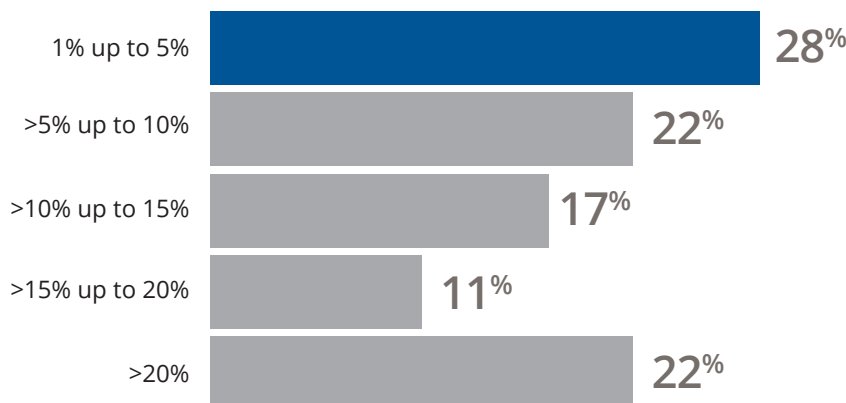
Overall, the response results on many of the rate structure and billing parameters are fairly consistent with that of the previous two surveys. For instance, the median gross area and impervious area that utilities have reported over the last four surveys have remained within 7,800 to 8,600 sq ft and 2,300 to 2,700 sq ft, respectively. Similarly, a majority of the respondents (68%) indicated that they do not offer any customer assistance or discount programs. While 87% of the respondents indicate using the impervious area as the basis for determining stormwater charges, 54% of the utilities indicate they do not have any defined protocol to update and maintain the billing data that supports stormwater billing. As land use and parcel attributes are dynamic and subject to changes, it would be worthwhile for utilities to establish best practice data management for effective revenue generation and equitable billing.

As affordability is becoming an increasingly critical issue in the water and sewer sector, in this survey, we included a question on affordability. Sixty-eight percent (68%) of the respondents of the respondents indicated that their customers perceive the stormwater charges to be affordable and 17% indicated that they do not know how their customers perceive the charges.

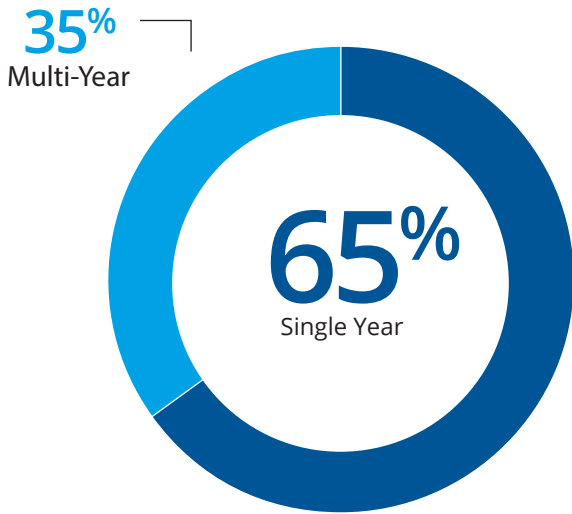
24. Please indicate the year in which you last increased your stormwater user fee.



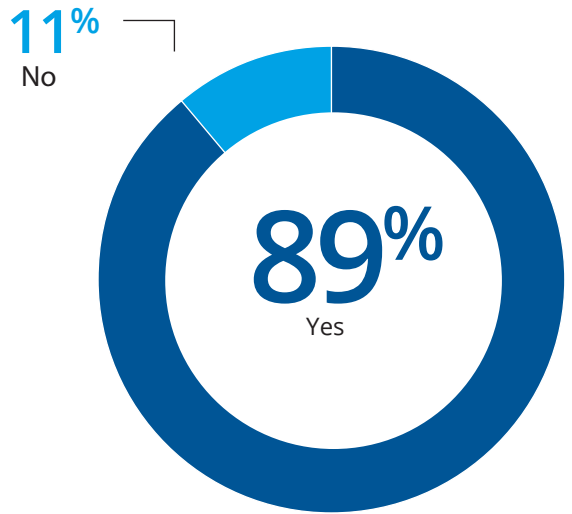
25. How have your stormwater user fees increased in the last five years? (Select One)



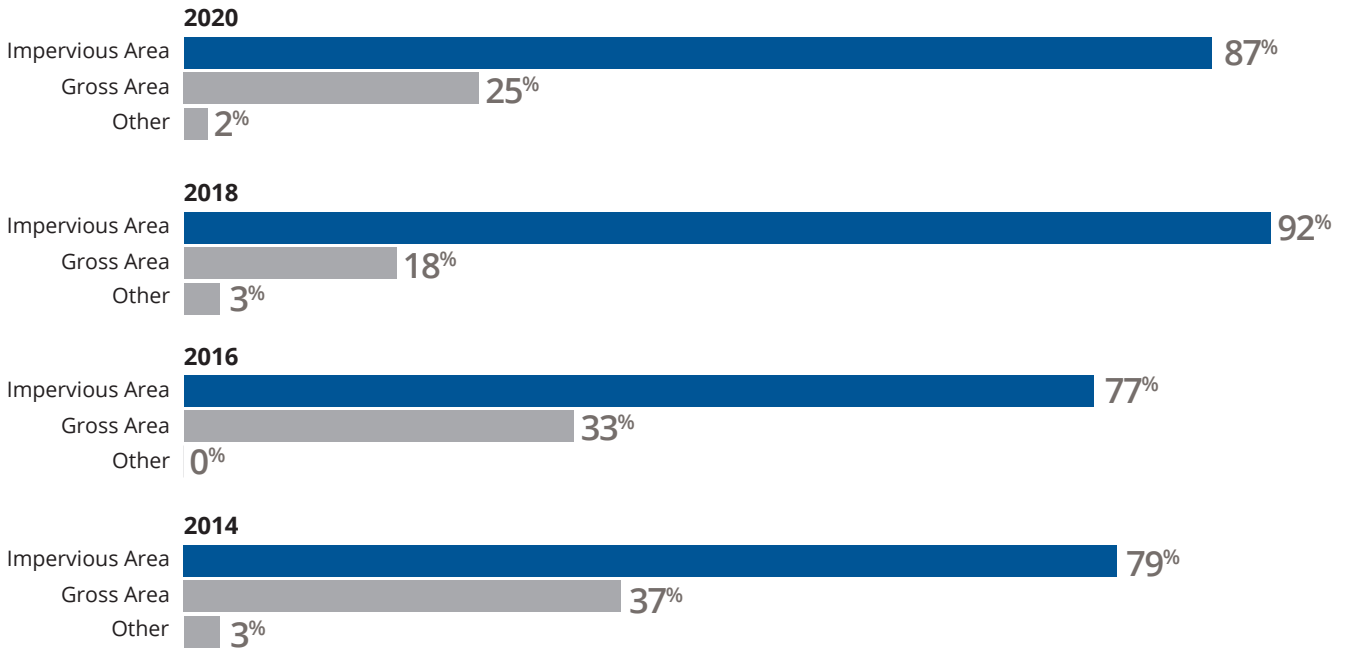
26. What type of rate increase is your utility able to obtain from the approving body? (Select One)



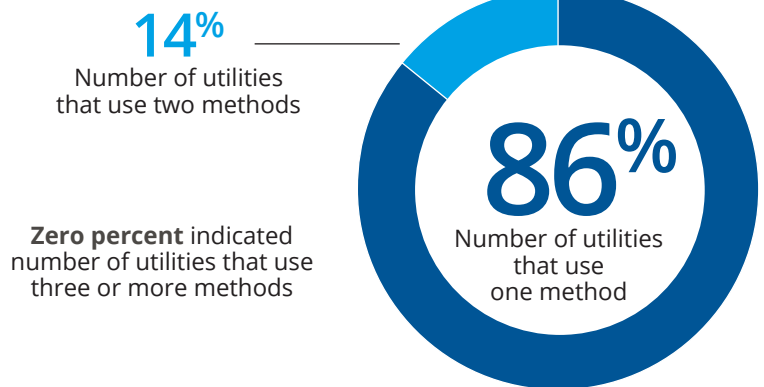
27. Is your stormwater user fee based on some form of parcel area such as gross and/or impervious area?



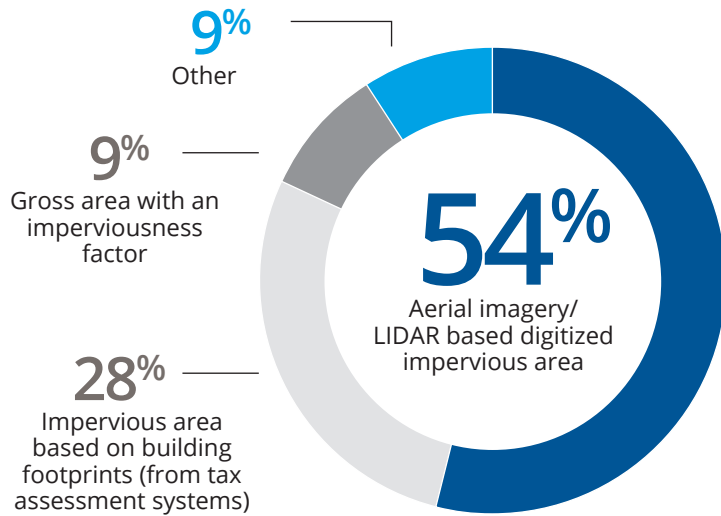
28. What is the basis for calculating your parcel area based stormwater user fees? If a combination of methods is used, please check all applicable methods.



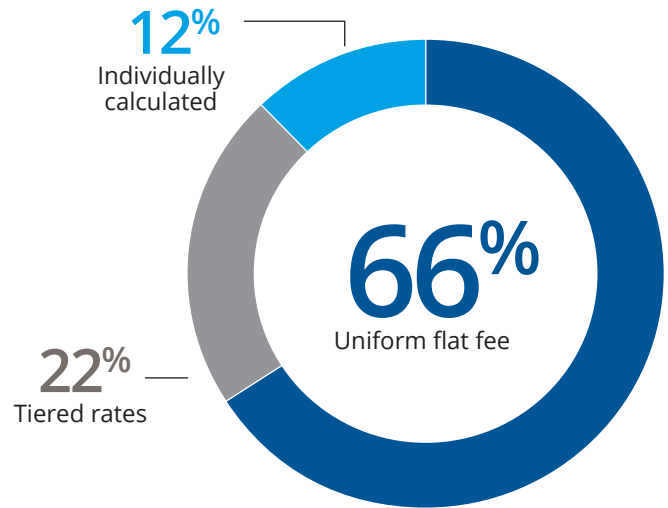
Note: The mix of utilities is not the same for each survey.



29. If your fee is based on impervious area, what is the basis for calculating the impervious area? (Select all that apply)



30. What type of rate structure does your utility have for the family residential parcels? (Select all that apply)



31. What is your utility's average single family residential parcel square footage? (Includes attached residential up to four dwelling units)

Average Gross Area (sq ft)	2014	2016	2018	2020
Minimum	2,105	2,266	2,480	2,074
Maximum	22,500	20,000	43,560	22,000
Median	8,000	8,000	7,801	8,599

Average Impervious Area (sq ft)	2014	2016	2018	2020
Minimum	794	786	910	910
Maximum	7,500	5,000	5,700	13,000
Median	2,368	2,550	2,618	2,629

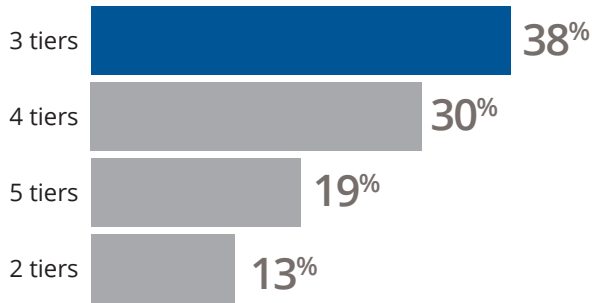
Note: The mix of utilities is not the same for each survey.

32. What is your average monthly residential stormwater fee?

City	State	2020 Average Monthly Residential Charge
DuPont	WA	\$25.00
Pacific	WA	\$23.82
Bremerton	WA	\$17.54
Fort Collins	CO	\$17.00
Satellite Beach	FL	\$16.67
Redmond	WA	\$16.56
Philadelphia	PA	\$15.80
Milton	WA	\$15.50
Waconia	MN	\$14.55
Loveland	CO	\$14.53
Naples	FL	\$13.93
Austin	TX	\$13.57
Chattanooga	TN	\$12.69
Edgewater	FL	\$12.00
Lubbock	TX	\$11.18
Charlotte	NC	\$10.77
Medford	OR	\$10.25
Yelm	WA	\$10.25
Orlando	FL	\$9.99
Fridley	MN	\$9.86
Cape Canaveral	FL	\$9.00
Sussex	WI	\$8.76
Cincinnati	OH	\$8.28
Margate	FL	\$8.25
Silver Lake	OH	\$8.00
Silver Spring	MD	\$7.66
Lancaster	OH	\$7.64
Meadville	PA	\$7.50
Wilmington	DE	\$7.18
Cedar Rapids	IA	\$6.91
Tampa	FL	\$6.83
New Port Richey	FL	\$6.66
Georgetown	TX	\$6.50
Mansfield	TX	\$6.50
Whitewater	WI	\$6.17
Wilton Manors	FL	\$6.15
Marysville	OH	\$6.00
Miami Gardens	FL	\$6.00
Bloomington	MN	\$5.95

City	State	2020 Average Monthly Residential Charge
Charlottesville	VA	\$5.86
Olathe	KS	\$5.77
Santa Fe	NM	\$5.50
Roanoke	VA	\$5.40
Ramsey	MN	\$5.33
Sanitation District #1	KY	\$5.04
Altoona	IA	\$5.00
Raleigh	NC	\$5.00
Topeka	KS	\$5.00
North Miami Beach	FL	\$4.60
Lawrence	KS	\$4.50
Monroe	NC	\$4.50
Reedsburg	WI	\$4.30
Rock Hill	SC	\$4.25
Menasha	WI	\$4.17
Frisco	TX	\$4.14
Lakewood	CO	\$4.09
Cloquet	MN	\$4.00
St. Francis	WI	\$4.00
Indian Creek Village	FL	\$4.00
Griffin	GA	\$3.56
Newark	DE	\$3.54
Marshall	TX	\$3.50
Ravenna	OH	\$3.00
Wichita	KS	\$3.00
Kansas City	MO	\$2.50
West Miami	FL	\$2.50
Converse	TX	\$2.43
White Township	PA	\$2.00
Shelby County	TN	\$1.50
Goshen	IN	\$1.25
San Diego	CA	\$0.95
Omaha	NE	\$0.84

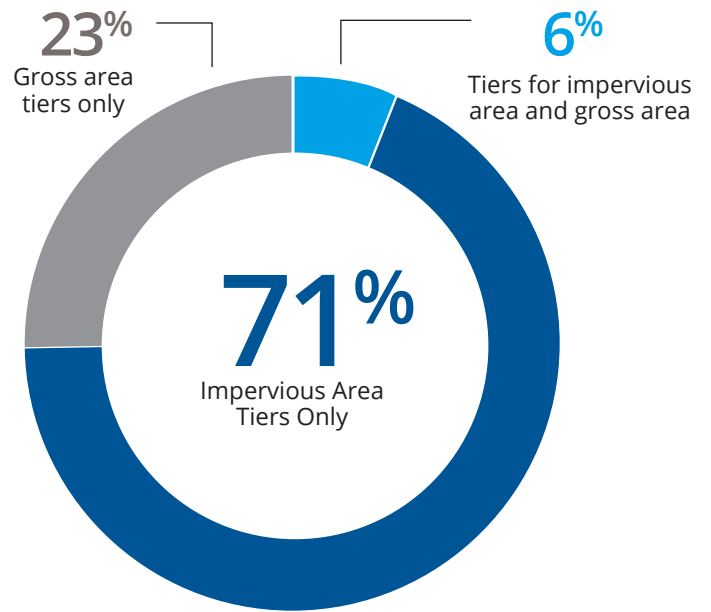
33. If you have a tiered residential rate structure, please indicate the total number of tiers.



Zero percent indicated 6 or more tiers

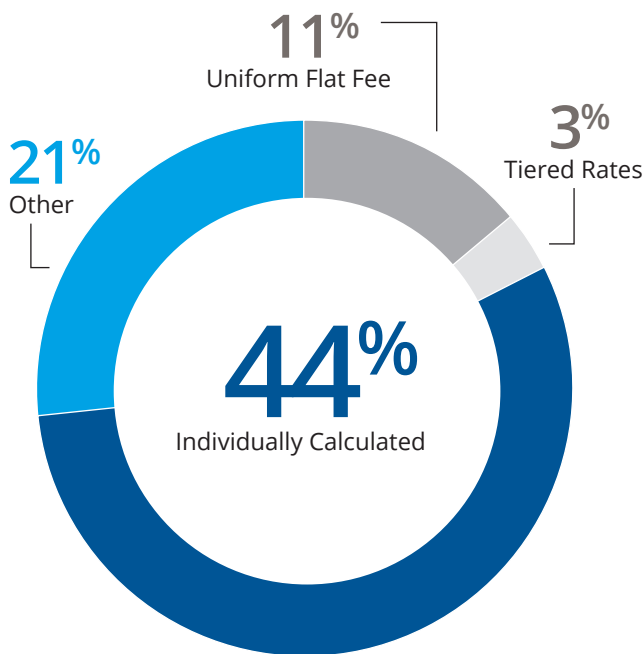
Percentage based on the number of utilities that indicated they had tiered rates in Q31.

34. If you have a tiered residential rate structure, what is the basis of the tiers? (Select one)



Percentage based on the number of utilities that indicated they had tiered rates in Q30.

35. What type of rate structure does your utility have for the non-residential parcels? (Select all that apply)



Percentage based on the number of utilities that responded to the question.

36. If you have a tiered non-residential rate structure, please indicate the total number of tiers.



Zero percent indicated 3 tiers

Percentage based on the number of utilities that indicated they had tiered rates in Q35.

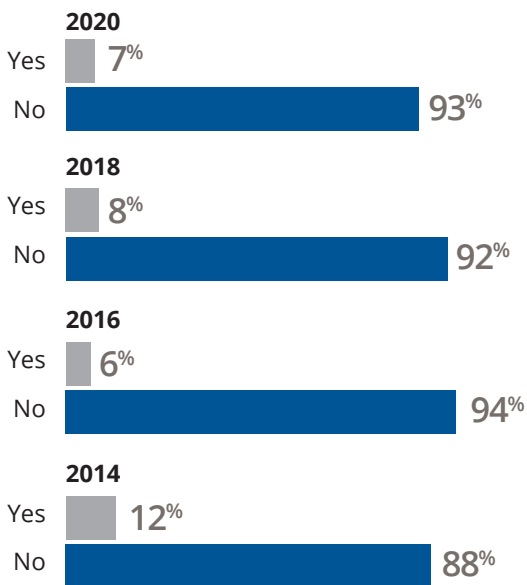
37. If you have a tiered non-residential rate structure, what is the basis of the tiers? (Select one)



Zero percent indicated gross area tiers only and tiers for impervious area and gross area

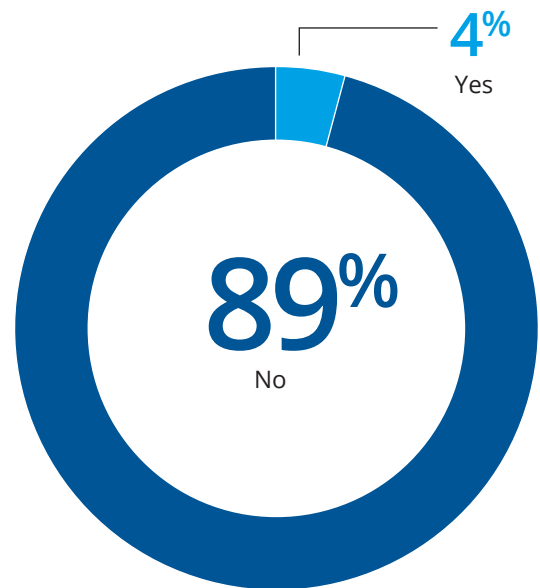
Percentage based on the number of utilities that indicated they had tiered rates in Q35.

38. Does your stormwater rate structure include a separate billing, collection or service charge?

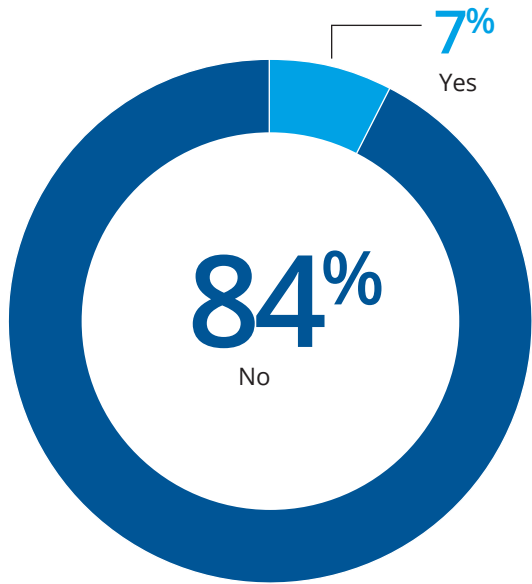


Note: The mix of utilities is not the same for each survey.

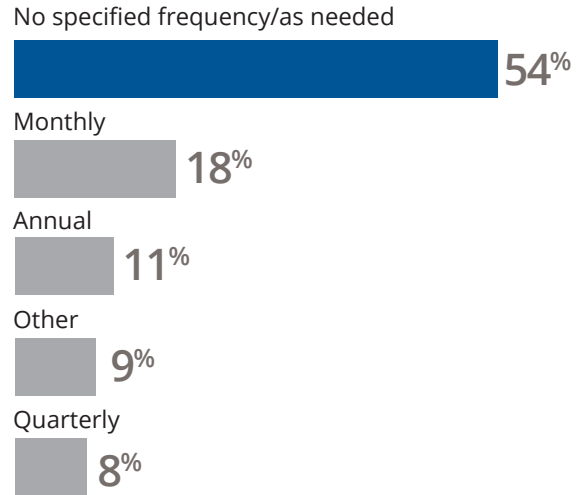
39. In your stormwater rate structure, do you have rates that differ by service area, zone or watersheds?



40. Are one-time impact or capital recovery fees applied to new stormwater utility customers or new development?

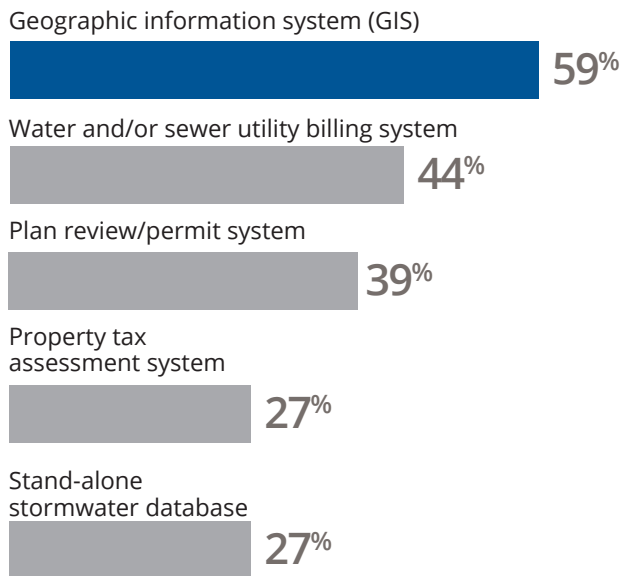


41. How frequently does your utility update customer parcel information, such as customer classes and gross and impervious areas specific to stormwater billing? (Select one)



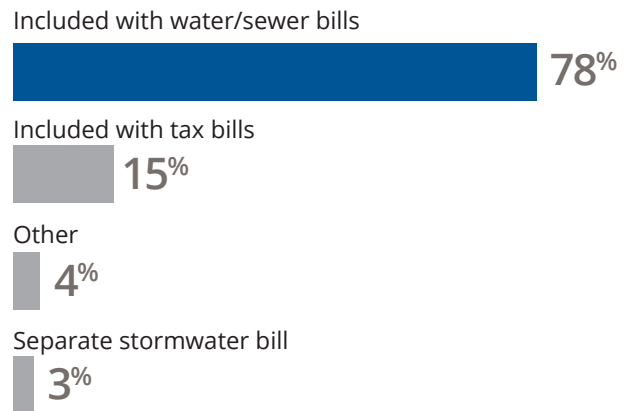
Zero percent indicated Semi-annual

42. Which of the following systems do you use to process and maintain gross and impervious area billing units, specific to stormwater billing? (Select all that apply)



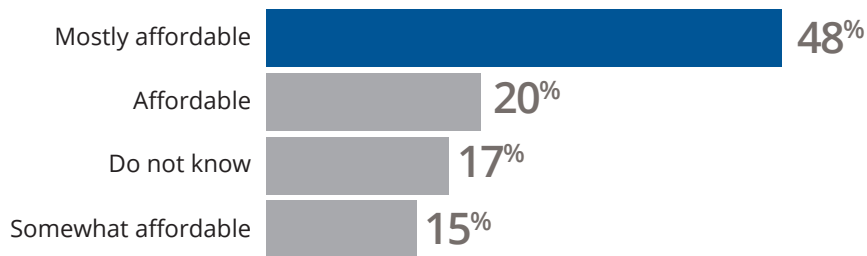
Zero percent indicated Other

43. How are the stormwater user fees billed? (Select one)



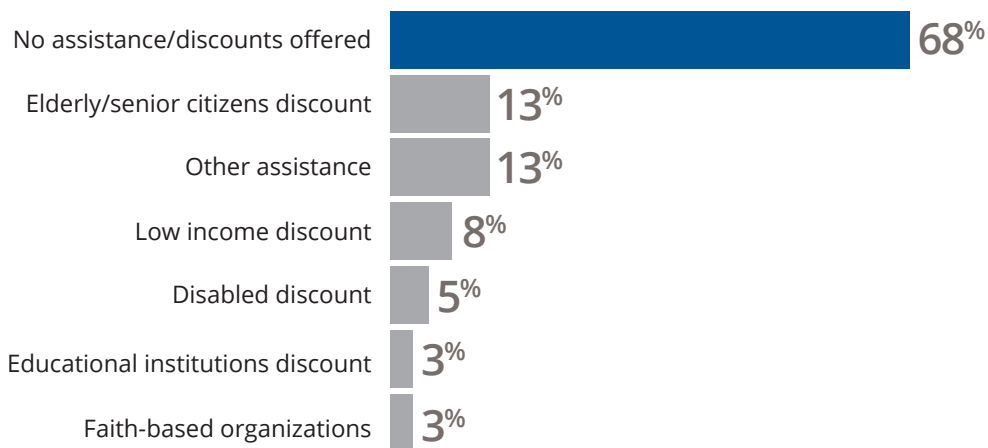
Percentage based on the number of utilities that responded to the question.

44. From an affordability perspective, how do your residential customers perceive your stormwater fee?



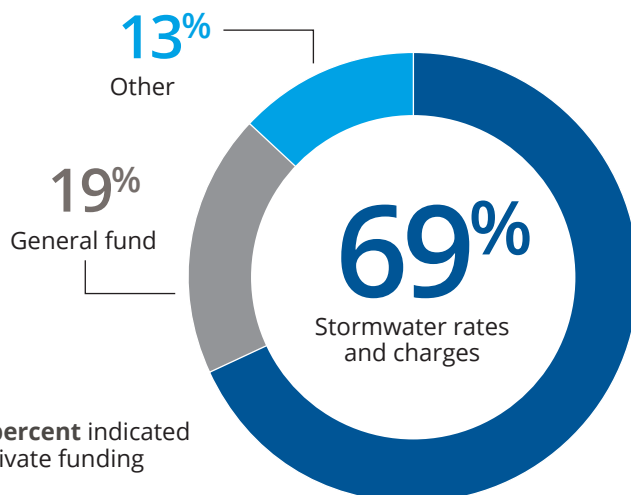
Zero percent indicated Not at All Affordable

45. Does your utility offer any customer assistance for stormwater fees, such as discounts or other fee assistance? Stormwater discounts are not the same as stormwater credits, incentives, or exemptions. (Select all that apply)



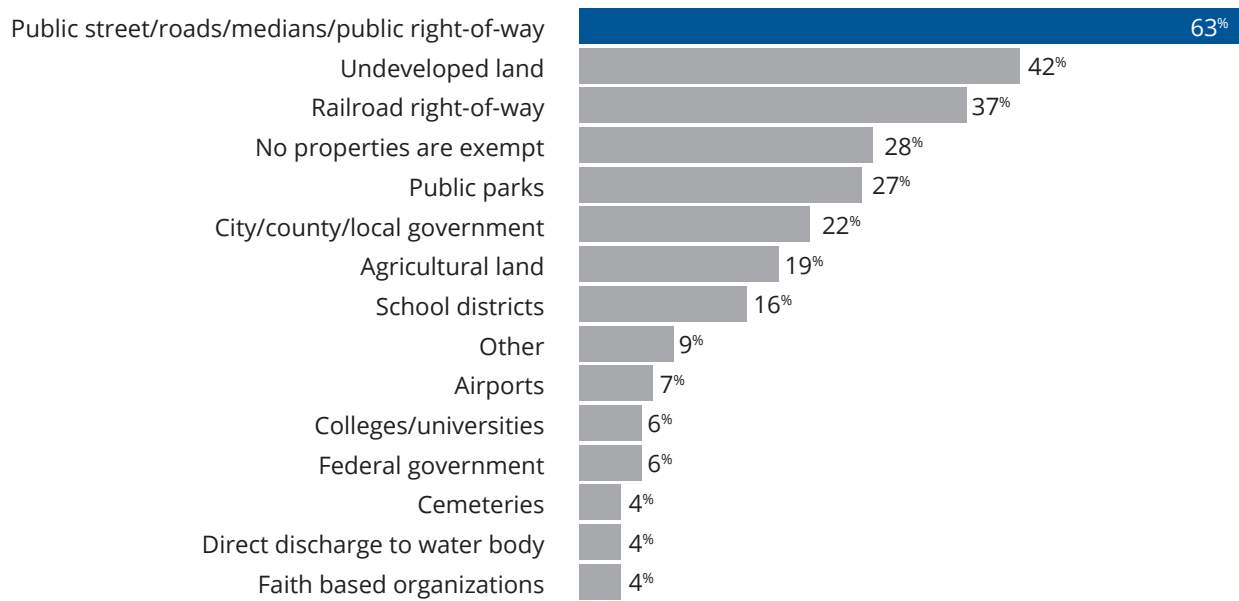
Zero percent indicated Land Bank Properties and Community Gardens

46. How do you fund customer assistance programs (discounts or other assistance)?

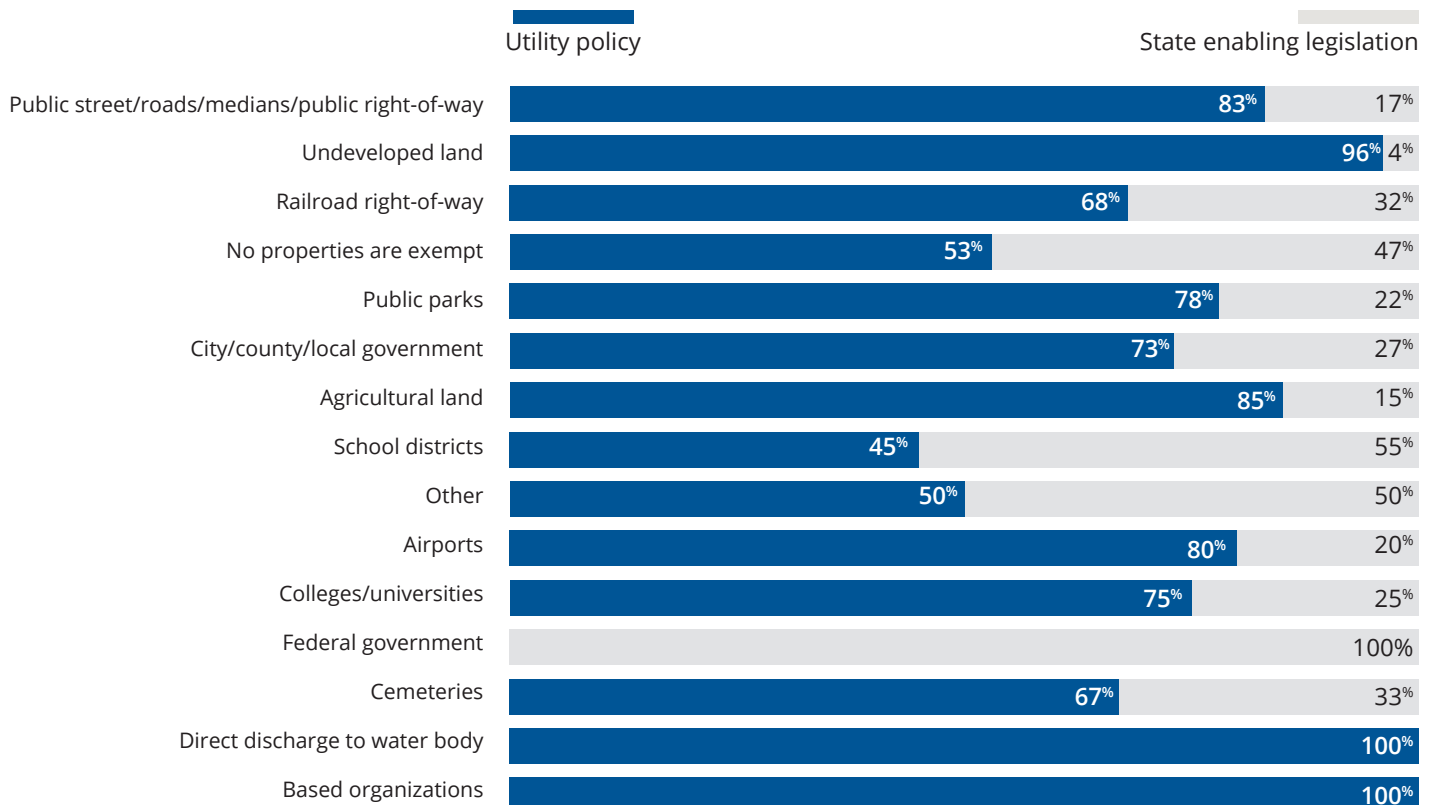


Zero percent indicated Private funding

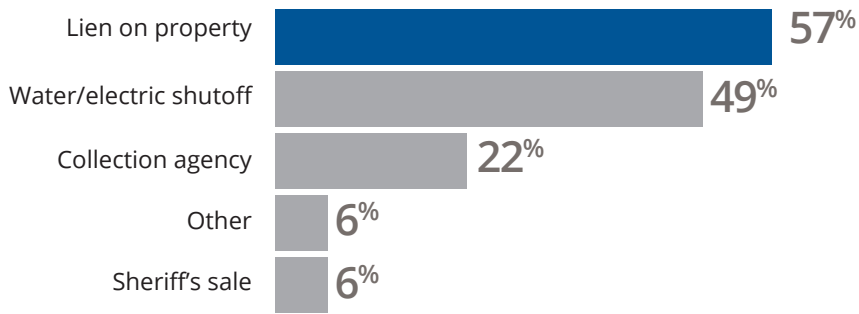
47. Are any of the following types or classes of properties exempt from stormwater user fees? For each item you select, please also indicate if that specific exemption is based on utility policy and/or authorized by state enabling legislation. (Select all that apply)



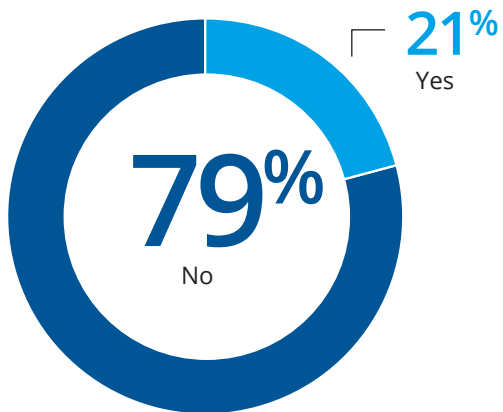
Percentage based on the number of utilities that responded to the question.



48. How are payments enforced? (Select all that apply)



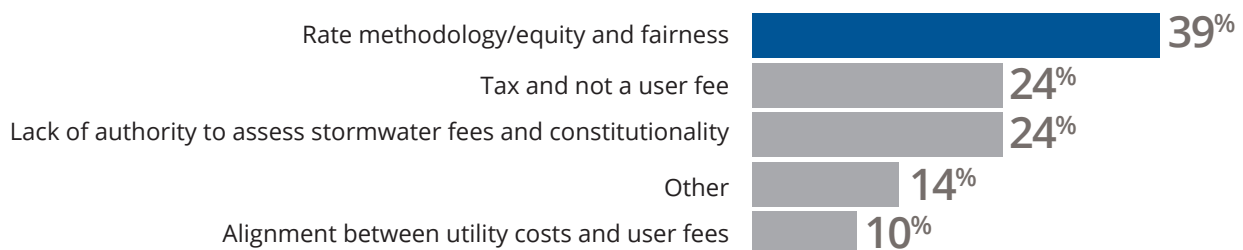
49. Has your utility's stormwater user fees ever faced a legal challenge?



50. Please indicate the customer/class that challenged your stormwater user fee (Select all that apply)



51. What was the basis of the challenge? (Select all that apply)



Section 5

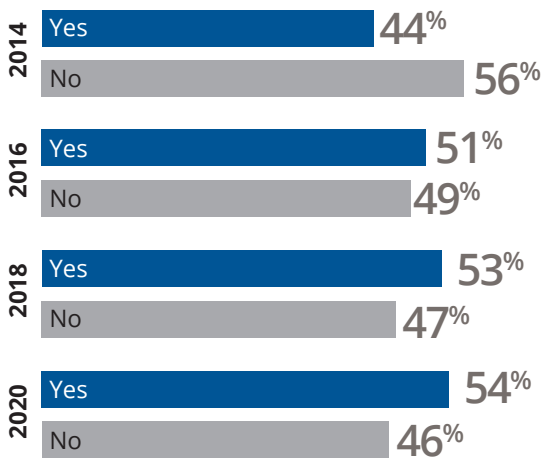
Stormwater Credits and Incentives

Stormwater Credits and Incentives

The complex interplay of benefits and challenges, inherent in designing and implementing a stormwater credits and incentives program, influences the objectives, policies and technical criteria that stormwater utility leaders define when establishing the program.

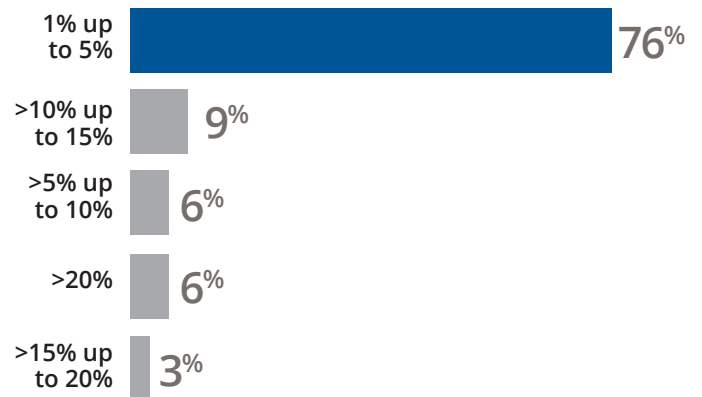
Stormwater credits and incentives program can be defined to meaningfully balance diverse objectives of fostering the perception of equity, offering voluntary fee reduction options, incentivizing private stormwater management and minimizing revenue impact. As the survey results indicate, the percentage of survey respondents that offer credits has been fairly steady at just over 50% since our 2016 survey. While incentives in the form of monetary grants are less prevalent, utilities are more inclined to offer incentives in the form of cost sharing options and design consulting assistance to private property owners that are interested in pursuing onsite stormwater management practices.

52. Does your utility have a stormwater credit program?

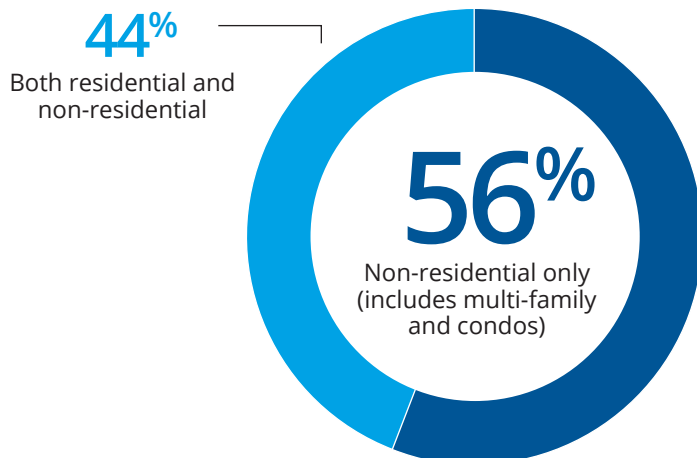


Note: The mix of utilities is not the same for each survey.

53. Currently, what percentage of your utility's total stormwater parcels receive credits?



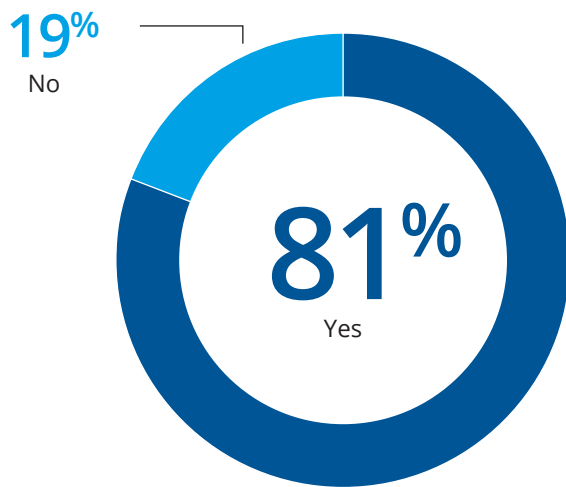
54. Please indicate the classes of parcels that are offered stormwater credits. (Select one)



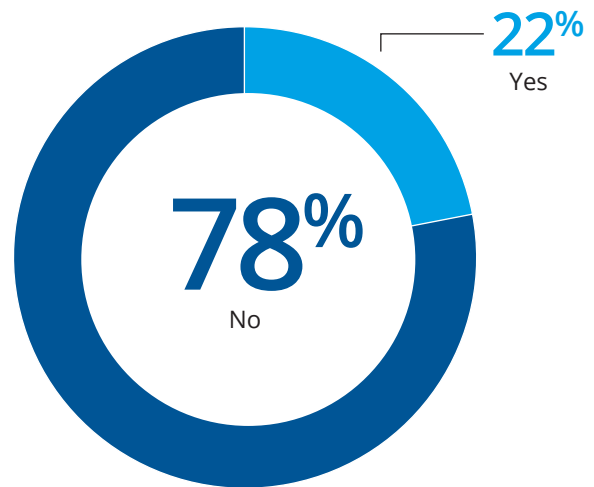
55. Please indicate the maximum allowable credit that you allow for each of the following stormwater management actions.

MAXIMUM ALLOWANCE CREDIT	Over 75%	50% - 75%	25% - 50%	Less Than 25%
Types of Credits	Percent of Respondents			
Volume reduction	28%	39%	22%	11%
Peak flow reduction	13%	13%	37%	37%
Water quality control	15%	23%	47%	15%
NPDES permit compliance	0%	17%	33%	50%
Education	0%	14%	43%	43%
Direct discharge to a surface water body (without using a municipal stormwater system)	43%	28%	0%	29%
Good housekeeping practices (sweeping, oil separation)	0%	33%	0%	67%
Undeveloped/zero discharge	80%	20%	0%	0%
Other	17%	33%	17%	33%

56. Is there a maximum total credit that is offered?



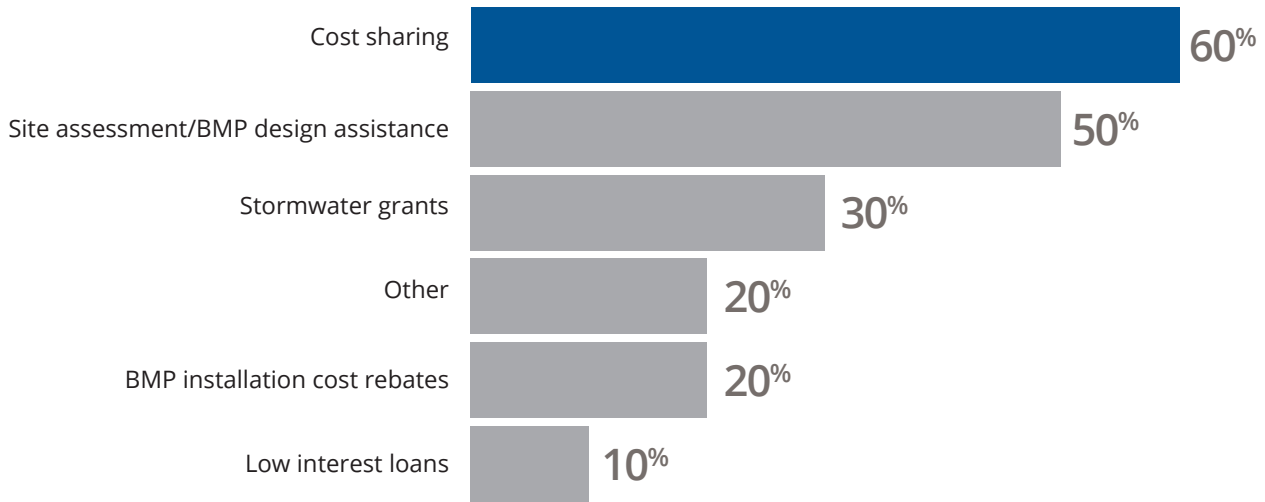
57. Do you offer credits for direct surface discharge to a water body?



58. What is the maximum stormwater fee reduction?

Maximum Stormwater Credit	Over 75%	50% - 75%	25% - 50%	Less Than 25%
Percent of respondents	27%	43%	23%	7%

59. Do you offer any of the following incentive programs? (Select all that apply)



Section 6

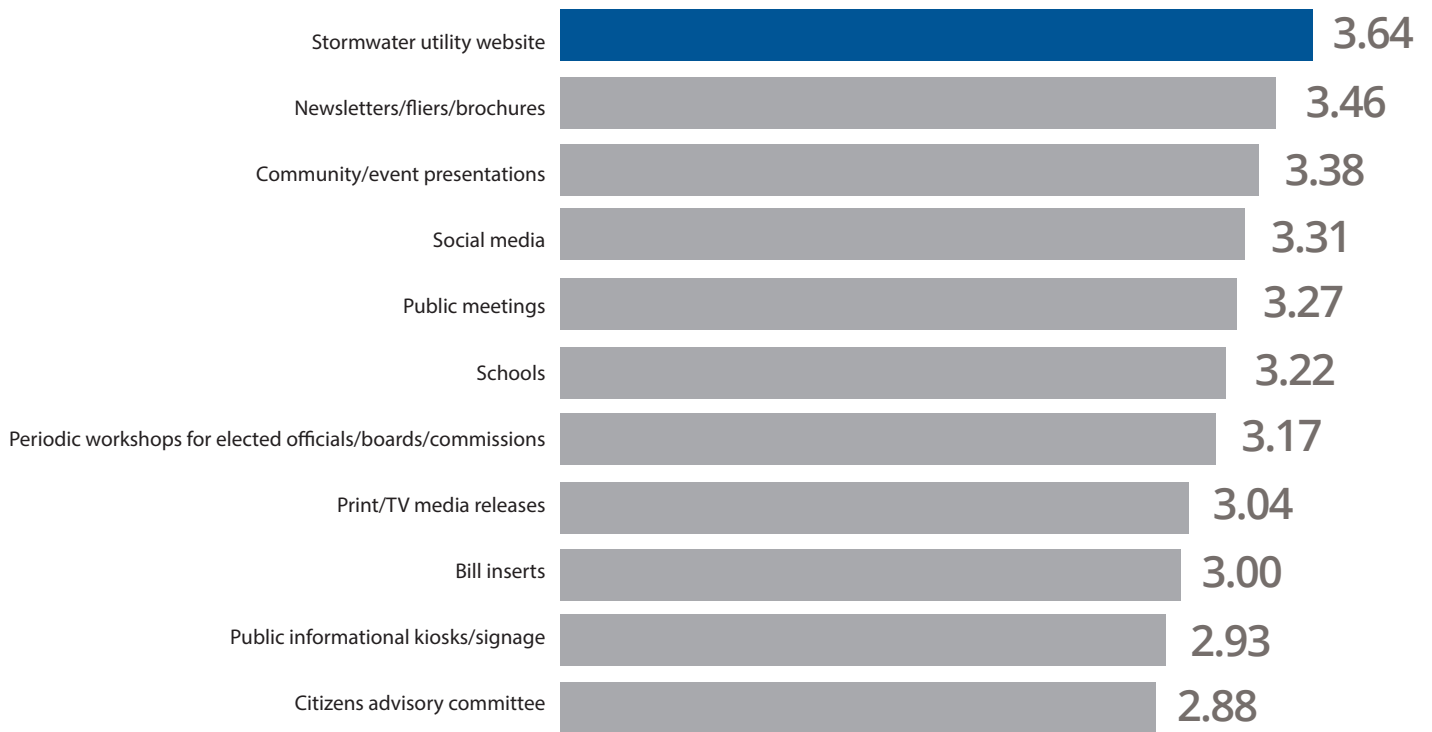
Public Information and Education

Public Information and Education

Enhancing the awareness of stormwater needs, community benefits and the concept of stormwater user fee funding is essential to garner and sustain rate payer support.

We continue to assess the communication trend in terms of what channels of communication utility leaders deem more effective in securing stakeholder support. For the first time, respondents have ranked the stormwater utility website as the most effective channel followed by the distribution of print media and community presentations. These top three ranked channels of communication could imply that utility leaders are beginning to find “targeted communication” through both newsletters, brochures and social media to be more effective than the more generic print, digital media, bill inserts and public meetings. These technology driven channels could also prove to be more effective as stakeholders gravitate more toward “on-demand” consumption of information and prefer ready access to information.

60. Please rank the effectiveness of the specific activities you have undertaken to secure stakeholder approval and support for stormwater user fees. (1 = Least Effective, 5 = Most Effective)



Black & Veatch's Comprehensive Stormwater Services

Black & Veatch's multi-disciplinary team of specialists provides an integrated suite of stormwater services that encompass the technical, financial, management, technology and stakeholder aspects. With our nationwide experience, innovative practices and partnerships, rigorous methods and tools, we assist municipalities large and small in establishing a stronger "nexus" among four key components – Program Needs, Reliable Cost Projections, User Fee Funding and Customer Benefits.

Program and Operations



- Program Management
- Program Visioning
- Organizational and Management Reviews
- Level of Service Evaluations
- O&M Plans
- Regulatory Compliance Support
- Program Budgeting
- Alternative Program Delivery
- Alternative Funding

Green Infrastructure



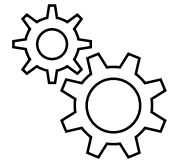
- Holistic GSI Planning
- Site and Regional GSI Design
- Monitoring and Maintenance Plans
- GSI and LID Guidance/Manuals
- Program Management
- Alternative Program Delivery

Watersheds and Environment



- MS4 Program Development
- MS4 Permitting
- Environmental Permitting
- TMDL and BMAP Development
- Water Quality Modeling
- Stream Restoration/Stabilization
- Wetland Design

Infrastructure Management



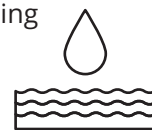
- Asset Management Frameworks
- Asset Inventory
- Asset Condition Assessment
- Asset Management Planning, Capital Program Prioritization and Financing
- Infrastructure Design
- Risk Integrated Project Prioritization

Utility Development and Implementation



- Organizational Review
- Financial Planning
- Impervious Area Analysis
- Fee Methodology and Rate Structure
- Utility Policies and Rate Ordinance
- Credits and Appeals Program
- Billing Implementation and Data Management

Hydrology and Hydraulics



- Hydrologic and Hydraulic Modeling
- Flood and Inundation Mapping
- Dam Breach Modeling
- Water Quality Modeling
- CFD Modeling
- Stormwater Infrastructure Design
- Hydraulic Structure Design

Prabha Kumar | Managing Director
P 913 458 1538 | **E** KumarPN@BV.com

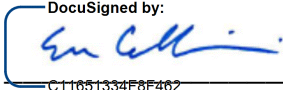
Anna White | Principal Consultant
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VERIFICATION

I, Eric M. Callocchia, Partner, NewGen Strategies and Solutions, LLC., have read the foregoing document, Direct Testimony of Eric M. Callocchia, and verify that the facts set forth therein are true and correct to the best of my knowledge, information and belief.

I understand that any false statements made herein are subject to the penalties of 18 Pa. C.S.A. § 4904, relating to unsworn falsification to authorities.

By: 
C11651334F8F462...

Name: Eric M. Callocchia

DATE: 8/8/2023

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	Docket Nos. R-2023 -3039920 (Water)
	:	R-2023-3039921 (Wastewater)
	:	R-2023-3039919 (Stormwater)
V.	:	
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the of the foregoing document upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party).

VIA E-MAIL

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Pennsylvania Public Utility Commission
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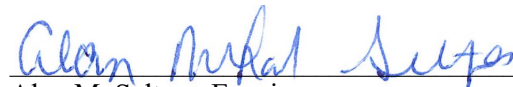
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September 22, 2023

VIA E-FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority; Docket Nos. R-2023-3039919 (Stormwater); R-2023-3039920 (Water); R-2023-3039921 (Wastewater)

Dear Secretary Chiavetta:

On behalf of The School District of Pittsburgh, enclosed please find the Surrebuttal Testimony and Exhibits of Michael J. McNamara and Theodore J. Dwyer, PhD, labeled School District Statement No. 1-SR, and the Surrebuttal Testimony and Exhibits of Eric M. Callocchia, labeled as School District Statement No. 2-SR in the above-referenced proceedings.

This document is being served as indicated in the attached Certificate of Service.

Very truly yours,



Alan M. Seltzer, Esquire

AMS/kas
Enclosure

cc: Rosemary Chiavetta, Secretary (*Letter and Certificate of Service only*)
Certificate of Service

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission : R-2023-3039919 (stormwater)
Office of Small Business Advocate : C-2023-3040789
Office of Consumer Advocate : C-2023-3040847
:
v. :
:
The Pittsburgh Water and Sewer Authority :

Pennsylvania Public Utility Commission : R-2023-3039920 (water)
Office of Small Business Advocate : C-2023-3040785
Office of Consumer Advocate : C-2023-3040845
:
v. :
:
The Pittsburgh Water and Sewer Authority :

Pennsylvania Public Utility Commission : R-2023-3039921 (wastewater)
Office of Small Business Advocate : C-2023-3040780
Office of Consumer Advocate : C-2023-3040846
:
v. :
:
The Pittsburgh Water and Sewer Authority :

**JOINT SURREBUTTAL TESTIMONY OF MICHAEL J. MCNAMARA AND
THEODORE J. DWYER, PhD**

September 22, 2023

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PITTSBURGH WATER AND SEWER AUTHORITY
SURREBUTTAL TESTIMONY OF MICHAEL J. MCNAMARA AND THEODORE J.
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1 **I. INTRODUCTION AND PURPOSE**

2 **Q. Please state your name and business address.**

3 A. My name is Michael J. McNamara, and my business address is 1305 Muriel Street,
4 Pittsburgh, PA 15203.

5
6 **Q. Have you testified previously in this proceeding?**

7 A. Yes. I previously submitted Direct Testimony on behalf of the School District of
8 Pittsburgh, which is School District Statement No. 1. Any undefined and capitalized terms
9 used in this Surrebuttal Testimony have the same definitions contained in my previously
10 submitted Direct Testimony.

11
12 **Q. Please state your name and business address.**

13 A. My name is Theodore J. Dwyer, and my business address is 341 S. Bellefield Avenue,
14 Pittsburgh, PA 15213.

15
16 **Q. By whom are you employed and in what capacity?**

17 A. I am employed by the School District of Pittsburgh as the Chief Accountability Officer,
18 Data, Research, Evaluation and Assessment Division.

19
20 **Q. Have you previously submitted testimony in this proceeding?**

21 A. No, I have not done so.

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Q. Dr. Dwyer, please describe your current duties and responsibilities.

A. As the Chief Accountability Officer for the School District, I am responsible for the leadership and supervision of the Data Research and Evaluation Division, which has four departments: Research and Evaluation, Charter Accountability, Assessments, and Data Entry and Accountability Reporting.

Q. Please describe your education and past work experience.

A. I have a Ph.D. in Curriculum and instruction with a focus on Measurement and Evaluation from The University of South Florida. I have over twenty years of experience in Educational research, which includes my work in the Florida School districts for Hillsborough, Polk and Pinellas Counties. I am also currently serving as a member of the Mid-Atlantic Region Regional Advisory Committee for the federal government, and I am the chair of the MidAtlantic Region’s Regional Educational Laboratory governance board. My resume is attached to this Surrebuttal Testimony as Appendix A.

Q. What is the purpose of your Surrebuttal Testimony?

A. The purpose of our Surrebuttal Testimony is to address Rebuttal Testimony statements made by PWSA witnesses Tony Igwe and William J. Pickering, OCA witness Roger Colton, and Pittsburgh United’s Our Water Table witness Harry S. Geller in the proceeding on the following issues: (i) clarification of my reference to the pending appeal before the Pennsylvania Supreme Court regarding the Borough of West

PITTSBURGH WATER AND SEWER AUTHORITY
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1 Chester’s attempt to establish a stormwater fee by ordinance and impose it on residents
2 and businesses in the municipality; (ii) notice to the School District about the original
3 proposal by the PWSA to institute a separate stormwater charge; (iii) whether any
4 Pennsylvania law or regulation prevents the establishment of an exemption or discount
5 for the School District in connection with PWSA’s stormwater charge; and (iv) address
6 why the low-income student population served by the School District supports its
7 request for relief from paying the large and growing PWSA stormwater charges.

8

9 **II. RESPONSE TO SURREBUTTAL TESTIMONY**

10 **Q. Mr. McNamara, please comment on concerns raised by parties in their Rebuttal**
11 **Testimony about your discussion of the pending appeal before the Pennsylvania**
12 **Supreme Court regarding the Borough of West Chester’s attempt to establish a**
13 **stormwater fee by ordinance and impose it on residents and businesses in the**
14 **municipality.**

15 A. I addressed this pending appeal in a limited context on pages 12-14 of my Direct
16 Testimony, School District Statement No. 1. After noting that I am not an attorney and am
17 not offering a legal opinion, I summarized my understanding that the Commonwealth Court
18 ruled that the Borough of West Chester’s proposed stormwater fee constituted an unlawful
19 tax. I noted that the case is “instructive on how the Commission should view the stormwater
20 charge being imposed on the School District and other customers by PWSA in this
21 proceeding, particularly given the adverse financial impacts that charge has and continues

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1 to have on the School District, which is a governmental entity that is exempt from taxes.”

2 School District Statement No. 1, p. 14.

3 A few witnesses, including Pittsburgh United’s Our Water Table witness Harry S. Geller,

4 Pittsburgh United Statement 1-R, p. 17 and PWSA witness William J. Pickering, PWSA

5 St. No. 1-R p. 16, appear to take issue with the word “instructive” when describing the case

6 or attribute to me a direct linkage between that case and the financial impact on the School

7 District of currently paying PWSA’s stormwater charges. To clarify, my testimony was

8 intended to alert the Commission and the parties of the pendency of this case involving the

9 Borough of West Chester, to suggest that the case should be looked at and evaluated by the

10 Commission in this proceeding, and that the legal implications of the Commonwealth

11 Court’s decision and potential impact if applicable to PWSA would be addressed by the

12 School District’s counsel in briefing. As a non-lawyer, my comments about this case were

13 intended to be informational and not dispositive of any substantive issues. The School

14 District felt it was necessary to bring this case to the attention of the Commission because,

15 if PWSA’s stormwater charges are in fact a tax, the School District as a tax-exempt entity

16 would have no obligation to pay such taxes.

17
18 **Q. Mr. McNamara, please address PWSA witness Tony Igwe’s comment in PWSA St. 5-**
19 **R, p. 9 that, to his knowledge, the School District did not participate in any of the**

PITTSBURGH WATER AND SEWER AUTHORITY
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1 **numerous community meetings and other outreach before PWSA implemented its**
2 **stormwater rates.**

3 A. When addressing issues relating to “notice” to the School District of PWSA’s stormwater
4 fees, it is important to differentiate between notification *before* such fees were implemented
5 and notifications – including meetings – between the School District and PWSA *after* the
6 fees were approved and as they were being implemented. As for the former, the School
7 District was not aware of and did not participate in the various community outreach and
8 other activities held by PWSA upstream of PWSA seeking and obtaining authorization to
9 charge customers for stormwater between April and September 2021. Until stormwater
10 charges were quantified by PWSA, it was difficult for the School District to consider any
11 possible concerns with these charges.

12 The School District is a large organization and, although we do attend community meetings
13 more directly related to educating our students, we would not have participated in the kind
14 of meetings and advisory group activities PWSA was apparently doing before it sought
15 authorization to implement a stormwater fee a few years ago. The School District rarely
16 participates in utility proceedings or preliminary meetings. We typically wait until the
17 implications of a new rate or similar matter are clearly spelled out to us before deciding if
18 any action is needed. As Mr. Igwe noted in his rebuttal testimony, and which we have
19 confirmed, we did participate in a presentation made to the School District by PWSA on
20 February 8, 2022 after the new stormwater charges were approved and/or implemented.
21 While we did provide information about the School District’s properties to the PWSA, the
22 first time the School District understood the potential magnitude of bill increases to the

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1 School District was on December 17, 2021 when a PWSA representative sent to the School
2 District a list of School District properties and associated stormwater charges.
3 From the School District's perspective, the fact that the School District neither participated
4 in PWSA's prior rate case in which certain charges for stormwater were approved nor in
5 the earlier pre-implementation public education meetings does not diminish the School
6 District's concerns about the lawfulness and magnitude of the current and proposed PWSA
7 stormwater charges. We are advised by counsel that the School District's participation in
8 this current proceeding and the absence of earlier participation in rate hearings, advisory
9 groups and public outreach sessions does not diminish our current right to object to
10 PWSA's stormwater charges as we have done in this proceeding.

11

12 **Q. Please comment on PWSA witness Igwe's reference to the decision by the**
13 **Commonwealth Court in *Philadelphia Gas Works v. Pa. P.U.C.*, 898 A.2d 671 (2006)**
14 **in his rebuttal testimony, PWSA St. 5-R, p. 8.**

15 A. Although not a lawyer, Mr. Igwe cites to the above referenced decision as apparent support
16 for PWSA's objection to the School District's recommendation that it be entitled to an
17 exemption or a discount from PWSA's stormwater charges. We too are not attorneys but
18 similarly represent that we have been advised by counsel that the referenced decision is
19 neither controlling nor dispositive of the School District's pursuit of an exemption or
20 discount claim in this proceeding.

21

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1 **Q. Please comment on the arguments offered by Pittsburgh United’s Our Water Table**
2 **witness Harry S. Geller in Pittsburgh United Statement 1-R, p. 19 in connection with**
3 **his discussion of an exemption from PWSA’s stormwater charges for the School**
4 **District.**

5 A. Mr. Geller is concerned that Mr. McNamara’s testimony and that of Mr. Callocchia seeking
6 an exemption from PWSA’s stormwater fee will result in costs being passed on to
7 residential customers. Pittsburgh United Statement 1-R, p. 19. While Mr. Geller ultimately
8 rejects an exemption for the School District from PWSA’s stormwater charges, in contrast
9 to other states, jurisdictions and/or utilities that have done so, he nevertheless makes several
10 important points that the School District not only agrees with, but which also support why
11 some relief for the School District is so important in this proceeding. Mr. Geller notes the
12 following in his rebuttal testimony:

- 13 • He is strongly supportive of and recognizes the need for increased funding for
14 public schools, including the Pittsburgh School District. Research suggests that
15 increased spending on education can improve student outcomes, especially
16 amongst low-income students, and also narrow achievement gaps between social-
17 economic classes. Pittsburgh United Statement 1-R, p. 19.
- 18 • An equitable funding system ultimately ensures that schools can adequately meet
19 the myriad of purposes they serve – from academic, to socioemotional, to providing
20 other supportive services – including health and lunch services. Pittsburgh United
21 Statement 1-R, p. 19.
- 22 • Robust school funding is essential to the continued vitality of Pennsylvania’s
23 families and their communities. Pittsburgh United Statement 1-R, p. 19.
- 24 • Children in Pittsburgh are also struggling profoundly. The child poverty rate in
25 Allegheny County is estimated to be 15%. It is further estimated that 14.5% of
26 children in Allegheny County are experiencing child hunger; and 8.6% of children
27 in Allegheny County drop out of school. These figures underscore the profound

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1 need felt amongst Pittsburgh’s low-income consumers. Pittsburgh United
2 Statement 1-R, p. 20.

- 3 • He would not necessarily oppose alternative proposals to mitigate the cost burden
4 on schools – particularly for schools serving low-income communities. Pittsburgh
5 United Statement 1-R, p. 21.

6 Mr. Geller’s depiction of the depth of poverty among children and their families served by
7 the School District is profound and is confirmed by the School District as well. Increased
8 spending on education can also substantially improve outcomes for these students and their
9 families.

10 We also note that OCA witness Roger D. Colton in OCA Statement 4R, pp. 19-22
11 acknowledges the widespread poverty within the School District. While Mr. Colton’s
12 analysis is intended to support his view that everyone in a community benefit from
13 programs designed to benefit low-income customers, it also supports the School District’s
14 position that its education mission is integrally related to the well-being and success of
15 many low-income students and their families that have eligibility for stormwater charge
16 discounts under PWSA’s Customer Assistance Programs (“CAP”). Just as Mr. Colton
17 views universal service programs as “public goods” or serving a “public purpose”, thereby
18 justifying all customers paying for those program costs, so too is the mission of the School
19 District a “public good” and “public purpose” justifying the School District’s request for
20 substantial and material relief in the payment of PWSA’s stormwater charges. This is
21 particularly the case when so many of the beneficiaries of the low-income programs the
22 OCA suggests should be paid for by all customer classes in this proceeding are being served
23 by the School District, which could benefit from having dollars otherwise spent on

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1 stormwater charges from PWSA being directly deployed to address its educational mission
2 and needs.

3 In 2015, the School District opted into the Community Eligibility Program (“CEP
4 Program”), which was established by the United States Department of Agriculture to
5 decrease the bureaucratic burden on families of reporting income information each month
6 to their local school district to maintain eligibility for Free Lunches. The qualification
7 information provided to the School District is based on a family's eligibility for programs
8 like Supplemental Nutrition Assistance Program (“SNAP”)¹ and Temporary Assistance for
9 Need Families (“TANF”)². The CEP Program process provides information to the School
10 District for the students of those families who qualify for the poverty assistance processes,
11 which the School District relies on to report economically disadvantaged status.

12 The CEP Program utilizes the percentage of Economically Disadvantaged students in the
13 School District and applies federal guidance to project the poverty level of the School
14 District. This is accomplished using a multiplier to correct for the underreporting in the
15 qualification data for income-based assistance programs, because they do not represent all
16 of the students in families below the poverty line. When the School District applies the
17 federal calculation to the existing information, the depth of poverty for the students in the

¹ SNAP provides food benefits to low-income families to supplement their grocery budget so they can afford the nutritious food essential to health and well-being. <https://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program>

² The TANF program provides states and territories with flexibility in operating programs designed to help low-income families with children achieve economic self-sufficiency. States use TANF to fund monthly cash assistance payments to low-income families with children, as well as a wide range of services. <https://www.acf.hhs.gov/ofa/programs/temporary-assistance-needy-families-tanf>

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1 School District comes into focus. Of the School District's 54 schools, 4 schools have
2 students and their families with less than 70% poverty, 3 schools between 70% and 90%
3 poverty, and the remaining schools having over 90% poverty for students and their
4 families. While we know that not every student is below the poverty line, experience,
5 history, and research demonstrate that the persistence and prevalence of high poverty has
6 deleterious impacts on children's development, and educational attainment. The CEP
7 Program allows us to ensure that our students have the appropriate nutritional support to
8 be ready to learn without creating a bureaucratic system that has harmful or stigmatic
9 processes that single out students and families in need. The CEP Program was developed
10 to support localities and districts that have high levels of poverty, and while the majority
11 of the City of Pittsburgh does not have extremely high levels of poverty, the students whom
12 the School District serves have in the aggregate much higher levels than are seen in Census
13 reports.

14
15 Using the CEP information, the School District can unequivocally state that our schools
16 are supporting extremely high percentages of students whose families are impacted by
17 poverty. Because of the level of poverty experienced by most of the students served by the
18 School District, no students are required to pay for lunch. The following chart provides a
19 snapshot of the scope of child poverty relative to specific schools operating in the School
20 District:

Percent Of Enrollments from Low-Income Families

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Year: 2022-2023

SCHOOL NAME	TOTAL ENROLLMENT	LOW-INCOME ENROLLMENT (economically disadvantaged)	Poverty calculation ([economically disadvantaged /total enrollment] X1.6)
Pittsburgh Montessori K-5	324	79	39%
Pittsburgh Colfax K-8	732	208	45%
Pittsburgh CAPA 6-12	845	243	46%
Pittsburgh Allerdice HS	1362	539	63%
Pittsburgh Science and Technology Academy	616	271	70%
Pittsburgh Greenfield K-8	354	160	72%
Pittsburgh Dilworth K-5	448	219	78%
Pittsburgh Banksville K-5	263	149	91%
Pittsburgh Brookline K-8	388	220	91%
Pittsburgh Sunnyside K-8	253	149	94%
Pittsburgh Phillips K-5	201	119	95%
Pittsburgh Obama 6-12	750	445	95%
Pittsburgh West Liberty K-5	155	94	97%
Pittsburgh Woolslair K-5	179	111	99%
Pittsburgh Mifflin K-8	272	170	100%
Pittsburgh Carmalt K-8	558	352	100%+
Pittsburgh Pioneer	57	36	100%+
Pittsburgh Schiller 6-8	244	155	100%+

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Pittsburgh Whittier K-5	154	99	100%+
Pittsburgh Allegheny K-5	655	425	100%+
Pittsburgh Minadeo K-5	293	193	100%+
Pittsburgh Carrick HS	594	398	100%+
Pittsburgh Conroy	171	116	100%+
Pittsburgh Liberty K-5	264	179	100%+
Pittsburgh Brashear HS	996	679	100%+
Pittsburgh Beechwood K-5	359	247	100%+
Pittsburgh Concord K-5	430	297	100%+
Pittsburgh Fulton K-5	300	214	100%+
Pittsburgh Westwood K-8	215	154	100%+
Pittsburgh Arsenal 6-8	150	108	100%+
Pittsburgh Arsenal K-5	296	215	100%+
Pittsburgh Linden K-5	135	98	100%+
Pittsburgh Spring Hill K-5	104	76	100%+
Pittsburgh South Hills 6-8	399	292	100%+
Pittsburgh Chartiers Early Childhood Ctr	180	132	100%+
Pittsburgh Classical 6-8	285	215	100%+
Pittsburgh Sterrett 6-8	208	158	100%+
Pittsburgh Manchester K-8	188	143	100%+
Pittsburgh South Brook 6-8	272	208	100%+

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Pittsburgh King K-8	365	285	100%+
Pittsburgh Spring Garden Early Childhood	77	61	100%+
Pittsburgh Morrow K-8	510	405	100%+
Pittsburgh Roosevelt K-5	252	201	100%+
Pittsburgh Arlington K-8	349	281	100%+
Pittsburgh Perry HS	354	285	100%+
Pittsburgh Faison K-5	590	479	100%+
Pittsburgh Miller K-5	213	173	100%+
Pittsburgh Langley K-8	501	416	100%+
Pittsburgh Weil K-8	198	165	100%+
Academy at Westinghouse	651	543	100%+
Pittsburgh Grandview K-5	178	150	100%+
Pittsburgh Lincoln K-5	213	180	100%+
Pittsburgh Allegheny 6-8	156	132	100%+
Pittsburgh Milliones 6-12	286	242	100%+

1

2

The key point, as observed by Mr. Geller, and supported the School District, is that every

3

penny we can save on paying stormwater bills to PWSA and redeploying those funds in an

4

effort to achieve the best academic and socio-economic outcomes for the School District's

5

students provides enormous societal benefits. It is this desire to utilize the scarce School

6

District resources in the most beneficial manner as possible for our low-income students

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1 and their families that prompted our participation in this proceeding and our request for
2 substantial and material relief from the over \$400,000 (and potentially growing) in annual
3 payments being made to PWSA for stormwater at our schools.

4 **Q. Given the circumstances outlined in this Surrebuttal Testimony, does the School**
5 **District have any proposal to address its large and growing stormwater charges from**
6 **PWSA and its desire to deploy scarce funding resources in the most cost-effective**
7 **manner for its students and their families?**

8 A. Yes. Without prejudice to our legal position about stormwater charges constituting an
9 improper and unlawful tax and given the School District’s unique situation of being a non-
10 profit governmental entity serving primarily low-income students and their families, we
11 recommend and urge the Commission to provide a discount off of the School District’s
12 stormwater charges to its buildings from PWSA in the amount of 85%, which matches the
13 discount provided to low-income residential customers in PWSA’s Customer Assistance
14 Program. This discount is less than the full exemption from stormwater charges we think
15 is justified. The School District serves many of the same customers eligible for discounts
16 from PWSA on their stormwater charges and it is appropriate to provide the School District
17 the same discount. The School District will receive no “profit” from the implementation of
18 this discount. The School District will deploy the funds not spent on stormwater charges
19 due to the discount in the schools where this poverty exists to improve the educational and
20 living opportunities and outcomes for these impacted students and their families.

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1 **Q. Has the School District evaluated the customer rate impacts of its discount proposal?**

2 A. Yes. Those impacts on PWSA’s customers, which we believe will be relatively small, are
3 discussed and documented by School District witness Eric M. Callocchia in School District
4 Statement 2-SR. We believe that low-income students and their families served by the
5 School District will receive incrementally greater benefits of our proposed discount and
6 fund deployment than without it, resulting in better societal benefits and sound public
7 policy outcomes.

8 **III. CONCLUSION**

9 **Q. Does this conclude your Surrebuttal Testimony?**

10 A. Yes, it does. However, we reserve the right to supplement our Surrebuttal Testimony
11 should additional issues and facts arise during the course of this proceeding.

Appendix A

Theodore James Dwyer, Ph.D.

Contact information - Personal

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Contact information - Business

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Education

Doctor of Philosophy Degree (Ph.D.) in Curriculum & Instruction with emphasis on Measurement and Evaluation - awarded 5/2016 from University of South Florida, Tampa, Florida

Major: Curriculum & Instruction focus on Measurement and Evaluation **Minor:** Higher Education
Dissertation: *A Comparison of Educational "Value-Added" Methodologies for Classifying Teacher Effectiveness: Value Tables vs. Covariate Regression*

Master's Degree M.A. in Psychology – awarded 05/2003 from University of South Florida, Tampa, Florida

Major: Psychology Thesis: *An assessment of Paired Similarities and Card Sorting*

Bachelor's Degree BA in Psychology – awarded 05/1998 from University of South Florida, Tampa, Florida

Major: Psychology

Associate's Degree – awarded 05/1995 from Hillsborough Community College, Tampa, Florida

Work Experience (Duties, Accomplishments, and Related Skills):

Chief Accountability Officer, over Data, Research, Assessment, and Accountability 04/2017 – Present

Acting Chief Technology Officer, 03/2020 – 11/2020 (in conjunction as Chief Accountability Officer)

Pittsburgh Public Schools, 341 South Bellefield Avenue, Pittsburgh, Pennsylvania 15213

The division of Data, Research, Assessment, and Accountability includes four departments: 1) Data and Accountability, 2) Research and Evaluation, 3) Assessment, and 4) Charter Accountability.

Leadership

- Leads the design, implementation and management of planning and performance measurement systems in the school district, including evaluating and reporting on the performance of individual schools and programs and the performance of the district as an overall system.
- Directs the functions of the assessment, evaluation, accountability, and research programs of the school district and facilitates improved student achievement through objectives measurement, analysis, evaluation and documentation.
- Directs and supervises the collection and maintenance of data used for state and federal reporting to ensure compliance with federal and state statutes including per pupil funding, accreditation, evaluation, and accountability requirements. Monitor school and district data, as well as state and federal policies to determine trends and needs; develop and implement systems and supports ensuring compliance and effective activities.
- Provides leadership in planning, developing, administering, interpreting and reporting the district's evaluation programs and procedures; design surveys and other data collection instruments; broker evaluation services between schools and external evaluators; collaborates with school systems department, community agencies, and serves as the liaison with local universities for research.
- Collaborates with Senior Leadership to develop and align the long-term and short-term strategic plans, as well as the appropriate organizational structure (e.g., people, process and technology) to deliver the expected results on any local/state/federally mandated programs.
- Collaborates closely with the Chief of Teaching and Learning and Chief of Student Support Services to ensure that assessments are aligned with the district's curriculum and instructional strategies and to ensure

Theodore James Dwyer, Ph.D.

the appropriate resources and support needed for data-driven instruction and strategies by teachers, principals, and other staff.

- Collaborates with Chief of Finance and Chief Technology Officer to ensure the district has the appropriate technology and operating systems needed to track, report, and aggregate/disaggregate student performance data (school-by-school, classroom-by-classroom).
- Serves as the primary liaison to the Pennsylvania Department of Education regarding accreditation, data collection, data integrity, and data reporting regarding Pittsburgh Public Schools accountability.

Planning

- Coordinate information and cross-functional projects to ensure compliance with state and federal statutes such as FERPA regulations regarding the protection, privacy, and appropriate use of student data District-wide. In collaboration with district legal counsel and the chief of information technology, provide direction on the resolution of FERPA violations, data privacy disputes/complaints, the approval of contracts and applications to view or utilize Pittsburgh Public Schools data externally.
- Develop a rigorous process to accept, review, and approve research requests from internal and external stakeholders to ensure the appropriate support of research activities. Plan and support the district evaluation efforts for special programs, state and federal regulations compliance and schools and/or District administrators as requested.
- Develop annual goals which are consistent with the Superintendent's goals and the District's Strategic Plan, and participate in the development, monitoring and evaluation of educational process.
- Directed and coordinated the 1-1 computer deployment across the district (March through November 2020). Designed a plan for collecting, reimaging, and distributing laptop computers to the 25,000 students served by the district. Worked with community partners to raise funds for needed devices, locate and obtain refurbished computers and leveraged CAREs funding for computers for staff and students. Implemented the Microsoft 360 systems as a Learning Management System (LMS), and based on community feedback and input to the district, pivoted to a more traditional LMS for the 2020-21 school year, which was fully deployed before the beginning of the 2020-21 school year.

Performance Measures

- Created a compelling vision and theory of action for the Research, Assessment and Accountability Department and the District's progress and performance measurement system which encompasses a culture of high-quality service to internal clients, innovation, and optimal operational efficiencies.
- Prepare and provide materials to the Superintendent for presentations to the Board of Education, principals, teachers, parents and community groups; attend regular meetings of the Board as designated; conduct staff meetings; attend other related meetings.
- Deliver state, federal and nationally normed tests through the state testing section, and district quarterly local assessments aligned to the district's curriculum. Eliminated double testing of students on the same content by using a nationally available assessment that provided standards information, longitudinal growth information and could be integrated into multiple interventions thereby decreasing the overall student testing and providing a broad screener to assist in targeting specific student needs. Evaluation and

Accountability

- Provide data analysis and reporting; design data-collection strategies; collect and/or assemble data; design basic information services to facilitate the analysis of data; identify and apply appropriate statistical analysis; produces graphical, tabular and narrative summaries of data and statistical analysis; write reports and executive summaries of findings.
- Create data dashboards and other internal and external data reporting systems to help various audiences both visualize and analyze adult capacity building and student performance data and provide actionable data to teachers and principals.
- Directed the improved data quality processes, including internal mechanisms to monitor, communicate and correct data integrity issues, and completion of mandatory state and federal reporting.

Theodore James Dwyer, Ph.D.

- Established a documented data governance processes in the district and oversight of the institutional review process for all research applications to the district.
- Providing technical assistance to the Human Resources department for the teacher, principal, and district leadership evaluations.
- Design and implement district surveys and processes directly linked to teacher growth calculations (e.g., Tripod student survey, stewarding the Pennsylvania Value-Added Assessment System verification process and providing direct assistance to the Teaching and Learning Conditions survey). Vetted internal and external reports for accuracy and consistency with published reports.
- Focus on establishing a process for the Charter Accountability department to allow parents to make
- an informed choice based on comparable information from the district and the charter schools,
- including establishing a regular monitoring process for visiting district schools, developing of a web presence with individual school results, and established a process for communicating the state and federally-mandated IDEA rights with the parents of students with disabilities.

Quality Assurance

- Coordinate the development and improvement of an enhanced quality assurance system that engages state organizations; measures program quality, effectiveness, and adherence to program standards; and promotes continuous program improvement.
- Support and provide expertise to refine the internal assessment review process, including creating an assessment tool, assessment calendar, and analyzing assessment data to help ensure that programs maintain high-quality advocacy services.
- Provide advice and technical assistance in research design, program evaluation and data analysis; provide advice on appropriate statistical analysis; provide guidance on appropriate psychometric practices and methods of displaying data; provide technical support to schools in interpreting test results.

General

- Oversee the division budget, ensuring activities are within budget, and ensures adherence to budgetary guidelines.
 - Provide technical expertise and information regarding departmental activities and participates in the formulation of policies, procedures and programs.
 - Supervise the performance of assigned personnel; assesses team and individuals' skills, identifies development needs, and provides feedback and support to improve practice, build capacity, and maximize talent.
 - Demonstrated knowledge and experience of program evaluation principles, theories, concepts, practices and using evaluation and school-based research to inform program development.
 - Demonstrated expertise in successfully designing and conducting quantitative and qualitative research and evaluation processes.
 - Demonstrated commitment to work collaboratively with all constituent groups, including staff, board members, volunteers, donors, state and local program staff, and other supporters.
 - Demonstrated strategic plan development expertise; must be able to develop and implement project plans and strategies for executing on the organization's goals and objectives.
 - Demonstrated ability to work well under pressure with deadlines and be skilled in prioritizing responsibilities; and ability to analyze challenges and identify appropriate solutions in a fast-paced environment required; and ability to operate at both the strategic and tactical level.
 - Demonstrated experience working in a richly diverse school community and environment and bilingual or multilingual skills are highly desirable.
 - Proven facilitator of change management.
-

Theodore James Dwyer, Ph.D.

External Review Team member, 02/2014 - 04/2017

AdvancED Systems Accreditation, 7665 S. Research Drive, Tempe, Arizona 85284

- Served as AdvancED Systems Accreditation External Review Team member.
- Participated in five successful accreditation visits across three states (Florida, Georgia, Wyoming). Reviewed documents related to the accreditation for the system and sites within the system, in preparation for three days of intense work that required consensus on all decisions between all teammembers. Included conducting multiple classroom observations and the creation of an initial report for the accreditation recommendation. Worked cooperatively with a wide variety of educators from across the country to reach consensus on the recommendation for accreditation for each of the systems.

Team visits included:

- o Rockdale County Public Schools, Conyers, GA Feb 9-12, 2014
 - o Monroe County School District, Key West, FL May 4-7, 2014
 - o Park County School District #6, Cody, WY October 25-29, 2015
 - o Bartow County School, Cartersville, GA Mar 8-11, 2015
 - o Pasco County School District, Land O'Lakes, FL Sept 11-14 2016
-

Manager Of Evaluation, Assessment, Accountability and Evaluation Department, 08/2009 - 04/2017

School District of Hillsborough County, 901 E Kennedy, Tampa, FL 33602

- Supervised Internal Program Evaluation Team for the 8th largest district in the nation serving 213,000 students and over 14,000 employees. Responsible for identifying and recommending to the Superintendent the primary candidate for internal evaluation positions in the district.
 - Evaluated personnel and provided differentiated guidance and assistance to individuals, including developing a plan and securing funds to build internal capacity through the creation of data coaches.
 - Secured additional funding to address the volume of program evaluations and coordinated with institutions of Higher Education to set up graduate intern positions for students interested in learning evaluation, psychometrics and data analysis.
 - Promoted an open dialogue within the evaluation department to allow the unique strengths and passions of each member to be leveraged by the team to support the district's vision of preparing students for post-secondary pursuits and advance the department's mission of providing high quality actionable evaluations to the administrators responsible for the programs and to policy makers.
 - Developed a procedure for tracking and conducting research reviews in the district, including a tracking process, building an ad-hoc committee based on the focus of the study, and members of the internal evaluation staff based on the methodological approach identified in the proposal to ensure that research was beneficial to education with a minimal impact on district operations.
 - Collaborated with the business department to develop a rolling RFP for the identification of a pool of qualified External Evaluation firms. Built a process to ensure a defensible selection of the most appropriate external evaluator. Negotiated the budget with the firm and oversaw contracting and monitoring budgets for each external evaluation to ensure the completion of all necessary criteria for federal and state evaluations.
 - Worked with multiple external partners to provide assistance with research and evaluation questions and to coordinate the needs of the district and the agendas of the external partners, including working with external partners to ensure data were provided in a manner that reinforced the continuity of services and programs providing students and teachers curricular and pedagogical services.
 - Participated in building partnerships by providing initial feedback and assistance to ensure compliance with federal law, specifically FERPA, Protection of Pupil Rights Amendment, and other privacy rules and regulations.
 - Worked with external partners to ensure they received the necessary information to comply with state and federal requirements. Worked with several IHEs to develop a process to provide them with deidentified information that allowed them to comply with reporting requirements.
-

Theodore James Dwyer, Ph.D.

Senior Coordinator, Research & Accountability, 04/2007 - 08/2009

The School Board of Polk County, 1915 South Floral Avenue, Bartow, Florida 33830

- Supervised and directed the professional and support persons assigned to Research and Evaluation section of Assessment, Accountability & Evaluation Department.
 - Responsible for design, execution and dissemination of district program evaluations for academic programs, including an impact analysis of one of the district's online reading programs that provided the reading department the leverage to develop implementation tracking procedures to ensure equitable access and consistent implementation of the reading programs.
 - Served as the chair of the Research Review Committee with the responsibility of reviewing research proposals for internal and external research for the district.
 - Provided guidance and advice to internal and external researchers concerning methodology, evaluation models, and appropriate statistical methods for research and evaluations.
 - Conducted data analyses of multiple large datasets using SPSS, SAS, HLM statistical software packages. Provided analyses of district and state data to provide predictions of state accountability system school grade rankings – allowing district policy makers, curriculum staff and accountability personnel an opportunity to build initial plans related to accountability needs.
 - Worked with external partners to provide appropriate data to support their mission. Coordinated with the district Title I evaluator to ensure access to the necessary data to provide support to schools.
 - Worked with colleagues in other districts to provide them the syntax for calculating predictions of state accountability system school grade rankings.
 - Worked closely with the Information Technology department to ensure that the data dashboard for teachers contained accurate and timely accountability and testing information.
-

Research Specialist, 06/2005 - 04/2007

Pinellas County School Board, 301 4th Street SW, Largo, Florida 33770

- Designed evaluation of the Institutional Services Division entailing customer satisfaction surveys, job analyses, document reviews, climate surveys, and process review procedures. Coordinated with the business department to generate an Invitation to Bid for an Industrial/Organizational Psychology research firm to provide external evaluation services. I supervised external firm evaluators and internal personnel throughout the data collection and analysis.
 - Worked with the Director of Evaluation to ensure there was a plan for continuity and completion of the evaluation. Provided voluntary review of the draft reports, confirmatory data analysis, review of the final report, and recommendations to ensure completion of the project.
 - Conducted data analyses of multiple large datasets using SPSS and SAS statistical software packages. Produced and refined the district and school level discipline reports for the district discipline committee to assist in identifying and addressing the disparities between schools.
 - Assisted in the review of research proposals external to the Pinellas County Schools;
 - Planned and conducted program evaluations. Conducted an evaluation of the district's computerized reading intervention which resulted in the external vendor providing direct services to the district Reading Department to improve implementation.
-

Programmer, 08/2004 - 06/2005

Pinellas County School Board, 301 4th Street SW, Largo, Florida 33770

- Performed data analyses of multiple large datasets using the SPSS and SAS statistical software packages, synthesizing and producing multiple reports for dissemination to personnel at all levels of the school system. Provided analysis of Individual Assessment Program (IAP) in order to provide individual teachers with an assessment of their students' standing in relation to the requirements of the district to allow for changes in teachers' approaches to curriculum delivery. I also conducted analyses of discipline data to provide reports and status updates to the district discipline committee and examined state graduation

Theodore James Dwyer, Ph.D.

cohort files for consistency with district data files and built data monitoring processes to improve the accuracy of the district corrections process for verification of the state graduation cohort files.

- Assisted in the review of research proposals external to the district and School Board.
-

Graduate Student Intern, 08/2002 - 08/2004

Pinellas County Schools, 301 4th Street SW, Largo, Florida 33770

- Analyzed and evaluated data provided through the PIAP in order to provide individual teachers with an assessment of their students' standing in relation to the requirements of the district to allow for changes in teachers' approaches to curriculum delivery.
- Analyzed multiple large discipline data sets, identifying schools with inconsistent or large numbers of suspensions and other discipline problems for investigation by the district discipline committee.
- Worked in conjunction with district Research Specialists to combine and analyze multiple large datasets for various external and internal data requests.

Teaching Experience

- Co-Instructor – EDF 7438: Advanced Educational Measurement II – Spring 2009
- Instructor – EDF 3430: Measurement and Evaluation of Educational Growth – Spring 2008 & 2009
- Graduate Mentor (TA) – EDG 7931: Qualitative Research II Design & Data Collection – Spring 2006
- Instructor – Historical Fencing, 15th Century Western Martial Arts – 2001-Present
- Instructor – PSY 4000: Personality Psychology – 2000
- Graduate Teaching Assistant – Research Methods in Psychology – 1998 & 1999

Affiliations:

National Council on Measurement in Education - Member

American Evaluation Association - Member

American Educational Research Association - Member

Florida Evaluation and Research Association - President 2018, President Elect 2017, Treasurer 2013-16

Mid-Atlantic Governing Board Regional Educational Laboratory– Member 2018 – 2022, board president 2023

Ed-FI Governance Advisory Team member 2020 - present

OTHER EXPERIENCE

President, Home Owners Association, 11/2015 - 04/2017

Crime Scene Technician, Tampa Police Department, 04/1993 - 08/1998

Counterintelligence Agent, US Army, 1990 - 1998

Theodore James Dwyer, Ph.D.

Publications:

Dwyer, T. (2017) Data Review: 2016-2017 elementary Mathematics Pilot Programs, June 2017, Data, Research, Evaluation and Assessment Division

Simon T. Tidd, Timothy M. Stoelinga, Angela M. Bush-Richards, Donna L. De Sena & Theodore J. Dwyer (2016): An intensification approach to double-block algebra: A pilot implementation of Intensified Algebra in a large urban school district, *The Journal of Educational Research*

Dwyer, T. J. (2016). A comparison of educational "value-added" methodologies for classifying teacher effectiveness: Value tables vs. covariate regression (Doctoral dissertation, University of South Florida)

Dwyer, T. (2015) Data Brief - 7th Grade Mathematics Springboard, November 2015, Assessment, Accountability & Evaluation

Dwyer, T. (2015) Data Brief - SpringBoard Algebra 2, November 2015, Assessment, Accountability & Evaluation Office of Evaluation

Dwyer, T. (2015) Data Brief - SpringBoard Geometry, November 2015, Assessment, Accountability & Evaluation

Dwyer, T (2015) ReadingPals Data Brief, August 2015, Assessment, Accountability & Evaluation

Dwyer, T. (2014) Study Island, August 2014, Assessment, Accountability & Evaluation

Dwyer, T. (2014) i-Ready Data Brief, July 2014, Assessment, Accountability & Evaluation Office of Evaluation

Dwyer, T. (2013) Reading Buddies Data Brief, December 2013, Assessment, Accountability & Evaluation

Dwyer, T. (2013) Summer Algebra Data Brief, Dec 2013, Assessment, Accountability & Evaluation

Dwyer, T., & DeSenna, D. (2013) An Initial Evaluation of the Intensified Algebra Course. Paper presented at the Annual Meeting of the Florida Educational Research Association, Gainesville, FL.

Dwyer, T., & Neale, J. (2013) Educational Ventures Into Extended Day: An Initial Evaluation of Ed-Venture. Paper presented at the Annual Meeting of the Florida Educational Research Association, Gainesville, FL.

Dwyer, T. (2013) Men of Vision Data Brief update, Apr 2013, Assessment, Accountability & Evaluation

Dwyer, T. (2013) Reading Pals Data Brief, September 2013, Assessment, Accountability & Evaluation

Dwyer, T. (2013) Reading Pals Summer VPK, January 2013, Assessment, Accountability & Evaluation

Craig, B., Dwyer, T., Gaughan, L. (2012, November) Creating Equal Groups for Unbiased Comparisons: An Examination of Three Matching Methods Paper presented at the Annual Meeting of the Florida Educational Research Association, Gainesville, FL.

Dwyer, T. (2012) Summer Algebra Data Brief, Dec 2012, Assessment, Accountability & Evaluation

Dwyer, T. (2012) Men of Vision Data Brief, Oct 2012, Assessment, Accountability & Evaluation Office of Evaluation

Theodore James Dwyer, Ph.D.

Dwyer, T & Watson, F. (2012) Evaluation of Single Gender Education Hillsborough County Public Schools, July 2012, Assessment, Accountability & Evaluation

Dwyer, T. (2011) Summer Academy for Sulphur Springs Youth SASSY Data Brief, October 2011, Assessment, Accountability & Evaluation

Dwyer, T & Watson, F. (2011) Evaluation of Single Gender Classes Hillsborough County Public Schools, July 2011, Assessment, Accountability & Evaluation

Dwyer, T. (2011) Conducting Research in K-12 School Systems: What Can I Do and How Do I Get Approved? Presented at the Open Discussion Series for the Center for Research, Evaluation, Assessment, and Measurement, Tampa, FL

Dwyer, T. (2009, February). Inclusion of Costs in K-12 Educational Program Evaluations: Accurately Reflecting the Program Costs. Paper presented at the Annual Meeting of the Southeastern Evaluation Association, Tallahassee, FL.

Leech, N., Onwuegbuzie, A., Sutton, I., Jin, L., Luo, P., Dwyer, T., Ban, R., Jackson, K., & Kaczynski, D. (2006, April). Qualitative data analysis: A step-by-approach. Workshop delivered at the annual meeting of the American Educational Research Association (April 7-11), San Francisco, CA.

Ban, R., Broadus, C.J., Dwyer, T., Jin, L., Lapuka, I., Luo, P., Sutton, I., Onwuegbuzie, A. J. (2005, April). Belief systems of professors of educational research: A phenomenological study. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Canada.

Onwuegbuzie, A.J., Ban, R., Dwyer, T., Broadus, C.J., Jin, L., Lapuka, I., Luo, P., Sutton, I. (2005, March). Belief systems of instructors of quantitative research methods courses: A qualitative investigation. Paper presented at the Annual Meeting of the Eastern Educational Research Association, Sarasota, FL.

Ban, R., Broadus, C.J., Dwyer, T., Jin, L., Lapuka, I., Luo, P., Sutton, I., Onwuegbuzie, A.J. (2004, November). Qualitative study of quantitative minds: Belief systems of statistics. Paper presented at the Annual Meeting of the Florida Educational Research Association, Tampa, FL.

Dwyer, T. (2003), "An assessment of paired similarities and card sorting" (2003). Graduate Theses and Dissertations. <http://scholarcommons.usf.edu/etd/1359>

Earlier publications available on request

Theodore James Dwyer, Ph.D.

Supervised Publications for Staff and Graduate Student Interns

- McHugh, M. & Hodge, B. (2015) AVID 2009 -2014 Data Briefs, Dec 2015, Assessment, Accountability & Evaluation (separate briefs for each school year 2009-2010 through 2013-2014)
- Hooper, S (2015) Single Gender Middle Cohort, Sixth grade students at Rodgers Middle School October 2015, Assessment, Accountability & Evaluation
- Hooper, S (2015) Single Gender Elementary 2014-15, October 2015, Assessment, Accountability & Evaluation
- Hooper, S (2015) Single Gender High School Classes 2014-15, October 2015, Assessment, Accountability & Evaluation
- Hooper, S (2015) Single Gender Middle Schools, October 2015, Assessment, Accountability & Evaluation
- Hooper, S (2015) Teacher Leader Observation Scores, September 2015, Assessment, Accountability & Evaluation
- Hooper (2015) Single Gender Magnet Brief 2013-14 Addendum, September 2015, Assessment, Accountability & Evaluation
- Hooper, S. & Lent, K. (2015) 2014-2015 Evaluation of the Academic Intervention Specialist Program, August 2015, Assessment, Accountability & Evaluation
- Hooper, S. & Lent, K (2015) Teacher Leader Program Self-Directed Focus Groups Results: As Part of the Hillsborough County Public Schools Teacher Leader Program Evaluation, March 2015, Assessment, Accountability & Evaluation
- Lent, K. & Hooper, S. (2015) Intensified Algebra End of Course Analysis, February 2015, Assessment, Accountability & Evaluation
- Hooper, S(2015) Results of Self-Directed Focus Groups with Student Success Coaches As Part of the Student Success Program Evaluation, January 2015, Assessment, Accountability & Evaluation
- Hooper, S (2014) Evaluation of Single Gender Program Hillsborough County Public Schools November 2014, Assessment, Accountability & Evaluation
- Hooper, S (2014) Analysis of Men of Vision Program, October 2014, Assessment, Accountability & Evaluation
- Lent, K(2014) ReadingPals Data Brief, September 2014, Assessment, Accountability & Evaluation
- Hooper, S (2014) Summer Algebra EOC Camps, September 2014, Assessment, Accountability & Evaluation
- Hooper, S (2014) Analysis of Math-180 Program, August 2014, Assessment, Accountability & Evaluation
- Craig, B (2014) Intensified and Agile Algebra, August 2014, Assessment, Accountability & Evaluation
- Lent, K & Hooper, S (2014) Single Gender Elementary Data Brief, July 2014, Assessment, Accountability & Evaluation
- Hooper S(2014)AIS Implementation and Achievement Analysis, July 2014, Assessment, Accountability & Evaluation
- Lent, K (2014) Single Gender Magnet Data Brief, July 2014, Assessment, Accountability & Evaluation
- Lent, K (2014) Single Gender Magnet Data Brief, June 2014, Assessment, Accountability & Evaluation
- Hooper, S (2014) Algebra Support Program Midterm Analysis, January 2014, Assessment, Accountability & Evaluation
- McLeod, J (2012) Kindergarten Readiness, March 2012, Assessment, Accountability & Evaluation

Theodore James Dwyer, Ph.D.

Supervised Grant Evaluations

School Climate Transformation (Project Prevent) (external researcher)
Project AWARE (*Advancing Wellness and Resiliency in Education*) (external researcher)
GearUP (external researcher)
Magnet (external researcher)
Smaller Learning Communities (external researcher)
Teacher Incentive Fund II (POWER I) (external researcher)
Teacher Incentive Fund III (POWER II) (external researcher)
Teacher Incentive Fund VI (POWER III) (external researcher)
Transition to Teaching (SMART) (external researcher)
Transition to Teaching (PATH) (external researcher)
Voluntary Public School Choice (external researcher)
RESPECT (external researcher)
Homeless Title X part C (external researcher)
Mathematics and Science Partnership (external researcher)
District Instructional leadership (external researcher)
Title iii (ELL) (external researcher)
Title I Private School service provision (external researcher)
Voluntary Public School Choice (Bridge) (internal researcher)
Title I Part A, Education of Disadvantaged Youth (internal researcher)
Title I Part C, Education of Migratory Children and Youth (internal researcher)
Title I, Part D - Prevention and Intervention Programs for Children and Youth Who are Neglected, Delinquent, or At-Risk (internal researcher)

Awards

- Army Commendation Medal
- Army Achievement Medal
- National Defense Service Medal
- Armed Service Medal and Award for operations relating to the former Republic of Yugoslavia


References:

Available on Request

VERIFICATION

I, Michael J. McNamara, Chief Operations Officer, Pittsburgh School District, have read the foregoing document, Surrebuttal Testimony of Michael J. McNamara, and verify that the facts set forth therein are true and correct to the best of my knowledge, information and belief.

I understand that any false statements made herein are subject to the penalties of 18 Pa. C.S.A. § 4904, relating to unsworn falsification to authorities.

By: 

Name: Michael J. McNamara

DATE: 9-22-2023

VERIFICATION

I, Theodore J. Dwyer, Chief Accountability Officer, Pittsburgh School District, have read the foregoing document, Surrebuttal Testimony of Theodore J. Dwyer, and verify that the facts set forth therein are true and correct to the best of my knowledge, information and belief.

I understand that any false statements made herein are subject to the penalties of 18 Pa. C.S.A. § 4904, relating to unsworn falsification to authorities.

By: 

Name: Theodore J. Dwyer

DATE: 9/20/2023

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PENNSYLVANIA PUBLIC UTILITY
COMMISSION

V.

PITTSBURGH WATER AND SEWER
AUTHORITY

: Docket Nos. R-2023 -3039920 (Water)
: R-2023-3039921 (Wastewater)
: R-2023-3039919 (Stormwater)
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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the of the foregoing document upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party).

VIA E-MAIL

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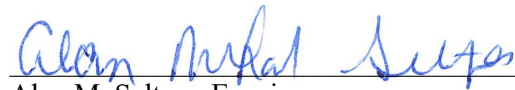
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Dated this 22nd Day of September 2023

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*Counsel for River Development Corp
Intervenor*


Alan M. Seltzer, Esquire

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY
COMMISSION**

Pennsylvania Public Utility Commission	:	Docket No. R-2023-3039920 (water)
	:	
v.	:	Docket No. R-2023-3039921 (wastewater)
	:	
Pittsburgh Water and Sewer Authority	:	Docket No. R-2023-3039919 (stormwater)
	:	

**LIST OF EVIDENCE TO BE ADMITTED INTO THE EVIDENTIARY RECORD BY
THE OFFICE OF CONSUMER ADVOCATE**

The Office of Consumer Advocate (OCA) intends to submit the following evidence into the evidentiary record in the above captioned proceedings at the evidentiary hearings scheduled for October 4-6, 2023.

DIRECT TESTIMONY

OCA St. 1: Direct Testimony of Dante Mugrace consisting of 49 pages of testimony, Appendix A Resume of Dante Mugrace, and Exhibits DM-1 through DM-21 along with a signed verification of Dante Mugrace.

OCA St. 2: Direct Testimony of Karl R. Pavlovic consisting of 35 pages of testimony and Exhibits KRP-1 through KRP-7 with a signed verification of Karl R. Pavlovic.

OCA St. 3: Direct Testimony of Jerome D. Mierzwa consisting of 22 pages of testimony and Exhibits JDM-1 through JDM-4 with a signed verification of Jerome D. Mierzwa.

OCA St. 4: Direct Testimony of Roger D. Colton consisting of 89 pages of testimony and RDC-1 and RDC-2 with a signed verification of Roger D. Colton.

OCA St. 5: Direct Testimony of Barbara R. Alexander consisting of 22 pages of testimony and Exhibits BA-1 through BA-5 with a signed verification of Barbara R. Alexander.

OCA St. 6: Direct Testimony of Terry L. Fought consisting of 39 pages of testimony and Exhibits TLF- Vita and TLF-1 through TLF-25 with a signed verification of Terry L. Fought.

REBUTTAL TESTIMONY

OCA St. 2R: Rebuttal Testimony of Karl R. Pavlovic consisting of 8 pages of testimony and a signed verification of Karl R. Pavlovic.

OCA St. 3R: Rebuttal Testimony of Jerome D. Mierzwa consisting of 6 pages of testimony and a signed verification of Jerome D. Mierzwa.

OCA St. 4R: Rebuttal Testimony of Roger D. Colton consisting of 24 pages of testimony and a signed verification of Roger D. Colton.

SURREBUTTAL TESTIMONY

OCA St. 1SR: Surrebuttal Testimony of Dante Mugrace consisting of 22 pages of testimony and exhibits DM-SR 1 through DM-SR 3 with a signed verification of Dante Mugrace.

OCA St. 2SR: Surrebuttal Testimony of Karl R. Pavlovic consisting of 22 pages of testimony and exhibit KRP-SR with a signed verification of Karl R. Pavlovic.

OCA St. 3SR: Surrebuttal Testimony of Jerome D. Mierzwa consisting of 13 pages of testimony and a signed verification of Jerome D. Mierzwa.

OCA St. 4SR: Surrebuttal Testimony of Roger D. Colton consisting of 32 pages of testimony and a signed verification of Roger D. Colton.

OCA St. 5SR: Surrebuttal Testimony of Barbara R. Alexander consisting of 11 pages of testimony and exhibits BA-6 and BA-7 with a signed verification of Barbara R. Alexander.

OCA St. 6SR: Surrebuttal Testimony of Terry L. Fought consisting of 19 pages of testimony and exhibits TLF-1SR through TLF-3SR with a signed verification of Terry L. Fought.

ADDITIONAL EVIDENCE

The OCA also intends to submit responses to Interrogatories OCA-XXI-1 and OCA-XXI-2.¹

¹ These responses are anticipated be submitted in the form of a Joint Stipulation entered between PWSA and OCA, which is pending consideration of both parties.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	)	Docket Nos.
v.	)	R-2023-3039920 (Water)
Pittsburgh Water and Sewer Authority	)	R-2023-3039921 (Wastewater)
	)	R-2023-3039919 (Stormwater)

DIRECT TESTIMONY OF

DANTE MUGRACE

**ON BEHALF OF THE
COMMONWEALTH OF PENNSYLVANIA**

OFFICE OF CONSUMER ADVOCATE

August 9, 2023

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1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Dante Mugrace. My business address is 22 Brooks Avenue, Gaithersburg, MD
4 20877.

5 **Q. WHAT IS YOUR PRESENT OCCUPATION?**

6 **A.** I am a Senior Consultant with the Economic and Management Consulting Firm of PCMG
7 and Associates, LLC. (“PCMG”). In my capacity as a Senior Consultant, I am responsible
8 for evaluating and examining rate and rate related proceedings before various
9 governmental entities, preparing expert testimony recommending revenue requirement, as
10 well as, offering opinions on economic policy and policy issues and methodologies used
11 to set a value on a utility’s rate base and cost of service components of revenue requirement.

12 **Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.**

13 **A.** PCMG is an association of experts in utility regulation and policy, economics, accounting,
14 and finance. PCMG’s members have over 75 years of collective experience providing
15 assistance to counsel and expert testimony regarding the regulation of electric, gas, water
16 and wastewater utilities that operate under local, state, and federal jurisdictions. PCMG
17 focuses on areas regarding revenue requirement, cost of service, rate design, cost of capital
18 and rate of return. Prior to my association with PCMG, I was employed as a Senior
19 Consultant with the consulting firm of Snavely King Majoros and Associates (“SKM”)
20 from 2013 to 2015, in the same capacity as PCMG. Prior to SKM I was employed by the
21 New Jersey Board of Public Utilities (“NJBPU”) from 1983 to my retirement in 2011.
22 During my tenure at the NJBPU, I held various Accounting, Rate Analyst, Supervisory and
23 Management Positions. My last position was Bureau Chief of Rates in the Agency’s Water
24 Division (Bureau Chief of Rates). I held this position for nearly 10 years. My resume is
25 attached as Appendix A.

26 **Q. WHAT EXPERIENCE DO YOU HAVE IN THE AREA OF UTILITY RATE**
27 **SETTING PROCEEDINGS AND OTHER UTILITY MATTERS?**

28 **A.** In my capacity as Bureau Chief of Rates at NJBPU, I was responsible for overseeing the
29 rate process regarding administrative, financial, and managerial functions of the Rates

1 Bureau. My primary duties were to ensure that the jurisdictional utilities had sufficient
2 revenues to cover their operating expenses, the ability to earn a reasonable rate of return
3 on plant investments, and to ensure that the provision of safe, adequate, and proper service
4 at reasonable rates was met. During my time at the NJBPU, I was involved in hundreds of
5 rate and rate related proceedings. In my capacity as a Senior Consultant previously with
6 SKM and now with PCMG, I have been and am currently involved in rate and rate related
7 proceedings before the Commissions in the State of Hawaii, the Commonwealth of
8 Massachusetts and Pennsylvania, and the States of Maine, Maryland, New Jersey, New
9 York, North Dakota, and Ohio. I was involved in the Generic Proceedings to Establish
10 Parameters for the Next Generation Performance Based Rate Plans before the Alberta
11 Utilities Commission. I was involved in transmission formula rate plans before the Federal
12 Energy Regulatory Commission (FERC) regarding the PECO Energy Company on behalf
13 of the Pennsylvania OCA and the Rockland Electric Company on behalf of the NJ Division
14 of Rate Counsel.

15 **Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?**

16 **A.** I hold a Master of Business Administration (“MBA”) degree with a concentration in
17 Strategic Management from Pace University-Lubin School of Business in New York, New
18 York. I hold a Master of Public Administration (“MP”) degree from Kean University in
19 Union, New Jersey. I hold a Bachelor of Science (“BS”) degree in Accounting from Saint
20 Peter’s University in Jersey City, New Jersey.

21 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN PROCEEDINGS BEFORE THE**
22 **PENNSYLVANIA PUBLIC UTILITY COMMISSION?**

23 **A.** Yes. I have provided testimony before the Pennsylvania Public Utility Commission with
24 respect to the PWSA’s base rate case proceeding in the 2020 base rate case (Docket Nos.
25 R-2020-3017951 (Water) and R-2020-301-7970 (Sewer) and in the 2021 base rate case
26 (Docket Nos. R-2021-3024773 (Water), R-2021-3024774 (Sewer) and R-2021-3034779
27 (Stormwater). Aside from PWSA cases, I have provided testimony in other proceedings
28 before the Commission since 2017 and my attached resume identifies those proceedings.

1 **II. PURPOSE OF TESTIMONY**

2 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

3 **A.** I am testifying on behalf of the Pennsylvania Office of the Consumer Advocate (“OCA”).

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 **A.** The purpose of my testimony is to evaluate and recommend a level of revenue requirement
6 increase for water, wastewater and stormwater service based upon the use of the Cash Flow
7 Method of setting rates for service. In my review and evaluation of the Authority’s
8 proposed System Revenue Requirement, I am relying on the testimony of all OCA
9 witnesses, and my testimony will also introduce each of those witnesses who address
10 various aspects of the Authority’s rate request.

11 **Q. WHAT IS PWSA REQUESTING IN THIS RATE CASE?**

12 **A.** On May 9, 2023, Pittsburgh Water & Sewer Authority (“PWSA” or “Authority”) filed a
13 request with the Pennsylvania Public Utility Commission (“PAPUC” or “Commission”) seeking approval of an overall increase in rates of \$146.1 million or 70.092% above current
14 rates.¹ The Authority is proposing to implement this increase over a three-year period. \$46.8
15 million (22.4%) in the Fully Projected Future Test Year (FPFTY) 2024; \$45.4 million
16 (17.8%) in FY 2025 and \$53.9 million (17.9%) in FY 2026. (Statement of Reasons at 1).

18 **Q. DID THE AUTHORITY IDENTIFY REASONS FOR ITS REQUESTED RATE**
19 **INCREASES?**

20 **A.** Yes. The Authority’s stated reasons for requesting a revenue requirement increase are to
21 recover capital costs, inflationary operating costs, costs related to the Wet Weather Consent
22 Decree with the United States Department of Environmental Protection Agency (US EPA);
23 environmental compliance, decreased consumption, and funds to meet new financial
24 obligations and improve financial metrics that impact the Authority’s bond rating
25 (Statement of Reasons at 1) (PWSA St. No. 1 at 13). Additionally, the Authority’s
26 proposed rate increase is partly predicated upon its Capital Improvements Plan (CIP) which
27 included the refurbishment and replacement of a signification portion of the Authority’s

¹ \$146.1 million divided by current revenues of \$208.483 million. (Exhibit EB-2). (PWSA St. No. 1 at 13).

1 water supply system. The Authority stated that the requested increase is needed to address
2 regulatory compliance issues and to allow it to respond to unexpected situations that arise
3 due to the age of the system. PWSA claimed that the rate increase that it is seeking is the
4 minimum amount needed to continue operations while meeting its required financial
5 metrics. (PWSA Statement of Reasons at 1).

6 **Q. PLEASE EXPLAIN PWSA’S MULTI-YEAR RATE FILING PROPOSAL.**

7 **A.** As explained on PWSA St. No. 2 at 44, PWSA is proposing a three-year rate increase
8 which would increase revenues by \$46.8 million in FY 2024, \$45.4 million in FY 2025
9 and \$53.9 million in FY 2026. Mr. Barca stated that Section 1330 of the Public Utility
10 Code, added to the Code in 2018 authorizes the Commission to approve an application by
11 a utility to establish alternative rate mechanisms in the context of a base rate case. Section
12 1330 (b) specifically states that:

13 [T]he commission may approve an application by a utility in a base rate proceeding to
14 establish alternative rates and rate mechanism, including, but not limited to, the following
15 mechanisms:

- 16 (i) Decoupling Mechanisms
- 17 (ii) Performance-Based Rates
- 18 (iii) Formula Rates
- 19 (iv) Multi-Year rate plans or
- 20 (v) Rates based on a combination of more than one of the mechanisms in
- 21 subparagraphs (i), (ii), (iii) and (iv) or other ratemaking mechanisms as provided
- 22 under this chapter.²

23 According to Mr. Barca, the Commission issued a policy statement³ in which it set out
24 issues that the Commission will consider when judging whether an alternative ratemaking
25 proposal is just, reasonable and in the public interest. Mr. Barca further explained the
26 relevant factors as identified on PWSA St. No. 2 at 45.

² 66 Pa. C.S. § 1330(b).

³ Witness Barca does not identify the Policy Statement, but OCA witness Pavlovic identifies and outlines the applicable Policy Statement in OCA Statement 2.

1 **Q. WHAT IS YOUR RESPONSE?**

2 A. My response is that the MYRP should be rejected. In concluding this, I am relying on the
3 recommendations of all OCA witnesses, including Dr. Karl Pavlovic (OCA Statement 2).
4 Dr. Pavlovic has recommended rejection of PWSA’s multi-year rate implementation for
5 the many reasons outlined in his testimony. In total, the OCA witnesses demonstrate that
6 PWSA’s MYRP should be overwhelmingly rejected.

7 **Q. WILL YOUR TESTIMONY PRESENT REVENUE RECOMMENDATIONS FOR**
8 **PWSA’S FY 2025 AND FY 2026?**

9 A. No. I am presenting revenue recommendations solely for PWSA’s FPFTY ending on
10 December 31, 2024. As I indicate below, and as supported by all OCA witnesses for this
11 case, the OCA recommends that PWSA’s MYRP be rejected for many compelling reasons
12 that demonstrate that it would produce unjust and unreasonable rates for PWSA’s
13 ratepayers. My testimony adopts that position as well; therefore, my recommendations will
14 address FY 2024 only because FY 25 and FY 26 are not appropriately supported.

15 **Q. PLEASE BRIEFLY INTRODUCE THE OCA’S WITNESSES FOR THIS CASE:**

16 A. Alongside my testimony, the OCA offers testimony for five additional witnesses whose
17 testimony supports its overall position in this case. I will introduce each witness and give
18 a brief overview of their respective testimonies below. While my testimony recognizes the
19 revenue impact of the overall OCA position, which is comprised of all the witnesses’
20 testimony, I will defer to each individual witness’s testimony on their respective positions
21 and expertise.

22 In OCA Statement 2, Dr. Karl Pavlovic addresses the deficiencies in PWSA’s
23 following proposals: (1) to implement a Multi-Year Rate Plan (MYRP); (2) to increase its
24 water and wastewater distribution system improvement charge (DSIC) cap from 5% to
25 7.5%; (3) to implement an Infrastructure Improvement Charge (IIC); (4) and to implement
26 a Customer Assistance Charge (CAC). As Dr. Pavlovic provides compelling testimony
27 warranting the rejection of each of these four proposals, my testimony incorporates the
28 rejection of each proposal.

1 In OCA Statement 3, Jermone D. Mierzwa reviews and analyzes the water, wastewater
2 conveyance, and stormwater cost of service (“COS”) studies and the rate design proposals
3 included in PWSA’s filings.

4 In OCA Statement 4, Roger Colton addresses the barriers to accessing utility that
5 PWSA’s low-income customers face. He recommends changes in PWSA’s bill discount
6 programs, and related matters to help all PWSA customers afford essential utility service.
7 As it relates to the revenue recommendations presented in my testimony, Witness Colton
8 has recommended that PWSA bill discount program be expanded, with a revenue impact
9 of \$560,915, and expansion of its Arrearage Forgiveness Program with a revenue impact
10 of \$631,461 and I have recognized his recommendation in my overall revenue
11 recommendation.

12 In OCA Statement 5, Barbara Alexander identifies PWSA’s customer service
13 performance, as well as its consumer protection policies and programs, its proposal to
14 charge residential customers a fee for paying bills by credit card/debit card, and its
15 proposal to hire a third-party debt collection service, and she makes recommendations to
16 address those issues. Relative to my testimony, Witness Alexander recommends that the
17 Commission reject PWSA’s proposal to reinstate fees for payments made by credit
18 card/debit cards, and I have recognized \$470,000⁴ of revenue in my overall revenue
19 recommendation to account for her recommendation.

20 Finally, in OCA Statement 6, Terry Fought, a water and wastewater engineer, makes
21 several recommendations about technical aspects of the Authority’s water delivery and
22 wastewater collection systems. Witness Fought also makes recommendations for PWSA
23 to pursue more equitable and cost-efficient methods of operation for the future.

⁴ This amount is based upon PWSA’s responses to OCA discovery (OCA Set IV-13 and OCA-XVII-7).

1 **Q. PLEASE DESCRIBE HOW PWSA DEVELOPS ITS RATE REQUEST AND ITS**
2 **OVERALL REVENUE REQUIREMENT IN THE SETTING OF RATES.**

3 **A.** As described in Mr. Barca’s testimony (PWSA St. No. 2 at 5) PWSA sets its rates for
4 service based upon the Cash Flow Method (CFM) of ratemaking. Given that the Authority
5 does not have any shareholders and does not pay a dividend or a rate of return to its owner,
6 the CFM is used to determine the levels of cash necessary to fund an operating budget that
7 enables PWSA to maintain the system, pay for needed capital improvements, the level of
8 debt service coverage that both meets PWSA’s bond covenant requirements, meet
9 additional bonds test and produce sufficient cash to fund all obligations and maintain access
10 to the capital markets at reasonable rates. (PWSA St. No. 2 at 5). According to Mr.
11 Pickering, the Authority became subject to the Commission’s jurisdiction in December
12 2017 under Act 65, and on March 15, 2018, a final implementation Order was entered
13 which transitioned the Authority to the Commission’s jurisdiction. (PWSA St. No. 1 at
14 22). PWSA is governed by a nine-member Board of Directors (BOD) whose members are
15 appointed by the Mayor of the City and confirmed by City Council. The BOD is
16 responsible for providing strategic direction and oversight to the Authority’s management
17 team, as well as adopting the Authority’s annual operating and capital budgets, approving
18 contracts, and setting rates. (PWSA St. No. 1 at 23).

19 **Q. BECAUSE PWSA IS A PENNSYLVANIA PUBLIC UTILITY, IS ITS BOARD OF**
20 **DIRECTORS RESPONSIBLE FOR DETERMINING PWSA’S RATES IN THIS**
21 **CASE?**

22 **A.** No. The Commission is responsible for determining PWSA’s rates.

23 **Q. WHAT ARE THE REQUIREMENTS OF THE USE OF A FPFTY PERIOD?**

24 **A.** With the enactment of Act 11 of 2012, PWSA has based its claimed revenue requirement
25 on the fully forecasted 12 months ending December 31, 2024. (PWSA St. No. 2 at 8).
26 PWSA has also proposed to include a forecasted period ending December 31, 2025, and a
27 forecasted period ending December 31, 2026 (PWSA St. No. 2 at 8).

1 **Q. HAS THE AUTHORITY RELIED UPON OTHER PROVISIONS OF ACT 11?**

2 **A.** Yes. According to Mr. Barca, the Authority is requesting consolidation of the three dockets
3 for water, wastewater and stormwater and authority to use combined water, wastewater,
4 and stormwater revenue requirements. Mr. Barca stated that this consolidation will
5 continue the prior accounting and ratemaking practice of the Authority. (PWSA St. No. 2
6 at 8).

7 **Q. HOW DID MR. BARCA DEVELOP ITS FUTURE TEST YEAR AND FULLY**
8 **PROJECTED FUTURE TEST YEAR RESULTS?**

9 **A.** Mr. Barca stated that the Future Test Year (FTY) 2023 and the FPFTY 2024 were derived
10 through a comprehensive Authority-wide budgeting process in which PWSA used a zero-
11 based budgeting method to develop annual budgets. The previous year's budgets are
12 referenced when developing the FPFTY budget, but each cost is individually considered
13 when developing the budget. (PWSA St. No. 2 at 9). This is contrary to a traditional
14 budgeting approach in which an escalation factor is applied to an anticipated increase in a
15 specific type of cost. (PWSA St. No. 2 at 9).

16 **Q. BECAUSE IT IS BASED UPON A FUTURE TEST PERIOD, DOES PWSA'S**
17 **FPFTY ALREADY RELY UPON PROJECTIONS OF WHAT COSTS AND**
18 **EXPENSES WILL BE IN THE FUTURE?**

19 **A.** Yes. Without a MYRP, using only PWSA's FPFTY, many of its claims are built upon
20 assumptions of what expenses and revenue will be in the future, for a test year that ends on
21 December 31, 2024. In that sense, PWSA is already relying upon projections simply to
22 support its revenue requirement for 2024. As the combined testimony of OCA witnesses
23 introduced above will explain, PWSA's budget projections have not always materialized,
24 and in many respects have been significantly over projected. I will defer to other OCA
25 witnesses on the issues they identified, but my analysis below identifies adjustments I am
26 recommending as necessary for the FPFTY 2024.

27 **Q. DID MR. BARCA INCLUDE THE IMPACT OF INFLATION IN THE**
28 **DEVELOPMENT OF PWSA'S RATE REQUEST?**

29 **A.** According to Mr. Barca inflation was the primary or secondary factor for all increases in
30 the revenue requirement in this case. (PWSA St. No. 2 at 12).

1 **Q. DO YOU HAVE ANY GENERAL RESPONSE TO MR. BARCA’S CLAIMS**
2 **REGARDING INFLATION?**

3 A. Yes. I address PWSA’s claims individually in my analysis below, and I recognize inflation
4 adjustments where warranted. However, while I accepted certain adjustments for inflation,
5 that should not be conflated with acceptance of any blanket inflation adjustments PWSA
6 is proposing in this case. Instead, the data, support, and basis for any projected inflation
7 rate must be carefully analyzed with respect to each claimed cost.

8 **Q. WHAT ARE PWSA’S CLAIMED OPERATING NEEDS IN THE FPFTY?**

9 A. As more fully explained by Mr. Barca, PWSA is proposing certain adjustments to its
10 operating revenue requirements related to certain direct expenses and other operating
11 expenses that sum up to \$18.4 million in the FPFTY period. Although these adjustments
12 are not PWSA’s proposed revenue requirement increase, these costs adjustments represent
13 the drivers or operating needs that are included in the total revenue requirement of
14 \$46,836,282 in the FPFTY 2024. These adjustments relate to Salaries and Benefits,
15 General and Administrative costs, Operating Expenses, and Inventory. PWSA also
16 included COVID- Related Expenses as well as Net ALCOSAN costs (Allegheny County
17 Sanitary Sewer Authority). PWSA provided a table breaking down these cost impacts.
18 (PWSA Statement No. 2 at 14-15).

19 **Q. WHAT HAS PWSA CLAIMED WITH RESPECT TO COVID-19 EXPENSES?**

20 A. Mr. Barca stated that COVID-19 expenses were not claimed in PWSA’s last rate case but
21 were deferred and included in this rate case. (PWSA St. No. 2 at 19). PWSA is claiming
22 \$263,215 of COVID-19 expenses in the FPFTY which represents expenses incurred
23 between the period March 2020 – March 2021 and are related to personal protection
24 equipment. (PWSA St. No. 2 at 19). Mr. Barca stated that no uncollectible amount is
25 being recovered through this claim. (PWSA St. No. 2 at 19).

1 **Q. WHAT HAS MR. BARCA PROPOSED WITH RESPECT TO PWSA'S**
2 **FINANCIAL METRICS (DEBT SERVICE COVERAGE RATIO (DSC) FOR 2024?**

3 **A.** As shown on PWSA St. No. 2 at 43, Mr. Barca has proposed the following DSC for the
4 FY 2024.

	<u>FY 2024</u>
6 Senior Debt Service Coverage Ratio	1.65x
7 Total Debt Service Coverage Ratio	1.21x

8 **Q. DOES YOUR ANALYSIS ADOPT MR. BARCA'S DSC RATIO FOR 2024?**

9 **A.** Yes. My Exhibit DM-19 reflects my recommendations with respect to PWSA's DSC Ratio
10 for the FPFTY 2024.

11 **Q. WHAT HAS MR. BARCA PROPOSED WITH RESPECT TO PROJECTED CASH**
12 **FLOW AND DAYS CASH ON HAND (DCOH)?**

13 **A.** As shown on PWSA Exhibit EB-2, PWSA has proposed the following DCOH?

	<u>FY 2024</u>
15 Days Cash on Hand (Days O&M)	247.6
16 Including ALCOSAN Expenses	145.0

17

18 **III. REVENUE REQUIREMENT ISSUES**

19 **A. SUMMARY**

20 **Q. WHAT ARE THE OVERALL RECOMMENDATIONS YOU ARE PROPOSING IN**
21 **THIS RATE FILING?**

22 **A.** Based upon the use of PWSA's FPFTY ending December 31, 2024, I have the following
23 recommendations:

- 24 • My recommended System Revenues for the FPFTY 2024 are \$239,067,140, which is
25 \$16,251,907 lower than the Authority's proposed FPFTY 2024 System Revenues of

1 \$255,319,046. This results in a recommended revenue requirement increase of
2 \$30,584,475.

- 3 • My recommended Direct Operating Expenses for the FPFTY 2024 are \$115,377,922
4 which is \$14,783,691 lower than the Authority’s proposed FPFTY 2024 Direct
5 Operating Expenses of \$130,161,613.
- 6 • My recommended Other Operating Expenses for the FPFTY 2024 are \$5,430,588,
7 which is \$319,070 lower than the Authority’s FPFTY 2024 Other Operating Expenses
8 of \$5,749,659.
- 9 • My recommended total Debt Service (Revenues Available for Debt Service)
10 Coverage for the FPFTY 2024 is \$116,853,909, which is \$1,960 lower than the
11 Authority’s proposed Debt Service for the FPFTY 2024 of \$116,855,869.
- 12 • My recommended Capital Expenditures/Transfers for the FPFTY 2024 are
13 \$15,778,191, which is \$6,652,296 lower than the Authority’s proposed FPFTY 2024
14 Capital Expenditures/Transfers of \$22,430,487.
- 15 • My Senior Debt Service Coverage Ratio for the FPFTY 2024 is 1.6524x, which is the
16 same as the Authority’s proposed Senior Debt Service Coverage Ratio for the FPFTY
17 2024 of 1.6524x.
- 18 • My recommended Cash Flow Projections is 279.08 days Cash on Hand (DCOH) for
19 the FPFTY 2024, as compared to the Authority’s proposed FPFTY 2024 DCOH of
20 247.59 days. My recommended Cash Flow Projection including the ALCOSAN
21 billing payments are 155.27 days Cash on Hand (DCOH) for the FPFTY 2024, as
22 compared to the Authority’s proposed FPFTY 2024 DCOH of 145.01.
- 23 • My overall recommended Revenue Requirement increase for the FPFTY 2024 is
24 \$30,584,475 (14.67%) which is \$16,251,907 lower than the Authority’s proposed
25 FPFTY 2024 increase of \$46,836,382 (22.467%)

26
27 **Q. DO YOU HAVE EXHIBITS TO REFLECT THESE RECOMMENDATIONS?**

28 **A.** Yes. Attached are Exhibits DM-1 through DM-21. The Exhibits reflect the OCA’s
29 adjustments for each of the Authority’s proposed revenue requirement increase under the
30 FPFTY 2024.

1 **B. SYSTEM REVENUE REQUIREMENT**

2 **Q. PLEASE DESCRIBE THE AUTHORITY’S SYSTEM REVENUE REQUIREMENT**
3 **UNDER THE FPFTY 2024 PERIOD.**

4 **A.** As shown on PWSA Exhibit EB-2, the Authority has prepared a Statement of Income at
5 Proposed Rates to calculate its overall proposed Rate Revenue increase under each of the
6 rate years (FPFTY 2024. The breakdown of this balance is the need to recover O&M
7 Expenses, Debt Service, and Capital Expenditures and Transfers. The System Revenue
8 Surplus is calculated at \$44,663 under the FPFTY 2024. A detailed breakdown by utility
9 operations for each of the rate years is shown on PWSA Exhibit EB-2.

10 **1. SYSTEM REVENUES**

11 **Q. WHAT HAS THE AUTHORITY PROPOSED REGARDING ITS TOTAL SYSTEM**
12 **REVENUES?**

13 **A.** As shown on PWSA Exhibit EB-2, the Authority has proposed total System Revenues for
14 FPFTY 2024 as follows:

	<u>FPFTY 2024</u>
16	
17	Water Sales \$152,352,358
18	Wastewater Sales \$ 50,124,557
19	Stormwater Sales \$ 29,833,260
20	Sales for Resale/Contract \$ 4,404,330
21	DSIC Revenues \$ 15,038,462
22	Other Revenues \$ 3,566,080
23	Penalties and Interest \$ <u>0</u>
24	Total System Revenues \$255,319,046

25 **Q. HOW DID THE AUTHORITY ALLOCATE THE REVENUE REQUIREMENT TO**
26 **THE UTILITY SERVICES ABOVE?**

27 **A.** According to PWSA witness Mr. Smith, the revenue requirements were determined based
28 upon a set of allocation factors that were assigned each to the water, wastewater, and
29 stormwater for the FPFTY period. (PWSA St. No. 7 at 15).

30 **Q. DO YOU HAVE ANY CHANGES TO THE AUTHORITY’S PROPOSED**
31 **ALLOCATION OF THE REVENUE REQUIREMENT AS BETWEEN WATER,**
32 **WASTEWATER AND STORM WATER FOR THE FPFTY 2024?**

1 A. No. I am accepting the Authority’s proposed allocation for the FPFTY. I show the scaled
2 back revenue requirement allocation as between water, wastewater, and storm water in
3 Exhibit DM-2.

4 **Q. WHAT CHANGES DO YOU HAVE WITH RESPECT TO THE AUTHORITY’S**
5 **PROPOSED SYSTEM REVENUES THE FPFTY 2024?**

6 A. My System Revenue adjustments correspond to the adjustments that I made to the
7 Authority’s Direct and Other Operating Expenses for the FPFTY 2024 period, which I
8 discuss further in my testimony. In sum, my recommended System Revenues for the
9 FPFTY 2024 is \$239,067,140. My allocation is as follows and shown on my Exhibit DM-
10 2:

11 FPFTY 2024

12	Water Sales	\$139,322,271
13	Wastewater Sales	\$ 55,095,035
14	Stormwater Sales	\$ 26,722,451
15	Sales for Resale /Contract	\$ 4,273,305
16	DSIC Revenues (5%)	\$ 9,645,034
17	Other Revenues	\$ 4,009,044
18	Penalties and Interest	\$ <u>0</u>
19	Total System Revenues	\$239,067,140

20

21 **Q. PLEASE EXPLAIN YOUR ADJUSTMENTS WITH RESPECT TO PWSA’S BILL**
22 **DISCOUNT PROGRAM FUNDING AND ARREARAGE FUNDNG?**

23 A. As more fully explained by OCA Witness Roger Colton (OCA St. 4), I am adding \$560,915
24 for the Bill Discount Program and \$631,461 for the Arrearage Funding. This is shown
25 on my Exhibit DM-4.

26 **Q. PLEASE EXPLAIN YOUR ADJUSTMENTS WITH RESPECT TO PWSA’S FEES**
27 **FOR CUSTOMER PAYMENTS BY DEBIT CARDS/CREDIT CARDS?**

28 A. As more fully explained by OCA Witness Barbara Alexander (OCA St. 5), I am adding
29 \$470,000 for debit card/credit card processing fees that are projected to apply if Witness
30 Alexander’s recommendation is adopted. This is shown on my Exhibit DM-4.

1 **2. OPERATING EXPENSES – DIRECT**

2 **Q. WHAT HAS PWSA PROPOSED REGARDING ITS OPERATING EXPENSES –**
3 **DIRECT?**

4 **A.** As shown on PWSA Exhibit EB-2, the Authority has proposed total Operating Expenses –
5 Direct for the FPFTY 2024 of \$130,161,613.

6 **Q. DID PWSA ALLOCATE THE OPERATING EXPENSES – DIRECT TO THE**
7 **WATER, WASTEWATER CONVEYANCE AND STORMWATER UTILITY**
8 **SERVICES?**

9 **A.** Yes. As stated in PWSA Mr. Smith’s testimony (PWSA St. No. 7 at 15), the Authority
10 allocated and assigned these costs to each of the water, wastewater conveyance and
11 stormwater utility services as shown on PWSA Exhibit HJS-1. Mr. Smith provided a
12 summary of factors that were used to assign costs to each of the services above, and as
13 detailed in PWSA Exhibit HJS-2.

14 **Q. HOW DID THE PWSA DEVELOP ITS OPERATING BUDGETS FOR ITS FPFTY**
15 **THAT WAS USED TO SUPPORT THE PROPOSED REVENUE**
16 **REQUIREMENT?**

17 **A.** As noted previously, Mr. Barca stated that the FTY (2023) and the FPFTY (2024) results
18 were derived through a comprehensive Authority-wide budgeting process. The Authority
19 used a zero-based budgeting method to develop annual budgets and each cost is
20 individually considered when developing the budget. (PWSA St. No. 2 at 9). Mr. Barca
21 stated that each of the fifteen departments within the PWSA prepared budget requests for
22 the upcoming fiscal year and those requests are reviewed by the Finance Department for
23 accuracy and adherence to the realistic expectations and/or projections. (PWSA St. No. 2
24 at 12). The Finance Department prepared a roll-up of initial funding and expense
25 recommendations for the Chief Executive Officer and Chief Operating Officer/Chief
26 Financial Officer, which then may make recommendations on the initial budget requests.
27 (PWSA St. No. 2 at 12). Once satisfied, the Chief Executive Officer and Chief Operating
28 Officer prepared an operating budget for review by the Board, which can accept or modify
29 the operating budget. (PWSA St. No. 2 at 12).

1 **Q. HOW DID YOU APPROACH THE DEVELOPMENT OF YOUR DIRECT**
2 **OPERATING EXPENSE ADJUSTMENTS IN THE FPFTY 2024?**

3 **A.** I reviewed the Authority’s PWSA Cost of Service Study Model 2024 (PWSA COS Model
4 2024) and, specifically, reviewed each of the Authority’s 15-line item Direct Operating
5 Expense accounts shown on PWSA Exhibit EB-2. I also reviewed the data responses
6 submitted by the Authority in OCA Set 6, Set 15 and Set 18, as well as the Authority Index
7 to Rate Filing Package Filing Requirement (Volume I). I reviewed the Bureau of
8 Investigation and Enforcement’s discovery responses from the Authority as well. I
9 analyzed and reviewed the Authority’s adjustments beginning with the HTY period (2022),
10 through the FPFTY (2024) period and noted and evaluated any adjustments that might be
11 escalation costs in nature, unusual or large variations from prior historical periods, one-
12 time expense items, and whether such costs included in the HTY and through the FPFTY
13 were abnormal adjustments, or anomalies as compared to prior years adjustments.

14 **Q. DID YOU UTILIZE TWO-YEAR NORMALIZATION IN CERTAIN AREAS OF**
15 **YOUR ANALYSIS?**

16 **A.** Yes. In my review, and in certain instances, I utilized two-year normalizations in areas
17 where the Authority had incurred no costs or expenses in prior years, cost increases and
18 projected or budgeted over what was incurred in prior years and reviewed whether those
19 cost increases were reasonable and prudent in nature. The use of a two-year normalization
20 is a reasonable approach in developing cost adjustments, on a budgeted basis prospectively.
21 Given that PWSA has filed rate cases proceeding every two years, the normalization
22 approach will allow PWSA to recovery costs between rate cases until such time PWSA
23 files another base rate case proceeding and maintain its expense recovery on a consistent
24 and constant basis. Costs incurred from prior years typically show a trend that can be
25 utilized to set costs in the future. My normalization approach increases or decreases the
26 Authority’s proposed direct operation expense balances. By not normalizing certain
27 expenses, there is a tendency to over-collect costs in future periods, which would result in
28 unjust and unreasonable rates.

29

1 **Q. HAVE YOU CONSIDERED PWSA’S HISTORICAL EXPENSES AS PART OF**
2 **YOUR ANALYSIS?**

3 A. Yes. In other areas of the Authority’s proposed operating expenses, I used my informed
4 judgment to recommend whether the costs should be disallowed or partially allowed. This
5 approach was based on whether there were any prior expenses incurred under the 2020-2022
6 period, the FY 2023 and expected to be incurred in the FPFTY 2024 periods. If no costs
7 were incurred in prior years, it is difficult to gauge or determine whether a forecasted or
8 budgeted cost proposed by the Authority was reasonable as there was nothing with which to
9 compare the forecasted or budgeted costs. While it is expected that some level of costs will
10 be incurred in these instances, there is no basis to support the specific level of costs proposed
11 by PWSA. To determine whether proposed costs are reasonable, and thus, should be allowed
12 in rates, proposed expenditures must be continuing and recurring. There is a degree of
13 interpretation involved when reviewing forecasted data, and different levels of interpretation
14 can vary among the parties to the proceeding and ultimately be determined and included by
15 the Commission. My adjustments to PWSA’s proposed expenses will all PWSA to recover
16 all reasonable costs and strike the appropriate balance between ratepayers and PWSA.

17 **Q. HAS THE AUTHORITY RELIED UPON CLAIMED ESCALATION COSTS IN ITS**
18 **FILING?**

19 A. Yes. With respect to escalation costs, the Authority stated in response to OCA-Set 6-12 that
20 it utilized escalation factors for certain expense categories in FY 2024. PWSA has provided
21 the following CPI Indexes that PWSA has utilized to develop and set rates in the FPFTY
22 2024:

<u>Item/Category/Expense</u>	<u>Assumptions</u>
Cost of Living Increases (COLA) Salaries and Wages	3.00%/
Short – Term Disability/Long-Term Disability	4.00%
AD&D	4.00%
Dental	1.00%
Vision	4.00%
Medical	13.00%
Chemical	20.00%

1	Utility	15%
2	All Other Operating Expenses	6%

3

4 **Q. SHOULD BLANKET INFLATIONS ADJUSTMENTS BE RELIED UPON TO**
5 **SUPPORT PWSA’S CLAIMS?**

6

7 A. No. I am of the opinion that inflationary costs or escalation costs should not be used for
8 ratemaking purposes or to set rates for service. Inflationary type increases do not provide a
9 good index of cost increases, but rather are overall blanket-type adjustments that are typically
10 applied to all goods and services that may not directly relate to costs incurred by the
11 Authority. It is simply a forecast or prediction of cost adjustments, and it is based upon
12 speculation. In part, inflationary type adjustments are not known and measurable and do not
13 reflect costs PWSA will incur during the period when rates are set for utility service.
14 Inflationary adjustments particularly relate to housing, clothing, food, etc. which are not
15 typically costs that are incurred by a public utility in the provision of safe and reliable
16 service. While such inflationary adjustments are used to develop economic data, they
17 typically should not be used for ratemaking purposes. As costs of goods and services
18 fluctuate over time, applying escalation factors to adjust costs is not a proper approach that
19 should be utilized in setting rates for utility service. I am advised by counsel that the
20 Commission has rejected blanket inflation adjustments in the past. Additionally, as I noted
21 earlier, the data, support, and basis for any projected inflation rate must be carefully analyzed
22 with respect to each of PWSA’s claimed costs. As more fully explained in my testimony, I
23 have utilized certain adjustments to PWSA’s expenses in the FPFTY 2024 period to reflect
24 a reasonable and prudent level of costs to be collected prospectively. More specifically, I
25 have adjusted PWSA’s certain Operating Expenses, General and Administrative Expenses,
26 Inventory, and Chemical Expenses based upon certain information I relied upon with respect
27 to cost adjustments expected to be incurred under the FPFTY 2024. I note that the Authority
28 remains responsible to substantiate all of its claims, and where the Authority did not do so,
29 I am recommending adjustments.

30 Finally, with respect to Salaries and Employee Benefits, I normalized these adjustments
31 over the three-year period (FY 2022 – FY 2024) through the use of a vacancy rate ratio (OC

1 A-Set 6-5). The Authority has indicated that the total employee count as of April 23, 2023,
2 was 393 (OCA-Set 6-25) and it is expecting to fill 33 positions in the FPFTY 2024. I
3 performed an analysis and developed a ratio of total filled employee positions to the number
4 of vacant positions for the FPFTY 2024. I compared the results to the Authority's proposed
5 Salaries and Employee Benefits as shown on the Authority's COSS Model 2021 tabs 910
6 through 930 under the Allocated Costs for each utility (water, wastewater and stormwater).
7 I then made adjustments to the Authority's FPFTY 2024 period related to Salaries and
8 Employee Benefits. I further discuss these adjustments in each of the following department
9 categories (operating expense accounts).

10 **Q. WHAT CHANGES DO YOU HAVE WITH RESPECT TO THE AUTHORITY'S**
11 **PROPOSED DIRECT OPERATING EXPENSES OF \$130,161,613 FOR THE**
12 **FPFTY 2024?**

13 **A.** I have made adjustments to each of the Authority's 15-line item Direct Operating expense
14 accounts. My total recommended Direct Operating Expenses are as follows, and as shown
15 on my Exhibits DM-3 through DM-17.

16 FYFTY 2024 \$115,377,922

17 **a. Executive Director - 910**⁵

18 **Q. WHAT DID THE AUTHORITY PROPOSE WITH RESPECT TO ITS**
19 **EXECUTIVE DIRECTOR EXPENSES FOR THE FPFTY 2024?**

20 **A.** As shown on PWSA Exhibit EB-2 (Line 9) and tab 910 of the PWSA COS Model 2024,
21 the Authority proposed a FPFTY 2024 balance of \$3,336,780. These balances were broken
22 down by utility service as shown on PWSA Exhibits HJS-1 and HJS-2. These balances are
23 comprised of Salary and Benefits, O&M Expenses, Inventory and General Administrative
24 Expenses. PWSA indexed its Salaries by cost of living adjustments for its employees
25 (COLA) in the amount of 3.00% annually in FY 2024. (OCA Set 6-12). PWSA indexed
26 its Benefits by COLA ranging from 1.00% to 13.00% for various employee benefits

⁵ Any differences between PWSA's COS Model 2024 related to Salary and Benefits and Mr. Mugrace's balances for Salary and Benefits are due to rounding issues.

coverages as shown in response to OCA-Set 6-12 in the FPFTY 2024. PWSA indexed its General and Administrative (G&A) expenses by indexing these costs by 6.00% (OCA-Set-6-12) in the FPFTY 2024.

Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE AUTHORITY’S EXECUTIVE DIRECTOR ACCOUNT BALANCE RELATED TO SALARY AND BENEFITS?

A. I first reviewed the Salary and Benefits balance. The Authority proposed total Salary and Benefits of \$1,392,142 and \$303,212, respectively in the FPFTY 2024 period. (PWSA COSS Model 2024 tab 910 Column w through AA Lines 298 through 321). In response to OCA-Set-6-5, PWSA provided a vacancy rate analysis for all of its employees from FY 2020 through the projected period FY 2026. In response to OCA-Set-6-6, PWSA stated that it anticipated hiring 33 employees in the FPFTY 2024. PWSA stated that as of April 23, 2023, there were 393 employees employed at the PWSA. (OCA-Set-6-25). I am recommending the use of a vacancy rate ratio to set the employee levels under the FPFTY 2024. Using a three-year vacancy ratio for the periods of 2022-2024 to set the ratio for the FPFTY 2024 using the information shown in response to OCA Set 6-5, I arrived at a normalized vacancy level of 12.61% for the FPFTY 2024. This is calculated as follows:

Year	Total Emp.	Vacancies	Projected Emp.	3-Yr Vacancy Ratio	3-Yr-Projected Emp	Vacancy Ratio
2020	311	122	433			
2021	308	103	411			
2022	370	89	459			
2023	393	48	441			
2024	435	33	458	57	452	12.61%
3-yr total Avg. vacancies		170 / 3 years	=	57 /	452	= 12.61%
(Total Vacancies 2022-2024 - 89+48+33= 170)						

The use of a three-year normalization (2022-2024) for Salary and Benefits expenses is appropriate, given the Authority’s prior years’ level of employee count. The Authority has not appeared to have accelerated its level of employees in prior years. This analysis shows that there is a gap in filling needed staffing levels. The year by year adjustment and comparison of employee vacancies show a level of disparate and varying vacancy rates over the years (2020-2024). It is unclear whether the Authority will fill all vacancies as

1 stated under the FPFTY 2024. I note that the Authority has consistently failed to fill all
2 claimed vacancies, and its projections have failed to materialize, leading to overpayment
3 by ratepayers. Moreso, vacancies occur throughout the year and employee levels will
4 fluctuate from month to month depending on the level of retirements, voluntary and
5 involuntary leaves, lay-offs, and firing. Employee vacancies are an inherent issue in a
6 business environment. Given this disparity from year to year, I adjusted the Authority's
7 proposed Executive Salary and Benefits balance for the three-year period by the vacancy
8 rate ratios for each of the three-year period 2024-2026. I multiplied those amounts by the
9 vacancy ratio of 12.61% (FPFTY 2024) to arrive at an adjusted level of \$1,175,325 for
10 Salaries and \$264,977 for Benefits in the FPFTY 2024 period. These adjustments also
11 flow through the remaining cost categories of PWSA so my recommendations related to
12 Salary and Benefits will be consistent in all of the cost categories and all of PWSA's Direct
13 Operating Expenses (with the exception of Bonuses, which only occurred under the
14 Executive Director category).

15 **Q. WHAT OTHER ADJUSTMENTS DID YOU MAKE IN PWSA'S EXECUTIVE**
16 **DIRECTOR CATEGORY?**

17 **A.** In response to OCA Set-6-6 and Set 6-20, PWSA proposed to include bonuses for the Chief
18 Executive Officer in the amount of \$47,223 in the FPFTY 2024. I am recommending
19 disallowing these bonuses for rate making purposes as PWSA did not provide any
20 performance goals or metrics related to the receipt of money attributable to the Chief
21 Executive Officer. In response to OCA Set 6-20, PWSA stated that a nominal flat-dollar
22 amount bonus per employee per year is discretionary and not guaranteed in future years.
23 Given the lack of information and performance goals, the disallowance is appropriate as
24 there is an absence of whether the bonus is attributable to any customer service metrics or
25 identifiable goal achievement related to safety or reliability measures.

26 **Q. WHAT HAS PWSA PROPOSED WITH RESPECT TO ITS INVENTORY AND**
27 **GENERAL AND ADMINISTRATIVE EXPENSES FOR ITS EXECUTIVE**
28 **DIRECTOR?**

29 **A.** As shown on PWSA COS Model 2024, tab 910, (beginning on line 298 and columns U
30 through AA), PWSA included a 6% adjustment for each of the adjustments for Inventory
31 and General and Administrative expenses from 2023 through 2026.

1 **Q. WHAT ARE YOUR ADJUSTMENTS TO THE AUTHORITY’S EXECUTIVE**
2 **DIRECTOR ACCOUNT BALANCE RELATED TO INVENTORY AND**
3 **GENERAL ADMINISTRATIVE?**

4 **A.** I am recommending a 2.3% adjustment in the FPFTY 2024. I based my adjustments by
5 relying on the information shown on Statista⁶ which projected consumer price index as
6 being 2.3% in 2024. Using this index adjustments, I adjusted PWSA Inventory and General
7 and Administrative costs by 2.3% from 2023 to 2024.

8 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO THE AUTHORITY’S**
9 **EXECUTIVE DIRECTOR EXPENSES FOR EACH OF THE RATE YEARS?**

10 **A.** My total adjustments are a \$312,347 reduction in the FPFTY 2024. This is shown on my
11 Exhibit DM-3.

12 **b. Customer Service - 911**

13 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS**
14 **CUSTOMER SERVICE EXPENSES FOR THE FPFTY 2024?**

15 **A.** As shown on PWSA Exhibit EB-2, Line 10 and tab 911 of the PWSA COS Model 2024,
16 the Authority proposed a FPFTY 2024 balance of \$9,577,647. These balances were broken
17 down by utility service as shown on PWSA Exhibit HJS-1 and HJS-2. These balances are
18 comprised of Salary and Benefits, O&M Expenses and General and Administrative.
19 PWSA indexed these expenses in the same manner as it did under the Executive Director
20 expense category, with respect to Salaries, Benefits, Operating Expenses, Inventory and
21 General and Administrative expenses and as I previously explained in my testimony.

22 **Q. WHAT ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE**
23 **AUTHORITY’S CUSTOMER SERVICE ACCOUNT BALANCE?**

24 **A.** My first adjustment is related to the Authority’s Salary and Benefits. For the same reasons
25 and consistent with my treatment of Salary and Benefits for all Direct Operating Expenses,
26 I utilized a three-year vacancy ratio for 2024 of 12.61% with the arguments that I explained
27 previously. I multiplied the Authority’s proposed Customer Salary and Benefits balances
28 of \$5,157,434 and \$1,815,642, respectively, by the vacancy ratio of 12.61% to arrive at an

⁶ [Projected U.S. inflation rate 2010-2028 | Statista](#)

1 adjusted level of \$4,507,082 for Salaries and \$1,586,690 for Benefits for the FPFTY 2024.
2 These are shown on my Exhibit DM-4.

3 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES**
4 **AND GENERAL ADMINSTRATIVE?**

5 **A.** I have adjustments to the Authority's Operating Expenses, Inventory and General
6 Administrative costs. As previously identified, PWSA has included a 6% adjustment for
7 each of these operating expense categories from the FPFTY 2024. (PWSA COS Model
8 2024 tab 911 (beginning on line 298 and columns U through AA). I am recommending a
9 2.3% adjustment in the FPFTY 2024. As previously stated, I based my adjustments by
10 relying on information shown on Statista which projected inflation in 2024. This reduces
11 PWSA's Operating Expense by \$8,788 in the FPFTY 2024. For the General and
12 Administrative expenses, the reduction is \$82,128 in the FPFTY 2024. These adjustments
13 are shown on my Exhibit DM-4.

14 **Q. WHAT OTHER ADJUSTMENTS HAVE YOU INCLUDED IN PWSA'S**
15 **CUSTOMER SERVICE EXPENSES?**

16 **A.** I am including costs recommended by Ms. Alexander of \$470,000 related to Credit
17 Card/Debit Card fees, as well as \$560,915 and \$631,461 related to the Expansion of Bill
18 Discount and Arrearage Forgiveness Program, respectively, as recommended by Mr.
19 Colton. Ms. Alexander and Mr. Colton discuss these adjustments in their testimonies.

20 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO PWSA'S CUSTOMER**
21 **SERVICE EXPENSES?**

22 **A.** My total adjustments are a reduction of \$970,221 in the FPFTY 2024. My adjustments
23 related to Ms. Alexander's and Mr. Colton's recommended adjustments as described above
24 total \$1,662,376. These are shown on my Exhibit DM-4.

25 **c. Management Information Systems - 912**

26 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS**
27 **MANAGEMENT INFORMATION SYSTEMS FOR THE FPFTY 2024?**

28 **A.** As shown on PWSA Exhibit – EB-2, Line 11 and tab 912 of the PWSA COS Model 2024,
29 the Authority proposed a FPFTY 2024 balance of \$7,612,250 for its Management
30 Information Systems costs. These balances were broken down by utility service as shown

1 on PWSA HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
2 Operating Expenses, Inventory and General and Administrative Expenses. PWSA indexed
3 these expenses in the same manner as it did under the previous addressed expense
4 categories, with respect to Salaries, Benefits, Operating Expenses, Inventory and General
5 and Administrative expenses and as I previously explained in my testimony.

6 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
7 **MANAGEMENT INFORMATION SYSTEMS ACCOUNT BALANCE?**

8 **A.** My first adjustment is related to the Authority's Salary and Benefits. The adjustment is
9 consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
10 Expenses, reflecting PWSA's vacancy rate analysis for all of its employees. In response
11 to OCA-Set-6-6, PWSA stated that it anticipated hiring 33 employees in the FPFTY 2024.
12 PWSA stated that as of April 23, 2023, there were 393 employees employed at the PWSA.
13 (OCA-Set-6-25). I am recommending the use of a vacancy rate ratio to set the employee
14 levels under the FPFTY 2024. I utilized a three-year vacancy ratio for FPFTY 2024 of
15 12.61% with the arguments that I explained previously. I then multiplied the Authority's
16 proposed MIS Salary and Benefits balances for the FPFTY 2024 period of \$2,450,094 and
17 \$653,409, respectively, by the vacancy rate ratio of 12.61% to arrive at an adjusted level
18 of \$2,141,137 for Salaries and \$571,014 for Benefits. These adjustments are shown on my
19 Exhibit DM-5.

20 **Q. WHAT OTHER ADJUSTMENTS DO YOU HAVE WITH RESPECT TO THE**
21 **AUTHORITY'S MIS EXPENSES?**

22 **A.** I reviewed the Authority's O&M Expenses, Inventory and General Administrative
23 category and have adjustments related to PWSA's 6% increase in these expense categories.
24 As previously identified, PWSA has included a 6% adjustment for each of these operating
25 expense categories for the FPFTY 2024. (PWSA COS Model 2024 tab 912 (beginning
26 on line 298 and columns U through AA). I am recommending a 2.3% adjustment in the
27 FPFTY 2024 for each of the expense categories listed above. As previously stated, I based
28 my adjustments by relying on information shown on Statista which projected inflation from
29 as being 2.3% from 2023 to 2024. This reduces the balance for Operating Expenses by
30 \$103,401 in the FPFTY 2024. For the Inventory expenses, this reduces the balance by \$38

1 in the FPPTY 2024. For the General and Administrative Expenses, this reduces the balance
2 by \$19,088 in the FPPTY 2024. This is shown on my Exhibit DM-5.⁷

3 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO PWSA’S MIS EXPENSES?**

4 **A.** My total adjustments are a reduction of \$513,879 in the FPPTY 2024. These are shown
5 on my Exhibit DM-5.

6 **d. Finance – 913**

7 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS FINANCE**
8 **COSTS IN THE FPPTY 2024?**

9 **A.** As shown on PWSA Exhibit – EB-2, line 12 and tab 913 of the PWSA COS Model 2024,
10 the Authority has proposed a FPPTY 2024 balance of \$7,477,373. These balances were
11 broken down by utility service as shown on PWSA HJS-1 and HJS-2. These balances are
12 comprised of Salaries and Benefits, Operating Expenses, Inventory and General and
13 Administrative Expenses. PWSA indexed these expenses in the same manner as it did
14 under the previous addressed expense categories, with respect to Salaries, Benefits,
15 Operating Expenses, Inventory and General and Administrative expenses and as I
16 previously explained in my testimony.

17 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY’S**
18 **FINANCE BALANCE FOR THE FPPTY PERIOD?**

19 **A.** My first adjustment is related to the Authority’s Salary and Benefits. For the same reasons
20 and consistent with my treatment of Salary and Benefits for all PWSA’s Direct Operating
21 Expenses, I utilized a three-year vacancy ratio for FPPTY 2024 of 12.61%with the
22 arguments that I explained previously. I then multiplied the Authority’s proposed Finance
23 Salary and Benefits balances for the FPPTY 2024 period of \$2,042,753 and \$515,143,
24 respectively, by the vacancy rate ratio of 12.61% to arrive at an adjusted level of
25 \$1,785,162 for Salaries and \$450,183 for Benefits. This adjustment is shown on my Exhibit
26 DM-6.

⁷ In Account no. 7323, PWSA adjusted its expense by \$514,400 in the FPPTY 2024 and reduced this balance by \$701,556 in the FY 2025. I removed these costs from the calculation of 2.3% and 2.1% index adjustment, so as not to skew the high variability of costs from year to year.

1 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
2 **INVENTORY AND GENERAL ADMINISTRATIVE?**

3 **A.** I reviewed the Authority's O&M Expenses, Inventory and General Administrative
4 category and have adjustments related to PWSA's 6% increase in these expense categories.
5 As previously identified, PWSA has included a 6% adjustment for each of these operating
6 expense categories from the FPFTY 2024. (PWSA COS Model 2024 tab 913 (beginning
7 on line 298 and columns U through AA). I am recommending a 2.3% adjustment in the
8 FPFTY 2024 for each of the expense categories listed above. As previously stated, I based
9 my adjustments by relying on information shown on Statista which projected inflation from
10 2024 through 2026 as being 2.3% from 2023 to 2024. With respect to Operating Expenses,
11 PWSA has included Vehicle Expenses (Account 5190) in the amount of \$2,000,000 in the
12 FPFTY 2024. Prior costs (2020-2022) average out to about \$785,000. I am recommending
13 normalizing this cost over a two-year period or \$1,000,000 annually. PWSA stated that
14 this expense is to replace vehicles for the entire organization (OCA-18-8). I believe the
15 \$2,000,000 is excessive and not reflective of what PWSA has expensed in the past.
16 Therefore, I believe my recommended \$1,000,000 annual expense is appropriate. This
17 reduces the balance for Operating Expenses by \$1,142,745 in the FPFTY 2024. For the
18 Inventory expenses, this reduces the balance by \$13,691 in the FPFTY 2024. For the
19 General and Administrative Expenses, PWSA has included Pagers of \$60,000 (Account
20 7260). There were no prior costs for this expense in the 2020-2023 period; however, in
21 response to I&E RE-36, PSWA stated this account has been repurposed for the portion of
22 parking costs that is covered by employees. With that clarification, I am recommending
23 normalizing this cost over a two-year period or \$30,000 annually. Regardless of what this
24 account was used for, it is appropriate to normalize these costs, given there were no costs
25 in prior years. This reduces the balance by \$528,293 in the FPFTY 2024. These
26 adjustments are shown on my Exhibit DM-6.

27 **Q. WHAT IS YOUR TOTAL ADJUSTMENT TO THE AUTHORITY'S FINANCE**
28 **COSTS?**

29 **A.** My total adjustment is a reduction of \$2,007,280 in the FPFTY 2024 period as shown on
30 my Exhibit DM-6.

1 e. Human Resources - 915

2 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS HUMAN**
3 **RESOURCES COSTS FOR THE FPFTY 2024?**

4 **A.** As shown on PWSA Exhibit EB-2, line 14, the Authority has proposed a Human Resources
5 balance of \$2,435,867 for the FPFTY 2024 period. The Authority also reflected this
6 balance in its PWSA COS Model 2024, tab 915. These balances were broken down by
7 utility service as shown on PWSA Exhibit HJS-1 and HJS-2. These balances are comprised
8 of Salaries and Benefits, Operating Expenses, Inventory and General and Administrative
9 Expenses. PWSA indexed these expenses in the same manner as it did under the previous
10 addressed expense categories, with respect to Salaries, Benefits, Operating Expenses,
11 Inventory and General and Administrative expenses and as I previously explained in my
12 testimony.

13 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
14 **HUMAN RESOURCE COSTS FOR THE FPFTY PERIOD?**

15 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
16 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
17 Expenses, I utilized a three-year vacancy ratio for FPFTY 2024 of 12.61% with the
18 arguments that I explained previously. I then multiplied the Authority's proposed Human
19 Resource Salary and Benefits balances for the FPFTY 2024 period of \$1,681,698 and
20 \$386,096, respectively, by the vacancy rate ratio of 12.61% to arrive at an adjusted level
21 of \$1,469,636 for Salaries and \$337,409 for Benefits. This is shown in my Exhibit DM-9.

22 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
23 **INVENTORY AND GENERAL ADMINISTRATIVE?**

24 **A.** I reviewed the Authority's O&M Expenses, Inventory and General Administrative category
25 and have adjustments related to PWSA's 6% increase in these expense categories. As
26 previously identified, PWSA has included a 6% adjustment for each of these operating
27 expense categories from the FPFTY 2024. (PWSA COS Model 2024 tab 915 (beginning on
28 line 298 and columns U through AA). I am recommending a 2.3% adjustment in the FPFTY
29 2024 for each of the expense categories listed above. As previously stated, I based my
30 adjustments by relying on information shown on Statista which projected inflation as being

1 2.3% from 2023 to 2024. This reduces the balance for Operating Expenses by \$203 in the
2 FPPTY 2024. For the Inventory expenses, this reduces the balance by \$145 in the FPPTY
3 2024. For the General and Administrative Expenses, this reduces the balance by \$12,499 in
4 the FPPTY 2024. These adjustments are shown on my Exhibit DM-7.

5 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO HUMAN RESOURCES?**

6 **A.** My total adjustment to Human Resources is a decrease of \$273,595 in the FPPTY 2024
7 period as shown on my Exhibit DM-7.

8 **f. Legal - 916**

9 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS LEGAL**
10 **EXPENSE IN THE FPPTY 2024?**

11 **A.** As shown on PWSA Exhibit EB-2, line 15, the Authority has proposed Legal Expense of
12 \$4,215,778 for the FPPTY 2024 period. This is also shown on PWSA COS Model 2024,
13 tab 916. These balances were broken down by utility service as shown on PWSA Exhibit
14 HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits, and General and
15 Administrative Expenses. PWSA indexed these expenses in the same manner as it did
16 under the previously addressed expense categories, with respect to Salaries, Benefits, and
17 General and Administrative expenses and as I previously explained in my testimony.

18 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
19 **LEGAL EXPENSE?**

20 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
21 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
22 Expenses, I utilized a three-year vacancy ratio for FPPTY 2024 of 12.61%. I then
23 multiplied the Authority's proposed Legal Salary and Benefits balances for the FPPTY
24 2024 period of \$992,620 and \$256,119, respectively, by the vacancy rate ratio of 12.61%
25 to arrive at an adjusted level of \$867,451 for Salaries and \$223,822 for Benefits. These
26 adjustments are shown on my Exhibit DM-8.

1 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO GENERAL**
2 **ADMINISTRATIVE?**

3 **A.** I reviewed the Authority’s General and Administrative category and I have adjustments
4 related to PWSA’s 6% increase in these expense categories. As previously identified,
5 PWSA has included a 6% adjustment for each of these operating expense categories from
6 the FPPTY 2024. (PWSA COS Model 2024 tab 916 (beginning on line 298 and columns
7 U through AA). I am recommending a 2.3% adjustment in the FPPTY 2024 for each of
8 the expense categories listed above. As previously stated, I based my adjustments by
9 relying on information shown on Statista which projected inflation through 2024. For the
10 General and Administrative Expenses, this reduces the balance by \$1,557,605 in the
11 FPPTY 2024. These adjustments are shown on my Exhibit DM-10. Included in the
12 General and Administrative Expense adjustments is a normalized expense related to Claims
13 Deductible (Account 7715). PWSA proposed a balance of \$750,000 in the FY 2023 and
14 increased this amount by \$45,000 to arrive at a balance of \$795,000 in the FPPTY 2024.
15 In response to OCA 18-9, PWSA stated that these costs are paid out by PWSA and can
16 fluctuate from year to year. PWSA was not able to anticipate the exact number of claims
17 in future years but must have funds available to pay when they occur. I am recommending
18 a two-year normalized level or \$352,500 annually, given that PWSA cannot anticipate the
19 number of claims. Prior costs averaged out to about \$685,000 (2020-2022), or an increase
20 of about 10% over FPPTY 2024 proforma balance.

21 **Q. WHAT ADJUSTMENT DID YOU MAKE WITH RESPECT TO PWSA’S RATE**
22 **CASE EXPENSES?**

23 **A.** I normalized PWSA’s rate case expenses over a two-year period. In the past PWSA has
24 filed rate cases in 2018, 2020, 2021 and 2023. Normalizing these expenses calculates to a
25 1.25 year period. (5 years divided by 4 rate cases or 1.25). I am recommending a two-year
26 period because the use of a normalized 1.25 year period will occur between rate cases, in
27 which PWSA will still be collecting and ultimately over-collect until PWSA files its next
28 base rate case. My calculation is consistent with the recommendation that the Commission
29 should not approve PWSA’s multi-year rate plan.

1 **Q. WHAT HAS PWSA INCLUDED FOR RATE CASE EXPENSES?**

2 **A.** In the PWSA COS Model 2024, tab 916 Account 7370, PWSA has included a balance of
3 \$2,865,750 in the FY 2023 and a balance of \$2,137,695 in the FPFTY 2024 which is the
4 bulk of the expenses related to rate case expenses (I&E RE-37-D). In response to OCA-
5 Set 6-14, PWSA has indicated that total rate case expenses included are \$2,577,303.
6 PWSA has not provided any information as to the differences in these amounts. PWSA
7 has not provided any further updates as to the total balance incurred related to rate case
8 expenses to date.

9 **Q. WHAT IS YOUR RECOMMENDATION TO PWSA'S RATE CASE EXPENSES?**

10 **A.** I am tentatively recommending normalizing the balance of \$2,137,695 over two years or
11 recovery of \$1,068,848 annually. This is shown on my Exhibit DM-8. However, my
12 recommendation is made with the caveat that PWSA should be required to provide an
13 update in its rejoinder testimony to substantiate its actual rate case expenditures and
14 projected expenditures through the end of the case. If PWSA does not do this, I reserve the
15 right to change my recommendation as necessary to ensure that PWSA's known and
16 identifiable costs available can be factored into my position for this evolving expense.

17 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO LEGAL EXPENSE?**

18 **A.** My total adjustments to Legal Expense are a reduction of \$1,715,071 in the FPFTY 2024.
19 These adjustments are shown on my Schedule DM-8.

20 **g. Safety & Security – 917**

21 **Q. WHAT HAS THE PWSA PROPOSED WITH RESPECT TO ITS SAFETY &
22 SECURITY IN THE FPFTY 2024?**

23 **A.** As shown on PWSA Exhibit EB-2, line 16, the Authority has proposed a Safety and
24 Security balance of \$2,341,028 for the FPFTY 2024 period. The Authority also reflected
25 this balance in its PWSA COS Model 2024, tab 917. These balances were broken down
26 by utility service as shown on PWSA Exhibit HJS-1 and HJS-2. These balances are
27 comprised of Salaries and Benefits, Operating Expenses, Inventory and General and
28 Administrative Expenses. PWSA indexed these expenses in the same manner as it did
29 under the previously addressed expense categories, with respect to Salaries, Benefits,

1 Operating Expenses, Inventory and General and Administrative expenses and as I
2 previously explained in my testimony.

3 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
4 **SAFETY AND SECURITY COSTS FOR THE FPFTY PERIOD?**

5 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
6 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
7 Expenses, I utilized a three-year vacancy ratio for FPFTY 2024 of 12.61% with the
8 arguments that I explained previously. I then multiplied the Authority's proposed Safety
9 and Security Salary and Benefits balances for the FPFTY 2024 period of \$929,122 and
10 \$333,753, respectively, by the vacancy rate ratio of 12.61% to arrive at an adjusted level
11 of \$811,960 for Salaries and \$291,667 for Benefits. These balances are shown in my
12 Exhibit DM-9.

13 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
14 **INVENTORY AND GENERAL ADMINISTRATIVE?**

15 **A.** I reviewed the Authority's O&M Expenses, Inventory and General Administrative
16 category and have adjustments related to PWSA's 6% increase in these expense categories.
17 As previously identified, PWSA has included a 6% adjustment for each of these operating
18 expense categories from the FPFTY 2024. (PWSA COS Model 2024 tab 917 (beginning
19 on line 298 and columns U through AA). I am recommending a 2.3% adjustment in the
20 FPFTY 2024. As previously stated, I based my adjustments by relying on information
21 shown on Statista which projected inflation as being 2.3% from 2023 to 2024. This
22 reduces the balance for Operating Expenses by \$393,070 in the FPFTY 2024. For the
23 Inventory expenses, this reduces the balance by \$36 in the FPFTY 2024. For the General
24 and Administrative Expenses, this reduces the balance by \$18,764 in the FPFTY 2024. In
25 addition to the adjustments above, I also normalized costs related to Account 5145 (Ground
26 Maintenance). PWSA proposed a balance to this account of \$53,250 in the FY 2023 period.
27 Prior costs were \$0 in 2020, \$0 in 2021 and \$102,089 in 2023. PWSA reduced this balance
28 by \$48,839 to arrive at the balance of \$53,250. Normalizing these expenses results in an
29 annual recovery of \$26,625 per year. PWSA also proposed a balance to Account 7440
30 (Ground Maintenance) \$27,000 in the FY 2023. Prior costs were \$0 in 2020, \$0 in 2021
31 and \$5,472 in 2022. PWSA adjusted this balance to \$21,528 to arrive at the balance of

1 \$27,000. Normalizing these expenses results in an annual recovery of \$13,500 per year.
2 Finally, PWSA proposed to recover \$690,483 related to Radionuclides (Account 5375).
3 (\$651,399 in the FY 2023 and \$651,399 in the FPFTY 2024 which include a 6.0%
4 increase). In response to OCA Set 18-11, PWSA stated that it was reclassified from Account
5 5370 (Operating Contracts Other). Prior costs were \$0 in the years 2020-2022. Under the
6 Water Treatment Tab 322, Radionuclides costs are shown with a balance of \$651,399 in
7 the FPFTY 2024. PWSA has not provided any reconciliation of these reclassified costs nor
8 provided how these costs are now allocated under Account 5375. I am recommending
9 normalizing these costs over a two-year period or \$325,700 (\$651,399/2). These
10 adjustments are shown on my Exhibit DM-9.

11 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO SAFETY AND SECURITY?**

12 **A.** My total adjustment to Safety and Security is a reduction of \$571,119 in the FPFTY 2024.
13 These adjustments are shown on my Exhibit DM-9.

14 **h. Public Affairs - 921**

15 **Q. WHAT HAS PWSA PROPOSED WITH RESPECT TO ITS PUBLIC AFFAIRS IN**
16 **THE FPFTY 2024?**

17 **A.** As shown on PWSA Exhibit EB-2, line 16, the Authority has proposed a Public Affairs
18 balance of \$1,902,691 in the FPFTY 2024. This balance is also shown on PWSA COS
19 Model 2024, tab 921. These balances were broken down by utility service as shown on
20 PWSA Exhibit HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
21 Operating Expenses, and General and Administrative Expenses. PWSA indexed these
22 expenses in the same manner as it did under the previously addressed expense categories,
23 with respect to Salaries, Benefits, Operating Expenses, and General and Administrative
24 expenses and as I previously explained in my testimony.

25 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
26 **PUBLIC AFFAIRS COSTS FOR THE FPFTY PERIOD?**

27 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
28 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
29 Expenses, I utilized a three-year vacancy ratio for FPFTY 2024 of 12.61% with the

1 arguments that I explained previously. I then multiplied the Authority's proposed Public
2 Affairs Salary and Benefits balances for the FPFTY 2024 period of \$989,801 and
3 \$233,570, respectively, by the vacancy rate ratio of 12.61% to arrive at an adjusted level
4 of \$864,987 for Salaries and \$204,117 for Benefits. These balances are shown in my
5 Exhibit DM-10.

6 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
7 **AND GENERAL ADMINISTRATIVE?**

8 **A.** I reviewed the Authority's O&M Expenses, and General Administrative category and have
9 adjustments related to PWSA's 6% increase in these expense categories. As previously
10 identified, PWSA has included a 6% adjustment for each of these operating expense
11 categories from the FPFTY 2024. (PWSA COS Model 2024 tab 921 (beginning on line
12 298 and columns U through AA). I am recommending a 2.3% adjustment in the FPFTY
13 2024 for each of the expense categories listed above. As previously stated, I based my
14 adjustments by relying on information shown on Statista which projected inflation as being
15 2.3% from 2023 to 2024. This reduces the balance for Operating Expenses by \$85,812 in
16 the FPFTY 2024, 6. For the General and Administrative Expenses, this reduces the balance
17 by \$14,626 in the FPFTY 2024. In addition to the adjustments above, I also normalized
18 costs related to Account 5145 (Ground Maintenance). PWSA proposed a balance to this
19 account of \$150,000 in the FY 2023 period. Prior costs were \$0 in 2020, \$0 in 2021 and
20 \$0 in 2022. PWSA increased this balance by \$150,000 in the FY 2023 and added \$9,000
21 to arrive at the balance of \$159,000 in the FPFTY 2024. In response to OCA Set 18-16,
22 these costs relate to the design and creation of signs for capital projects and community
23 events, and to help educate the public (and ratepayers) on PWSA's ongoing projects. I am
24 recommending normalizing these costs over a two-year period using FY 2023 costs of
25 \$150,000 or \$75,000 annually. These adjustments are shown on my Exhibit DM-10.

26 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO THE AUTHORITY'S PUBLIC**
27 **AFFAIRS COSTS?**

28 **A.** My total adjustment to the Authority's Public Affairs costs is a reduction of \$254,705 in
29 the FPFTY 2024 as shown on my Exhibit DM-10.

1 i. Warehouse - 918

2 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS**
3 **WAREHOUSE COSTS FOR THE FPFTY 2024?**

4 **A.** As shown on PWSA Exhibit EB-2, Line 18, the Authority has proposed a balance of
5 \$562,638 in the FPFTY 2024 (line 18). This balance is also shown on PWSA COS Model
6 2024, tab 918. These balances were broken down by utility service as shown on PWSA
7 Exhibit HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
8 Operating Expenses, and General and Administrative Expenses. PWSA indexed these
9 expenses in the same manner as it did under the previously addressed expense categories,
10 with respect to Salaries, Benefits, Operating Expenses, and General and Administrative
11 expenses and as I previously explained in my testimony.

12 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
13 **WAREHOUSING COSTS FOR THE FPFTY PERIOD?**

14 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
15 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
16 Expenses that recognizes PWSA actual vacancy data, I utilized a three-year vacancy ratio
17 for FPFTY 2024 of 12.61% with the arguments that I explained previously. I then
18 multiplied the Authority's proposed Warehousing Salary and Benefits balances for the
19 FPFTY 2024 period of \$389,615 and \$140,226, respectively, by the vacancy rate ratio of
20 12.61% to arrive at an adjusted level of \$340,485 for Salaries and \$122,544 for Benefits.
21 These balances are shown in my Exhibit DM-12.

22 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
23 **AND GENERAL ADMINISTRATIVE?**

24 **A.** I reviewed the Authority's O&M Expenses, and General Administrative category and have
25 adjustments related to PWSA's 6% increase in these expense categories. As previously
26 identified, PWSA has included a 6% adjustment for each of these operating expense
27 categories from the FPFTY 2024. (PWSA COS Model 2024 tab 921, beginning on line
28 298 and columns U through AA). I am recommending a 2.3% adjustment in the FPFTY
29 2024 for each of the expense categories listed above. As previously stated, I based my
30 adjustments by relying on information shown on Statista which projected inflation as being

1 2.3% from 2023 to 2024. This increases the balance for Operating Expenses by \$331 in the
2 FPPTY 2024. For the General and Administrative Expenses, this reduces the balance by
3 \$453 in the FPPTY 2024. These adjustments are shown on my Exhibit DM-12.

4 **Q. WHAT IS YOUR TOTAL ADJUSTMENT TO THE AUTHORITY'S**
5 **WAREHOUSE EXPENSES?**

6 **A.** My total adjustment is a reduction of \$66,935 in the FPPTY 2024. These adjustments are
7 shown on my Exhibit DM-12.

8 **j. Water Quality - 321**

9 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO WATER**
10 **QUALITY FOR THE FPPTY 2024?**

11 **A.** As shown on PWSA Exhibit EB-2, Line 21, the Authority has proposed a balance of
12 \$2,676,383 for the FPPTY 2024 (line 21). This balance is also shown on PWSA COS
13 Model 2024, tab 321. These balances were broken down by utility service as shown on
14 PWSA Exhibit HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
15 Operating Expenses, and General and Administrative Expenses. PWSA indexed these
16 expenses in the same manner as it did under the previously addressed expense categories,
17 with respect to Salaries, Benefits, Operating Expenses, and General and Administrative
18 expenses and as I previously explained in my testimony.

19 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
20 **WATER QUALITY COSTS FOR THE FPPTY PERIOD?**

21 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
22 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
23 Expenses, which reflects PWSA's actual vacancy data, I utilized a three-year vacancy ratio
24 for FPPTY 2024 of 12.61%, with the arguments that I explained previously. I then
25 multiplied the Authority's proposed Water Quality Salary and Benefits balances for the
26 FPPTY 2024 period of \$1,225,567 and \$350,968, respectively, by the vacancy rate ratio of
27 12.61% to arrive at an adjusted level of \$1,071,023 for Salaries and \$3,06,711 for Benefits.
28 These balances are shown in my Exhibit DM-13.

1 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
2 **AND GENERAL ADMINISTRATIVE?**

3 **A.** I reviewed the Authority’s O&M Expenses, and General Administrative category and have
4 adjustments related to PWSA’s 6% increase in these expense categories. As previously
5 identified, PWSA has included a 6% adjustment for each of these operating expense
6 categories from the FPFTY 2024. (PWSA COS Model tab 321 (beginning on line 298 and
7 columns U through AA). I am recommending a 2.3% adjustment in the FPFTY 2024 for
8 each of the expense categories listed above. As previously stated, I based my adjustments
9 by relying on information shown on Statista which projected inflation being 2.3% from
10 2023 to 2024. This reduces the balance for Operating Expenses by \$85,924 in the FPFTY
11 2024. For Inventory this reduces the balance by \$93 in the FPFTY 2024. For the General
12 and Administrative Expenses, this reduces the balance by \$17,904 in the FPFTY 2024. In
13 addition to the adjustments above, I also normalized costs related to Account 5452
14 (Machinery Repairs). PWSA proposed a balance to this account of \$128,112 in the FY
15 2023 period. Prior costs were \$0 in 2020, \$21,961 in 2021 and \$22,314 in 2023. PWSA
16 increased this balance by \$105,798 to arrive at the balance of \$128,112 in the FY 2023.
17 Normalizing these expenses results in an annual recovery of \$64,056 per year. These
18 adjustments are shown on my Exhibit DM-13.

19 **Q. WHAT IS YOUR RECOMMENDED ADJUSTMENT REGARDING THE**
20 **AUTHORITY’S WATER QUALITY COSTS?**

21 **A.** My recommended adjustments result in a reduction of \$302,722 in the FPFTY 2024 and
22 are shown on my Exhibit DM-13.

23 **k. Plant Operations – 322 Water Treatment**

24 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS PLANT**
25 **OPERATIONS FOR THE FPFTY 2024?**

26 **A.** As shown on PWSA Exhibit EB-2, Line 22, the Authority has proposed a balance of
27 \$27,206,247 for the FPFTY 2024 (line 22). This balance is also shown on PWSA COS
28 Model 2024, tab 322. These balances were broken down by utility service as shown on
29 PWSA Exhibit HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
30 Operating Expenses, and General and Administrative Expenses. PWSA indexed these

1 expenses in the same manner as it did under the previously addressed expense categories,
2 with respect to Salaries, Benefits, Operating Expenses, and General and Administrative
3 expenses and as I previously explained in my testimony. In particular PWSA indexed
4 Chemical expenses by 20% in 2024, and indexed Utility Services (electric and gas) by
5 15% in 2024. (OCA-Set VI-12).

6 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
7 **WATER TREATMENT COSTS FOR THE FPFTY PERIOD?**

8 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
9 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
10 Expenses to reflect PWSA's actual vacancy data, I utilized a three-year vacancy ratio for
11 FPFTY 2024 of 12.61% with the arguments that I explained previously. I then multiplied
12 the Authority's proposed Plant Operations Salary and Benefits balances for the FPFTY
13 2024 period of \$5,968,424 and \$1,921,659, respectively, by the vacancy rate ratio of
14 12.61% to arrive at an adjusted level of \$5,215,806 for Salaries and \$1,679,338 for
15 Benefits. These balances are shown in my Exhibit DM-14.

16 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
17 **CHEMICAL, INVENTORY AND GENERAL ADMINISTRATIVE?**

18 **A.** I reviewed the Authority's O&M Expenses, and General Administrative category and have
19 adjustments related to PWSA's 6% increase in these expense categories. As previously
20 identified, PWSA has included a 6% adjustment for each of these operating expense
21 categories from the FPFTY 2024. (PWSA COS Model 2024 tab 322 (beginning on line
22 298 and columns U through AA). PWSA also included a 20% increase for its Chemical
23 Costs (Account 5035) and a 15% increase for its Utility Services (Accounts 7605 and 7650)
24 (OCA Set 6 -12). It is unclear whether PWSA sought competitive bids for chemicals. In
25 response to OCA Set 6-22 certain Chemical contract costs date back to 2021. I am
26 recommending a 2.3% adjustment in the FPFTY 2024 for each of the expense categories
27 listed above except for Chemical Expenses and Utility Services. As previously stated, I
28 based my adjustments by relying on information shown on Statista which projected
29 inflation as being 2.3% from 2023 to 2024. . This reduces the balance for Operating
30 Expenses by \$1,059,087 in the FPFTY 2024. For Inventory this reduces the balance by
31 \$4,409 in the FPFTY 2024. For the General and Administrative Expenses, this reduces the

1 balance by \$981,044 in the FPFTY 2024. In addition to the adjustments above, I also
2 normalized costs related to Account 5344 (Pump & Motor Contract). PWSA proposed a
3 balance to this account of \$600,000 in the FY 2023 period. Prior costs were \$0 in 2020,
4 \$0 in 2021 and \$0 in 2023. In response to OCA Set 18-13, PWSA stated that this was
5 renamed Pump and Motor Contract in 2023 in order to track the costs more efficiently and
6 be more transparent to the public and regulating agencies. Prior costs were budgeted under
7 the Engineering & Construction department in Account 5370 (Operating Contract Other.
8 PWSA has not provided any reconciliation of these reclassified costs nor provided how these
9 costs are now allocated under Account 5344. PWSA increased this balance by \$36,000 to
10 arrive at the balance of \$636,000 in the FPFTY 2024. Normalizing these expenses results
11 in an annual recovery of \$300,000 per year (FY 2023 balance of \$600,000) along with the
12 2.3% index in the FPFTY 2024. With respect to Chemical Expenses, PWSA proposed a
13 balance of \$5,559,367 in the FY 2022 and a balance of \$5,986,200 in the FY 2023
14 (Columns S and U Lines 51 to 67 PWSA COS Model 2024, tab 322). In the FPFTY 2024
15 PWSA proposed a balance of \$7,183,440 or an increase of 20%. PWSA included a 20%
16 increase in its Chemical expenses (OCA Set 6-12). PWSA stated that the 20% for
17 Chemical increases are inflationary in that it experienced dramatic increases in its
18 Chemical expenses over the past 18-24 months with increases of more than 20%. (I&E
19 RE 28). PWSA believed that the 20% inflation factor is reasonable given the current supply
20 chain environment driven the increase.

21 **Q. WHAT IS YOUR RESPONSE TO PWSA'S CHEMICAL INCREASE PROPOSAL?**

22 **A.** I believe that the proposed 20% increase for Chemical expenses is excessive and not
23 reasonable. On the Research CMFE website⁸ the global water treatment chemicals market
24 has estimated to register a compound annual growth rate of 6.8% from 2021 to 2027. The
25 effect of the pandemic has declined the market value for chemical treatment. Based upon
26 this information I am recommending a 6.8% increase in PWSA's Chemical expense for the
27 FPFTY 2024. Using my recommended 6.8% adjustment, my recommended Chemical
28 expense reduces PWSA's balance by \$1,059,087 in the FPFTY 2024.

⁸ [Water Treatment Chemicals Market is expected to reach a \(globenewswire.com\)](https://www.globenewswire.com)

1 **Q. WHAT HAS PWSA PROPOSED WITH RESPECT TO ITS ELECTRIC AND GAS**
2 **UTILITY COSTS?**

3 **A.** In response to OCA Set 18-12, PWSA stated that it has experienced significant increases
4 to both electric and gas costs since the last base rate case because of variable rate pricing
5 and increased usage. At this time, it is unclear whether PWSA's projections rely on a
6 contract with an alternative supplier. PWSA indicates that is not aware of any pending
7 distribution rate cases for Duquesne Light (electric provider) and People's Gas (gas
8 supplier), however, the last base rate case for Duquesne Light was 2021 and the last base
9 rate case for People's Gas was 2018. In its response to OCA's discovery request OCA Set
10 XVIII-12, PWSA claimed it was reasonable to assume each company will submit a rate
11 case in the future period.

12 **Q. WHAT ADJUSTMENTS DO YOU HAVE?**

13 **A.** I am tentatively accepting PWSA's \$6,000,000 expense for its electric service and
14 \$360,000 expense for its gas service in the FY 2023, without PWSA 6% increase for each
15 of the each shown (FPFTY 2024). PWSA has already increased the electric expenses from
16 FY 2022 to the FY 2023 by 7.93%, (Account 7605) and decreased its gas expense by 2.75%
17 from the FY 2022 to the FY 2023 (Account 7650). These adjustments are shown on my
18 Exhibit DM-14. However, I reserve the right to adjust my recommendation if PWSA has a
19 contract in place for either electric and/or gas service. If so, I recommend that PWSA
20 provide any such contracts as part of its rebuttal testimony so that there is sufficient
21 information available to evaluate PWSA's claim.

22 **Q. WHAT ARE YOUR TOTAL RECOMMENDED ADJUSTMENTS TO THE**
23 **AUTHORITY'S WATER TREATMENT PLANT?**

24 **A.** My recommended adjustments to the Authority's Water Treatment Plant are a reduction of
25 \$3,039,479 in the FPFTY 2024. These adjustments are shown on my Exhibit DM-14.

1 **I. Sewer Operations – 424**

2 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS SEWER**
3 **OPERATIONS EXPENSE FOR THE FPFTY 2024?**

4 **A.** As shown on PWSA Exhibit EB-2, Line 23, the Authority has proposed a balance of
5 \$11,357,094 for the FPFTY 2024 (line 23). This balance is also shown on PWSA COS
6 Model 2024, tab 424. These balances were broken down by utility service as shown on
7 PWSA Exhibit HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
8 Operating Expenses, and General and Administrative Expenses. PWSA indexed these
9 expenses in the same manner as it did under the previously addressed expense categories,
10 with respect to Salaries, Benefits, Operating Expenses, and General and Administrative
11 expenses and as I previously explained in my testimony.

12 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY’S**
13 **SEWER OPERATIONS COSTS FOR THE FPFTY PERIOD?**

14 **A.** My first adjustment is related to the Authority’s Salary and Benefits. For the same reasons
15 and consistent with my treatment of Salary and Benefits for all PWSA’s Direct Operating
16 Expenses, I utilized a three-year vacancy ratio for FPFTY 2024 of 12.61% with the
17 arguments that I explained previously. I then multiplied the Authority’s proposed Sewer
18 Operations Salary and Benefits balances for the FPFTY 2024 period of \$1,998,926 and
19 \$503,524, respectively, by the vacancy rate ratio of 12.61% to arrive at an adjusted level
20 of \$1,746,861 for Salaries and \$440,030 for Benefits. These balances are shown in my
21 Exhibit DM-15.

22 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
23 **INVENTORY AND GENERAL ADMINISTRATIVE?**

24 **A.** I reviewed the Authority’s O&M Expenses, Inventory and General Administrative
25 category and have adjustments related to PWSA’s 6% increase in these expense categories.
26 As previously identified, PWSA has included a 6% adjustment for each of these operating
27 expense categories from the FPFTY 2024 (PWSA increased Account 5370 – Operating
28 Contract by 30%). (PWSA COS Model 2024 tab 424 (beginning on line 298 and columns
29 U through AA). I am recommending a 2.3% adjustment in the FPFTY 2024 for each of
30 the expense categories listed above. As previously stated, I based my adjustments by

1 relying on information shown on Statista which projected inflation as being 2.3% from
2 2023 to 2024. This reduces the balance for Operating Expenses by \$100,993 in the FPPTY
3 2024. For Inventory this reduces the balance by \$3,167 in the FPPTY 2024. For the
4 General and Administrative Expenses, this reduces the balance by \$3,445 in the FPPTY
5 2024. In addition to the adjustments above, I also normalized costs related to Account
6 5390 (Welding). PWSA proposed a balance to this account of \$117,927 in the FPPTY
7 2024 period. Prior costs were \$0 in 2020, \$0 in 2021 and \$0 in 2023. PWSA increased
8 this balance by \$117,927 in the FPPTY 2024. Normalizing these expenses results in an
9 annual recovery of \$58,964 per year. These adjustments are shown on my Exhibit DM-
10 15.

11 **Q. WHAT ARE YOUR TOTAL RECOMMENDED ADJUSTMENTS REGARDING**
12 **THE AUTHORITY’S SEWER OPERATIONS COSTS?**

13 **A.** My recommended adjustments are a reduction of \$423,163 in the FPPTY 2024 and is
14 shown on my Exhibit DM-15.

15 **m. Environmental Compliance – 931**

16 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS**
17 **ENVIRONMENTAL COMPLIANCE EXPENSE FOR THE FPPTY 2024?**

18 **A.** As shown on PWSA Exhibit EB-2, Line 18, the Authority has proposed a balance of
19 \$4,638,633 for the FPPTY 2024 (line 18). This balance is also shown on PWSA COS
20 Model 2024, tab 931. These balances were broken down by utility service as shown on
21 PWSA Exhibit HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
22 Operating Expenses, and General and Administrative Expenses. PWSA indexed these
23 expenses in the same manner as it did under the previously addressed expense categories,
24 with respect to Salaries, Benefits, Operating Expenses, and General and Administrative
25 expenses and as I previously explained in my testimony.

26 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY’S**
27 **ENVIRONMENTAL COMPLIANCE COSTS FOR THE FPPTY PERIOD?**

28 **A.** My first adjustment is related to the Authority’s Salary and Benefits. For the same reasons
29 and consistent with my treatment of Salary and Benefits for all PWSA’s Direct Operating
30 Expenses, I utilized a three-year vacancy ratio for FPPTY 2024 of 12.61% with the

1 arguments that I explained previously. I then multiplied the Authority's proposed
2 Environmental Compliance Salary and Benefits balances for the FPFTY 2024 period of
3 \$812,600 and \$237,043, respectively, by the vacancy rate ratio of 12.61% to arrive at an
4 adjusted level of \$710,131 for Salaries and \$207,152 for Benefits. These balances are
5 shown in my Exhibit DM-11.

6 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
7 **INVENTORY AND GENERAL ADMINISTRATIVE?**

8 **A.** I reviewed the Authority's O&M Expenses, Inventory and General Administrative
9 category and have adjustments related to PWSA's 6% increase in these expense categories.
10 As previously identified, PWSA has included a 6% adjustment for each of these operating
11 expense categories from the FPFTY 2024. (PWSA COS Model 2024 tab 931 (beginning
12 on line 298 and columns U through AA). I am recommending a 2.3% adjustment in the
13 FPFTY 2024 for each of the expense categories listed above. As previously stated, I based
14 my adjustments by relying on information shown on Statista which projected inflation as
15 being 2.3% from 2023 to 2024. This reduces the balance for Operating Expenses by
16 \$923,937 in the FPFTY 2024. For Inventory this reduces the balance by \$105 in the
17 FPFTY 2024. For the General and Administrative Expenses, this reduces the balance by
18 \$104,003 in the FPFTY 2024. In addition to the adjustments above, I also normalized
19 costs related to the following Accounts: 5145 (Ground Maintenance), 5496 (Repairs &
20 Maintenance), 5570 (Testing), 5345 (Inspection), and 7330 (Construction Management).
21 These accounts had little or no prior expenses in the FY 2020-2022. PWSA proposed a
22 balance to these accounts of \$307,990 in the FPFTY 2024 period. Normalizing these
23 expenses results in an annual recovery of \$153,995 per year. These adjustments are shown
24 on my Exhibit DM-13. With respect to PWSA's Drag Bucket (Account 5335) and Line
25 Television (Account 5348), PWSA proposed to include \$\$780,373 in FPFTY 2024 and
26 \$763,995 in FPFTY 2024, respectively. In response to OCA -18-24, PWSA stated that
27 these costs were renamed, and this was a new account and reclassified for purposes of
28 tracking these costs more efficiently and more transparently. Prior costs for these accounts
29 were \$0 in 2020 through 2022. Whether they were new accounts or not, there were no
30 prior costs to trend or gauge the level of these expenses previously. Given this, I am
31 recommending normalizing these costs over a two-year period.

1 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO THE AUTHORITY'S**
2 **ENVIRONMENTAL COMPLIANCE?**

3 **A.** My total adjustment is a reduction of \$1,160,405 in the FPFTY 2024 as shown on my
4 Exhibit DM-11.

5 **n. Water Distribution – 325**

6 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO ITS WATER**
7 **DISTRIBUTION EXPENSE FOR THE FPFTY 2024?**

8 **A.** As shown on PWSA Exhibit EB-2, Line 24, the Authority has proposed a balance of
9 \$17,698,299 for the FPFTY 2024 (line 24). This balance is also shown on PWSA COS
10 Model 2024, tab 325. These balances were broken down by utility service as shown on
11 PWSA Exhibit HJS-1 and HJS-2. These balances are comprised of Salaries and Benefits,
12 Operating Expenses, and General and Administrative Expenses. PWSA indexed these
13 expenses in the same manner as it did under the previously addressed expense categories,
14 with respect to Salaries, Benefits, Operating Expenses, and General and Administrative
15 expenses and as I previously explained in my testimony.

16 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY'S**
17 **WATER DISTRIBUTION EXPENSE FOR THE FPFTY PERIOD?**

18 **A.** My first adjustment is related to the Authority's Salary and Benefits. For the same reasons
19 and consistent with my treatment of Salary and Benefits for all PWSA's Direct Operating
20 Expenses, I utilized a three-year vacancy ratio for FPFTY 2024 of 12.61% with the
21 arguments that I explained previously. I then multiplied the Authority's proposed Water
22 Distribution Salary and Benefits balances for the FPFTY 2024 period of \$10,593,238 and
23 \$3,117,665, respectively, by the vacancy rate ratio of 12.61% to arrive at an adjusted level
24 of \$9,257,431 for Salaries and \$2,724,527 for Benefits. These balances are shown in my
25 Exhibit DM-16.

26 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
27 **INVENTORY AND GENERAL ADMINISTRATIVE?**

28 **A.** I reviewed the Authority's O&M Expenses, Inventory and General Administrative
29 category and have adjustments related to PWSA's 6% increase in these expense categories.
30 As previously identified, PWSA has included a 6% adjustment for each of these operating

1 expense categories in the FPFTY 2024. (PWSA COS Model 2024 tab 931 (beginning on
2 line 298 and columns U through AA). I am recommending a 2.3% adjustment in the
3 FPFTY 2024 for each of the expense categories listed above. As previously stated, I based
4 my adjustments by relying on information shown on Statista which projected inflation as
5 being 2.3% from 2023 to 2024. This reduces the balance for Operating Expenses by
6 \$466,509 in FPFTY 2024. For Inventory this reduces the balance by \$63,363 in the FPFTY
7 2024. For the General and Administrative Expenses, this reduces the balance by \$27,461
8 in the FPFTY 2024. In addition to the adjustments above, I also normalized costs related
9 to Account 5030 – Chlorine Cylinders. PWSA booked \$0 in 2020, \$0 in 2021 and \$73,048
10 in 2023. PWSA increased this balance by \$6,952 to arrive at a balance of \$80,000 in FY
11 2023 and added \$16,000 to arrive at the FPFTY 2024 of \$96,000. Normalizing this
12 expense results in an annual recovery of \$51,264 per year, which includes my
13 recommended 6.8% increase for Chemical Expenses. I also normalized costs related to
14 Meters (Account 5360). In response to OCA – 18-17, PWSA stated that this account was
15 renamed for the purpose of tracking these costs more efficiently. No other information was
16 provided. PSWA stated that this is not a new expense, but it was previously budgeted in
17 Account 5370 (Operating Contract Other). I was unable to trace prior costs (\$225,000) as
18 noted by PWSA. Therefore, I am normalizing these costs over a two-year period or
19 \$99,996 annually. Finally with respect to Fines and Penalties (Account 7730) (OCA-18-
20 20) PWSA stated that although no specific fines or penalties are anticipated between 2023-
21 2026, a budget allocation is prudent to cover any expenses that may occur. I am
22 recommending disallowance of this cost of \$18,000. Costs should be known and
23 measurable and provide a benefit to ratepayers. Given that no specific costs are expected
24 to occur, and that it is not prudent or reasonable for ratepayers to pay for PWSA’s fines or
25 penalties, it is appropriate to remove these from PWSA expenses. These adjustments are
26 shown on my Exhibit DM-16.

27 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO THE AUTHORITY’S WATER**
28 **DISTRIBUTION EXPENSES?**

29 **A.** My total adjustment is a reduction of \$2,286,277 in the FPFTY 2024 as shown on my
30 Exhibit DM-16.

1 o. Engineering & Construction – 930

2 **Q. WHAT HAS THE AUTHORITY PROPOSED WITH RESPECT TO**
3 **ENGINEERING AND CONSTRUCTION FOR THE FPFTY 2024**

4 **A.** As shown on PWSA Exhibit EB-2, Line 25, the Authority has proposed a balance of
5 \$27,122,903 for the FPFTY 2024. This balance is also shown on PWSA COS Model 2024,
6 tab 930. These balances were broken down by utility service as shown on PWSA Exhibit
7 HJS-1 and HJS-2. This balance is comprised of Salaries and Benefits, Operating
8 Expenses, and General and Administrative Expenses. PWSA indexed these expenses in
9 the same manner as it did under the previously addressed expense categories, with respect
10 to Salaries, Benefits, Operating Expenses, and General and Administrative expenses and
11 as I previously explained in my testimony.

12 **Q. WHAT ADJUSTMENTS DO YOU HAVE REGARDING THE AUTHORITY’S**
13 **ENGINEERING & CONSTRUCTION EXPENSE FOR THE FPFTY PERIOD**

14 **A.** My first adjustment is related to the Authority’s Salary and Benefits. For the same reasons
15 and consistent with my treatment of Salary and Benefits for all PWSA’s Direct Operating
16 Expenses, I utilized a three-year vacancy ratio for FPFTY 2024 of 12.61% with the
17 arguments that I explained previously. I then multiplied the Authority’s proposed
18 Engineering & Construction Salary and Benefits balances for the FPFTY 2024 period of
19 \$5,308,361 and \$1,592,933, respectively, by the vacancy rate ratio of 12.61% to arrive at
20 an adjusted level of \$4,638,977 for Salaries and \$1,392,064 for Benefits.

21 **Q. WHAT ARE YOUR OTHER ADJUSTMENTS RELATED TO O&M EXPENSES,**
22 **INVENTORY AND GENERAL ADMINISTRATIVE?**

23 **A.** I reviewed the Authority’s O&M Expenses, Inventory and General Administrative
24 category and have adjustments related to PWSA’s 6% increase in these expense categories.
25 As previously identified, PWSA has included a 6% adjustment for each of these operating
26 expense categories from the FPFTY 2024. (PWSA COS Model 2024 tab 930 (beginning
27 on line 298 and columns U through AA). I am recommending a 2.3% adjustment in the
28 FPFTY 2024 period for each of the expense categories listed above. As previously stated,
29 I based my adjustments by relying on information shown on Statista which projected
30 inflation as being 2.3% from 2023 to 2024. This reduces the balance for Operating

1 Expenses by \$1,799,123 in the FPFTY 2024. For Inventory this reduces the balance by
2 \$169 in the FPFTY 2024. For the General and Administrative Expenses, this reduces the
3 balance by \$248,058 in the FPFTY 2024. In addition to the adjustments above, I also
4 normalized costs related to Account 5355 – Landscaping and Grounds. PWSA booked \$0
5 in 2020, \$41,179 in 2021 and \$60,378 in 2023. PWSA increased this balance by \$92,378
6 to arrive at a balance of \$152,756 in FY 2023 and added \$9,165 to arrive at the FPFTY
7 2024 of \$161,921. Normalizing this expense results in an annual recovery of \$76,378 per
8 year. Finally, I made an adjustment to PWSA Manhole & Point Repair Contract (Account
9 5343). In response to OCA – Set 18-21, PWSA stated that these costs were renamed
10 starting in 2023. PWSA stated it is not a new expense as it was previously budgeted under
11 Account 5370 (Operating Contract Other). PWSA did not provide a breakdown of these
12 costs under Account 5370, so I am unable to ascertain what level of costs are included with
13 respect to Manhole & Point Repair Contract. Therefore, I am recommending normalizing
14 these costs over a two-year period to provide an annual recovery of \$750,000 per year.
15 These adjustments are shown on my Exhibit DM-17.

16 **Q. WHAT ARE YOUR TOTAL ADJUSTMENTS TO THE AUTHORITY'S**
17 **ENGINEERING & CONSTRUCTION EXPENSES?**

18 **A.** My total adjustment is a reduction of \$2,421,486 in the FPFTY 2024 as shown on my
19 Exhibit DM-17.

20 **p. Other Adjustments**

21 **Q. WHAT OTHER ADJUSTMENTS DO YOU HAVE THAT YOU HAVE NOT**
22 **ADDRESSED PREVIOUSLY?**

23 **A.** I am recommending disallowance of certain charitable contributions, memberships and
24 dues expenses and sponsorships as broken down in response to OCA Set 6-9. These costs
25 appear to be related to various state and county community boards, civic organizations and
26 other business related agencies that do not directly benefit ratepayers in the provision of
27 safe and reliable utility service. These types of costs do not relate to the core business of
28 utility service, nor do they appear to be related to assisting customers in retaining access to
29 utility service. These types of costs appear to be geared toward PWSA as being good a
30 corporate citizen and to enhance its image in the community. I am also recommending

1 disallowance of certain lobbying expenses as identified in response to I&E RE-14-D.
2 Lobbying expenses are geared toward providing legislative and regulatory updates which
3 I believe do not benefit ratepayers with respect to customer service or service quality. These
4 total \$29,118 for contributions, dues, and memberships /sponsorships and \$98,262 for
5 lobbying for a total disallowance of \$127,380 for the FPFTY 2024. This is shown on my
6 Exhibit DM-2.

7 **3. OPERATING EXPENSES – Other**

8 **Q. WHAT TYPES OF EXPENSES HAS THE AUTHORITY INCLUDED IN ITS**
9 **OPERATING EXPENSES – OTHER IN THE FPFTY 2024?**

10 **A.** The Authority has included the following Other Operating Expenses:

	<u>FPFTY 2024</u>
11	
12	• Loss (Gain) on ALCOSAN Billings \$2,066,814
13	• City Services \$3,419,629
14	• COVID Expenses <u>\$ 263,215</u>
15	Total <u>\$5,749,658</u>

16 This is located on PWSA Exhibit EB-2, lines 27 28 and 29. This is also located on PWSA
17 COS Model 2024, tab EB-2.1.

18 **Q. WHAT DO THESE COSTS REPRESENT?**

19 **A.** The Loss (Gain) on ALCOSAN Billings is related to the annual costs that the Authority
20 incurs to carry bad debt expense for collections related to pass-through charges of the
21 Allegheny County Sanitary Authority (ALCOSAN). (PWSA St. No. 2 at 18). The City
22 Services costs represent costs that the Authority has an obligation to provide or make
23 payments to for services currently provided by the City of Pittsburgh (City or Pittsburgh)
24 to PWSA, as well as other negotiated responsibilities that PWSA pays for on behalf of
25 Pittsburgh. (PWSA Exhibit KR-1). With respect to the COVID Expenses of \$263,215,
26 PWSA claims this as an extraordinary expense as they were not claimed in PWSA's last
27 rate case. PWSA deferred these costs and is including them in this rate case. (PWSA St.
28 No. 2 at 19).

1 **Q. WHAT CHANGES DO YOU HAVE WITH RESPECT TO THE AUTHORITY'S**
2 **PROPOSED OTHER OPERATING EXPENSES FOR THE FPFTY 2024?**

3 A. I am accepting the loss/gain on ALCOSAN billing for the years shown. I am adjusting
4 City Services increases at a 2.3% cap, in the FPFTY 2024 as I did for all other operating
5 expenses. PWSA included a 6% increase in each of the years shown as explained in
6 response to OCA-Set 6-12. With respect to the COVID expenses of \$263,215, I am
7 recommending amortizing these costs over a two-year period, in the same period of time
8 as I normalized rate case expenses. This reduces the balance by \$131,608 in the FPFTY
9 2024.

10 **Q. WHAT IS YOUR RECOMMENDED BALANCE REGARDING THE**
11 **AUTHORITY'S OTHER OPERATING EXPENSES FOR THE YEARS SHOWN?**

12 A. My recommended balance is \$5,430,588 for the FPFTY 2024 which is shown on my
13 Exhibit DM-18.

14 **4. DEBT SERVICE COVERAGE**

15 **Q. WHAT HAS THE AUTHORITY PROPOSED REGARDING ITS DEBT SERVICE**
16 **COVERAGE (DSC) FOR THE FPFTY 2024 AND WHAT ARE THE SPECIFIC**
17 **BREAKDOWNS?**

18 A. As shown on PWSA Exhibit EB-2, the Authority has proposed a total Debt Service
19 Coverage of \$96,932,625 for the FPFTY 2024. The components of these costs are broken
20 down in PWSA Exhibit EB-2. PWSA has proposed a DSC of 1.65 in the FPFTY 2024.

21 **5. CAPITAL EXPENDITURES & TRANSFERS**

22 **Q. WHAT HAS THE AUTHORITY PROPOSED REGARDING ITS CAPITAL**
23 **EXPENDITURES & TRANSFERS FOR THE FPFTY 2024?**

24 A. As shown on PWSA Exhibit EB-2, the Authority has proposed total Capital Expenditures
25 & Transfers of \$22,430,487 in the FPFTY 2024. The breakdown of these components is
26 shown on PWSA Exhibit EB-2.

1 **Q. WHAT CHANGES DO YOU HAVE WITH RESPECT TO THE AUTHORITY'S**
2 **CAPITAL EXPENDITURES & TRANSFERS BALANCE FOR THE YEARS**
3 **SHOWN?**

4 **A.** I have two flow-through adjustments. My first adjustment is related to the Authority's Bad
5 Debt Expense. Using my recommended revenue requirement proposal (Exhibit DM-2) and
6 the Authority's bad debt ratio in total of 2.0% (OCA-Set 6-13) I compute a total Bad Debt
7 Expense of \$4,636,887, which is a reduction of \$1,334,649 from the Authority's balance
8 of \$5,971,536 (FPFTY 2024).

9 **Q. WHAT IS YOUR NEXT ADJUSTMENT?**

10 **A.** My next adjustment is to the Authority's DSIC costs. PWSA has proposed a DSIC cap
11 increase from 5% to 7.5% for both water and wastewater (PWSA St. No. 1, p. 13). As per
12 the recommendation of OCA witness Pavlovic in Statement 2, I am capping the DSIC
13 recovery at 5%. This reduces the balance from the \$15,038,462 (PWSA Exhibit EB-2) to
14 \$9,720,815 in the FPFTY 2024. This is reflected on my Exhibit DM-20.

15 **Q. PLEASE SUM UP YOUR ADJUSTMENTS TO THE CAPITAL EXPENDITURES**
16 **& TRANSFERS.**

17 **A.** My total adjustment is a reduction of \$6,652,296 for the FPFTY 2024.

18 **6. PROJECTED CASH FLOW**

19 **Q. WHAT HAS THE AUTHORITY PROPOSED REGARDING ITS REQUIRED**
20 **DAYS CASH ON HAND (DCOH) AND ITS REQUIRED ENDING BALANCE FOR**
21 **THE FPFTY 2024?**

22 **A.** As shown on PWSA Exhibit EB-2, the Authority has computed an Ending Balance of
23 \$87,692,058 in the FPFTY 2024. The Authority started with a Beginning Balance of
24 \$87,147,395 and made adjustments to reflect Operating Surplus/(Deficit) of \$44,663,
25 adding in Budgeted Contributions of \$1,000,000, and subtracting Contributions to Rate
26 Stabilization Fund of \$500,000 to arrive at an Ending Balance of \$87,692,058. The
27 Authority computed its DCOH by taking its proposed total Operating Expenses minus the
28 Loss (Gain) on ALCOSAN billing to arrive at a balance of \$87,692,058 and dividing that
29 number by 365 days to arrive at daily DCOH of 247.60 days.

1 **Q. WHAT CHANGES DO YOU HAVE WITH RESPECT TO THE AUTHORITY'S**
2 **PROPOSED PROJECTED CASH FLOW BALANCES FOR THE YEARS**
3 **SHOWN?**

4 **A.** My adjustments relate to the flow-through of my recommended adjustments to the
5 Authority's Operating Expenses.

6 **Q. PLEASE WALK THROUGH YOUR CALCULATIONS AND**
7 **RECOMMENDATION WITH RESPECT TO THE AUTHORITY'S PROJECTED**
8 **CASH FLOW.**

9 **A.** As shown on my Exhibit DM-21, I utilized the same methodology as the Authority. My
10 recommended Cash Flow is 279.08 days (without ALCOSAN Costs) and 155.27 (with
11 ALCOSAN costs).

12 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

13 **A.** Yes, it does. I reserve my right to update my testimony in the event PWSA's provides
14 additional information that may affect my revenue requirement recommendations.

PCMG and Associates LLC

DANTE MUGRACE

Education

Master Business Administration, MBA Strategic Management, Pace University, Lubin School of Business, New York, NY, 2010

Master Public Administration, MPA, Kean University, Union, NJ, 2001

Bachelor of Science, BS. Accounting, St. Peter's University, Jersey City, NJ, 1983

Position

Senior Consultant – PCMG and Associates	2014 – present
Senior Consultant – Snavelly King Majoros and Associates	2013 – 2014
Independent Consultant	2012 – 2013
Bureau Chief/Administrative Analyst/Accountant – New Jersey Board of Public Utilities	1983 – 2011

Professional Experience

Mr. Mugrace has 35 years' experience in all aspects of regulatory accounting and policy including processing, analyzing and evaluating utility rate case petitions before Public Service Commissions. Mr. Mugrace examines and evaluates rate filings, contracts, agreements and rate matters regarding utility operations and provides recommendations as to best course of action. Additionally, Mr. Mugrace analyzes and reviews utility regulatory matters and sets forth recommendations for resolution of issues, calculates total revenue requirement needed to cover operating expenses and rate of return; researches and evaluates regulatory utility matters to assess impact on various classes of customers, regarding rates, service, compliance and cost of service provisions, as well as annual true-up and tracking mechanisms.

Prior to undertaking consulting assignments, Mr. Mugrace was the Bureau Chief Utility Rate Manager for the New Jersey Board of Public Utilities, in which role he managed and assigned tasks to a staff of 12 professionals and supervisory personal in the daily administrative, financial and managerial functions of the Division. Mr. Mugrace's primary duties were to determine whether the utility had sufficient revenues to cover its operating expenses and earn a return on its plant investment and to ensure that the utility provided safe, reliable and continuing utility service to its customers. Mr. Mugrace set rates and charges for utility companies, which had revenues of up to \$500 million, and ensured that the revenue requirement provided for recovery of all operating expenses, return on investment and depreciation. Mr. Mugrace was also responsible for reviewing and verifying that the companies' property, plant and equipment (up to \$2.5 billion) were used and useful in providing service to its customers. Mr. Mugrace coordinated and met with the New Jersey State Department of Environmental Protection to

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determine whether water and wastewater utilities were complying with state regulations and were adhering to any regulatory agency directives or orders. Mr. Mugrace developed ways to minimize the rising costs of water utility services by investigating alternative rate structures, analyzing engineering mechanisms and techniques, looking into the feasibility of mergers and acquisitions within the water industry and reviewing financing, and rate alternatives to minimize the impact on ratepayers. Mr. Mugrace was responsible for ensuring that the rate-case process adhered the statutory timeframe for preparing, reviewing and recommending findings to the Board Commissioners on financial operations, costs, revenues and operating expenses, prior to the litigation proceedings. Mr. Mugrace also examined alternative rate recovery mechanisms and clauses, phase-ins of revenue requirements, deferral mechanisms and pass-through of rate charges. Mr. Mugrace assumed the role of Director during transition periods and Administrative changes. Finally, Mr. Mugrace conducted the recruitment and hiring of employees for placement within the Division and the Board.

Professional and Business Affiliations

- Institute of Public Utilities (IPU) Michigan State University (MSU), National Association of Regulatory Utility Commissioners (NARUC), National Association of State Utility Consumer Advocates (NASUCA)

References

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Regulatory Projects and Appearances

1. In Re: Middlesex Water Company for approval of Proposed Cost Recovery of Lead Service Line Replacement Program
(Appearance: Accounting Issues on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. WR23050291
2. In Re: Black Hills Wyoming Gas, LLC d/b/a Black Hills Energy for Approval of a General Rate Increase of \$19,262,412 to the Retail Gas Rates.
(Appearance: Revenue Requirement on behalf of the Wyoming Office of Consumer Advocate)
Wyoming Public Service Commission – Docket No. 30026-78-GR-23
3. In Re: Pittsburgh Water and Sewer Authority for an Increase in Rates for Water Service, Wastewater Service and Stormwater Service
(Appearance: Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket Nos. R-2023-3039920 (water), R-2023-3039921 (wastewater) and R-2023-3039919 (stormwater)
4. In Re: Massachusetts Electric and Nantucket Electric Companies d/b/a National Grid – Request for recovery of Incremental Storm related expenses associated with fourteen weather events between February 2020 and December 2020.
(Appearance: Storm Cost recovery (Operating and Maintenance Expenses) on behalf of the Massachusetts Office of Attorney General.
Massachusetts Department of Public Utilities – DPU No. 22-43.
5. In Re: Philadelphia Gas Works – for approval of an Increase in rates for Distribution Gas Service for 2023
(Appearance: Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2023-3037933
6. In Re: Lanai Water Company, Inc. for Review and Approval of Rate Increases, Revised Rate Schedules and Charges to its Tariff.
(Appearance: Revenue Requirement on behalf of the Hawaii Division of Consumer Advocacy)
Hawaii Public Utilities Commission – Docket No. 2022-0233
7. In Re: Hawaii Water Service Company, Inc., For Approval of a General Rate Increase for Its Pukalani Wastewater Division and Certain Tariff Changes
(Appearance: Revenue Requirement on behalf of the Hawaii Division of Consumer Advocacy)
Hawaii Public Utilities Commission – Docket No. 2022-0186

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8. In Re: UGI Utilities – Electric Division for Review of an Electric Base Rate Case proceeding for 2023.
(Appearance: Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2022-3037368
9. In Re: Southern Maryland Electric Cooperative, Inc. (SMECO) for Authority to Revise its Rates and Charges for Electric Service and Certain Rate Design Changes.
(Appearance: Revenue Requirement on behalf of the Maryland Office of People’s Counsel)
Maryland Public Service Commission – Case No. 9688
10. In Re: Public Service Electric and Gas Company – 2022 Electric and Gas Tax Adjustment Credit (TAC)
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
NJ Board of Public Utilities – BPU Docket Nos. ER22100667 and GR22100668
11. In Re: Public Service Electric and Gas Company – 2022 Green Program Recovery Charge.
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
NJ Board of Public Utilities – BPU Docket Nos. ER22070413 and GR22070414
12. In Re: Rockland Electric Company – Annual Conservation Incentive Program Filing – Reconciliation for the Period July 1, 2021 – June 30, 2022.
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
NJ Board of Public Utilities – BPU Docket No. ER22070469.
13. In Re: Atlantic City Electric Company for Implementation to its Conservation Incentive Program Rate Mechanism and Associated Customer Class Rate (2022)
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
NJ Board of Public Utilities – BPU Docket No. ER22070463
14. In Re: Public Service Electric and Gas Company – 2022/2023 Annual BGSS Commodity Charge filing for its Residential Gas Customers under its Periodic Pricing Mechanism and for changes to its Balancing Charge.
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
NJ Board of Public Utilities – BPU Docket No. GR22060363
15. In Re: Citizens’ Electric Company of Lewisburg, PA – 2022 Base Rate Case Proceeding for an Increase in Electric Distribution Rates.
(Appearance: Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2022-3032369
16. In Re: Valley Energy, Inc. – 2022 Base Rate Case for an Increase in Gas Distribution Rates.

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- (Appearance: Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2022-3032300
17. In Re: Berkshire Gas Company – 2021 Gas System Enhancement Program Reconciliation Filing.
(Appearance: Revenue Requirement on behalf of the Massachusetts Attorney General’s Office)
Massachusetts Department of Public Utilities – D.P.U. 22-GREC-02
 18. In Re: Liberty Utilities (New England Natural Gas Company) 2021 Gas System Enhancement Program Reconciliation Filing.
(Appearance: Revenue Requirement on behalf of the Massachusetts Attorney General’s Office)
Massachusetts Department of Public Utilities – D.P.U. 22-GREC-04
 19. In Re: Eversource Gas Company (Eversource Energy) 2021 Gas System Enhancement Program Reconciliation Filing.
(Appearance: Revenue Requirement on behalf of the Massachusetts Attorney General’s Office)
Massachusetts Department of Public Utilities – D.P.U. 22-GREC-05
 20. In Re: South Jersey Gas Company – 2022 Base Rate Case Proceeding for an Increase in rates for Distribution Gas Service.
(Appearance: Revenue Requirement, CWC and Consolidated Income Taxes on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. GR22040253
 21. In Re: Public Service Electric and Gas Company – 2022 Electric Conservation Incentive Program (CIP) for changes in its Electric CIP rate for 2022.
(Appearance: Revenue Requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. ER22020035
 22. In Re: PECO Energy Company-Gas Division – 2022 Base Rate Case Proceeding for an Increase in rates for Distribution Gas Service.
(Appearance: Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2022-3031113.
 23. In Re: Nova Scotia Power Company- 2022-2024 General Rate Application for an Increase in Rates for Electric Service
(Appearance- Review of COSS – Subcontract with Synapse Energy Economics, Inc. on behalf of the Nova Scotia Utility Review Board)
Nova Scotia Utility and Review Board – Docket No. M10431

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24. In Re: Georgia Power Company – 2022 Base Rate Case petition for an Increase in rates for Electric Distribution Service
(Appearance: Review of O&M Expenses for calendar years 2023-2025 on behalf of the Georgia Public Service Commission – Docket No. TBD)
25. In Re: UGI Utilities Inc, Gas Division – 2022 Base Rate Case petition for an Increase in Distribution Gas Service Rates
(Appearance: Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2022-3030218
26. In Re: Hawaii-American Water Company – Approval of Rate Increases and Revised Rate Schedules for Wastewater Services – 2021
(Appearances: Revenue Requirement on behalf of the Hawaii Division of Consumer Advocacy)
Hawaii Public Service Commission – Case No. 2021-0063
27. In Re: Kalaeloa Water Company – Approval of a General Rate Increase / Adjustments for Water and Wastewater Services – 2021
(Appearance: Revenue Requirement on behalf of the Hawaii Division of Consumer Advocacy)
Hawaii Public Service Commission – Case No. 2021-0005
28. In Re: Northern States Power Company – 2021 Natural Gas Rate Increase Application
(Appearance: Revenue Requirements on behalf of the Advocacy Staff of the North Dakota Public Service Commission – Case No. PU-21-381)
29. In Re: Shore Water Company – Petition for an Increase in Rates for Water Service and Other Relief
(Appearance: New Jersey Division of Rate Counsel – Accounting and Revenue Requirement)
New Jersey Board of Public Utilities – BPU Docket No. WR21091141
30. In Re: Atlantic City Sewerage Company – Petition for an Increase in Rates for Sewerage Service and other Tariff Changes
(Appearance: New Jersey Division of Rate Counsel – Accounting and Revenue Requirement)
New Jersey Board of Public Utilities – BPU Docket No. WR21071006
31. In Re: Gordon’s Corner Water Company – Petition for an Increase in Rates and Charges for Water Service
(Appearance: New Jersey Division of Rate Counsel – Accounting and Revenue Requirement)
New Jersey Board of Public Utilities – BPU Docket No. WR21070979

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32. In Re: The Petition of HPBS Inc., for review and approval of Central Scheduling System (CSS) charge increase and revised CSS Schedule (2021)
(Appearance – Accounting and Revenue Requirement on behalf of the Hawaii Division of Commerce and Consumer Affairs
Hawaii DCCA – Docket No. PTP-2021-001
33. In Re: The Berkshire Gas Company, 2020 Gas System Enhancement Program Reconciliation Filing
(Appearance – Massachusetts Attorney General’s Office – Accounting and Revenue Requirement)
Massachusetts Department of Public Utilities – DPU Docket No. 21-GREC-02
34. In Re: Eversource Gas Company of Massachusetts d/b/a Eversource Energy, 2020 Gas System Enhancement Program Reconciliation Filing
(Appearance – Massachusetts Attorney General’s Office – Account and Revenue Requirement)
Massachusetts Department of Public Utilities – DPU Docket No. 21-GREC-05
35. In Re: NSTAR Gas Company d/b/a Eversource Energy, 2020 Gas System Enhancement Program Reconciliation Filing
(Appearance: Massachusetts Attorney General’s Office – Accounting and Revenue Requirement)
Massachusetts Department of Public Utilities – DPU Docket No. 21-GREC-06
36. In Re: Joint Petition of New Jersey Natural Gas Company and Public Service Electric and Gas Company for Authorization and Approval of a Waiver of Certain Accounting Treatment Pursuant to the Clean Energy Order
(Appearance – New Jersey Division of Rate Counsel – Accounting and Revenue Requirement.
New Jersey Board of Public Utilities – BPU Docket No. EO20030254
37. In Re: Public Service Electric and Gas Company – 2021/2022 Annual BGSS Commodity Charge Filing for its Residential Gas Customers under its Periodic Pricing Mechanism and for Changes in its Balance Charge.
(Appearance – New Jersey Division of Rate Counsel – Accounting and Revenue Requirement)
New Jersey Board of Public Utilities – BPU Docket No. GR21060878
38. In Re: Middlesex Water Company – Petition for Approval of an Increase in Rates for Water Service and Other Tariff Changes.
(Appearances – New Jersey Division of Rate Counsel – Accounting and Revenue Requirement)
New Jersey Board of Public Utilities – BPU Docket No. WR21050813
39. In Re: New Jersey Natural Gas Company – Petition for an Increase in Gas Base Rates and Changes in its Tariff for Gas Service and for a Change to Depreciation Rates for Gas

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- Property and for Approval of a Base Rate Adjustment Pursuant to the NJ RISE and SAFE II Programs.
(Appearances: New Jersey Division of Rate Counsel – Accounting and Revenue Requirement)
New Jersey Board of Public Utilities – BPU Docket Nos. GR21030679 and GR21030680.
40. In Re: PECO Energy Company – a division of Exelon Corp., for a General Base Rate Case Filing for Electric Operations
(Appearances: Accounting and Policy on behalf of the Pennsylvania Office of the Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2021-3024601
41. In Re: The Pittsburgh Water and Sewer Authority for approval of increased rates and charges for Water, Wastewater and Stormwater services
(Appearance: Accounting and Policy, and Regulatory Policy on behalf of the Pennsylvania Office of the Consumer Advocate)
Pennsylvania Public Utility Commission – Docket Nos. R-2021-3024773 (Water) R-2021-3024774 (Wastewater) and R-2021-3024779 (Stormwater).
42. In Re: Northern States Power Company – 2021 Electric Base Rate Case Increase
(Appearance: Revenue Requirement on behalf of the Advocacy Staff of the North Dakota Public Service Commission)
North Dakota Public Service Commission – Case No. PUC-20-441
43. In Re: Public Service Electric and Gas Company – Approval of a Tax Adjustment Clause (TAC).
(Appearance; Revenue Requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket Nos. ER20100685 and GR20100686.
44. In Re: Pike County Light and Power Company – Approval to increase base rates for Electric and Gas Service.
(Appearance: Revenue Requirement in behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket Nos. R-2020-3022134 (Gas) and R-2020-3022135 (Electric)
45. In Re: Jersey Central Power and Light Company for Approval of JCP&L’s Energy Efficiency and Conservation Plan Including Energy Efficiency and Peak Demand Reduction Programs.
(Appearance: Revenue Requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket Nos. QO19010040 and EO20090620
46. In Re: Atlantic City Electric Company for Approval of an Energy Efficiency Program, Cost Recovery Mechanism, and Other Related Relief for Plan Years One Through Three.
(Appearance: Revenue Requirement on behalf of the New Jersey Division of Rate Counsel)

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- New Jersey Board of Public Utilities – Docket Nos. QO19010040 and EO20090621
47. In Re: Rockland Electric Company for Approval of Its Energy Efficiency and Peak Demand Reduction Programs.
(Appearance: Revenue Requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket Nos. QO19010040 and EO20090623
 48. In Re: Public Service Electric and Gas Company for Approval of Changes in its Electric Green Programs Recovery Charge and its Gas Green Programs Recovery Charge 2020 PSE&G Green Programs Cost Recovery filing
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket Nos. ER20060467 and GR20060468
 49. In Re: Public Service Electric and Gas Company’s 2020/2021 Annual BGSS Commodity Charge filing for its Residential Gas Customers under its Pricing Mechanism and for Changes in its Balance Charge
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. GR20060379
 50. In Re: Public Service Electric and Gas Company’s 2020 Annual Margin Adjustment Clause (MAC)
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. GR20060384
 51. In Re: South Jersey Gas Company for Approval to Revise the Rider H Rate Associated with the Tax Cuts and Jobs Act of 2017
(Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. GR20060382
 52. In Re: Berkshire Gas Company -2019 Gas System Enhancement Program Reconciliation Filing
(Appearance: Revenue Requirement on behalf of the Massachusetts Office of the Attorney General)
Commonwealth of Massachusetts -Department of Public Utilities – DPU 20-GREC-02
 53. In Re: Bay States Gas Company d/b/a Columbia Gas – 2019 Gas System Enhancement Program Reconciliation Filing.
(Appearance: Revenue Requirement on behalf of the Massachusetts Office of the Attorney General)
Commonwealth of Massachusetts – Department of Public Utilities – DPU 20-GREC-05
 54. In Re: NSTAR Gas Company – 2019 Gas System Enhancement Program Reconciliation Filing
(Appearance: Revenue Requirement on behalf of the Massachusetts Office of the Attorney General)

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Commonwealth of Massachusetts – Department of Public Utilities – DPU 20-GREC-06

55. In Re: South Jersey Gas Company for Approval of Increased Base Tariff Rates and Charges for Gas Service, Changes to Depreciation Rates and Other Tariff Revisions. (Appearances: Revenue Requirement and Cash Working Capital) on behalf of the New Jersey Division of Rate Counsel.
New Jersey Board of Public Utilities – Docket No. GR20030243
56. In Re: Jersey Central Power & Light Company for Review and Approval of Increased in, and Other Adjustments to Rates and Charges for Electric Services and approval of Other Proposed Tariff Revisions (Appearance: Revenue Requirement, Cash Working Capital, Consolidated Income Taxes, LED Conversion and Reliability Roll-In) on behalf of the New Jersey Division of Rate Counsel.
New Jersey Board of Public Utilities – Docket No. ER20020146
57. In Re: The Pittsburgh Water and Sewer Authority for approval of increased rates and charges for water and wastewater service and for approval of a multi-year rate plan. (Appearance: Accounting and Policy, Customer Service and Regulatory Policy) on behalf of the Pennsylvania Office of the Consumer Advocate)
Pennsylvania Public Utility Commission – Docket Nos. R-2020-3017951 and R-2020-3017970.
58. In Re: New Jersey-American Water Company, Inc. for approval of Increased Base Tariff Rates and Charges for Water and Wastewater Services and Other Tariff Revisions. (Appearance: Accounting and Revenue Requirement and Cash Working Capital / Consolidated Income Taxes) on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. WR19121516
59. In Re: Hawaiian Electric Company, Inc., for approval of a General Rate Increase and Revised Rate Schedules and Rules. (Appearance: Accounting and Revenue Requirement on behalf of the Hawaiian Division of Consumer Advocacy)
Hawaii Public Utilities Commission – Docket No. 2019-0085
60. In Re: Mount Olive Villages Water Company for approval of an Increase in Rates for Water Service and Other Tariff Changes. (Appearance: Accounting and Consulting Services on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. WR19060770
61. In Re: Mount Olive Villages Sewer Company for approval of an Increase in Rates for Sewer Service and Other Tariff Changes. (Appearance: Accounting and Consulting Services on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. WR19060769

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62. In Re: Public Service Electric and Gas Company for approval of changes in its Electric Green Programs Recovery and its Gas Green Programs Recovery Charge (2019 PSE&G Green Programs Cost Recovery Filing).
(Appearance: Accounting and Consulting Services on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket Nos. ER19070764 and GR19070765
63. In Re: Proposed Amendment to N.J.A.C. 14:9- Adoption by reference to the Uniform System of Accounts for Water Utilities and Wastewater Utilities.
(Appearance: Consulting Services on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities- Docket Nos. WX19050612 (Water) and WX19050613 (Wastewater)
64. In Re: Public Service Electric and Gas Company’s 2019/2020 Annual BGSS Commodity Charge filing for its Residential Gas Customers Under its Periodic Pricing Mechanism and for Changes in its Balancing Charge.
(Appearance: Revenue Requirement and accounting/consulting services on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. GR190600699
65. In Re: Bay States Gas Company d/b/a Columbia Gas of Massachusetts for Approval of a 2018 Gas System Enhancement Program Reconciliation Filing
(Appearance: Revenue Requirement on behalf of the Massachusetts Office of the Attorney General)
Commonwealth of Massachusetts Department of Public Utilities – Docket No. 19-GREC-05
66. In Re: NSTAR Gas Company d/b/a Eversource Energy for Approval of a 2018 Gas System Enhancement Program Reconciliation Filing
(Appearance: Revenue Requirement on behalf of the Massachusetts Office of the Attorney General)
Commonwealth of Massachusetts Department of Public Utilities – Docket No. 19-GREC-06
67. In Re: Public Service Electric and Gas Company for Approval of Gas Rate Base Adjustments Pursuant to its Gas System Modernization Program (April 2019 GSMP)
(Appearance: Revenue Requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. GR19040522
68. In Re: Kalaeloa Water Company, LLC for Approval of General Rate Case and Revised Rules, Regulations and Rates.
(Appearance: Revenue Requirement on behalf of the Hawaii Division of Consumer Advocacy)
Hawaii Public Utilities Commission – Docket No. 2019-0057

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69. In Re: Elizabethtown Gas Company for Approval of an Increase in Rates and Charges for Gas Service, Changes to Depreciation Rates and Other Tariff Revisions.
(Appearance: Revenue Requirement and Other Accounting Issues on behalf of the New Jersey Division of Rate Counsel).
New Jersey Board of Public Utilities – Docket No. GR19040586
70. In Re: Petition of Peoples Natural Gas Company for Approval of an Increase in Rates for Natural Gas Distribution Service.
(Appearance: Revenue Requirement and Other Accounting Issues on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2018-3006818
71. In Re: Petition of Aqua New Jersey, Inc. for Approval of an Increase in Rates for Water Service and other Tariff Changes.
(Appearance: Revenue Requirement and other Accounting Issues on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. WR18121351
72. In Re: Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future – Energy Efficiency (CEF-EE) Program on a Regulated Basis.
(Appearance: Revenue Requirement and other Accounting Issues on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket Nos. GO18101112 and EO18101113.
73. In Re: Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future – Energy Vehicle and Energy Storage (CEF-EVES) Program on a Regulated Basis. (Appearance – Revenue Requirement and other Accounting Issues on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. EO18101111.
74. In Re: Petition of New Jersey Natural Gas Company- Request for Deferred Accounting Authority for Costs Related to New Information Technology Systems. (Appearance: Impact on Revenues, prudence of costs on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. GR18101096
75. In Re: Petition for Approval of An Indirect Change in Control of the New Jersey Public Utilities Subsidiaries of SUEZ Water Resources, Inc. and Other Related Approvals.
(Appearance: Impact on Rates, Service, Employees, Positive Benefits on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. WM18090982
76. In Re: The Matter of the Merger of Roxbury Water Company into New Jersey American Water Company (Appearance: Impact on Rates, Service and Employees, Positive Benefits on behalf of the New Jersey Division of Rate Counsel)

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New Jersey Board of Public Utilities – BPU Docket No. WM18080904

77. In Re: The Matter of the Application of Maryland-American Water Company for Authorization to Adjust its Existing Schedule of Tariffs and Rates.
(Appearance: Revenue Requirement on behalf of the Maryland Office of People’s Counsel)
Maryland Public Service Commission – Case No. 9487
78. In Re: The Matter of the Joint Petition for Approval of an Increase in Rates for Water and Wastewater Service and Other Tariff Changes for SUEZ Water NJ, Inc., Toms River, Inc., Arlington Hill, Inc., West Milford, Inc., Matchaponix, Inc., and Princeton Meadows, Inc.
(Appearance: Revenue Requirement and the development of Consolidated Income Taxes on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. WR18050593
79. In Re: The Matter of the Application of Atlantic City Electric Company to Adjust the Level of its Rider RGGI Rate Associated with its Solar Renewable Energy Certificate Financing Program 2018 (Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. ER18050543
80. In Re: The Matter of the Petition of New Jersey Natural Gas Company’s Approval of the Cost Recovery Associated with Energy Efficiency Programs (Appearance; Revenue Requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No, GR18050585
81. In Re: The Matter of Bay States Gas Company d/b/a Columbia Gas of Massachusetts, 2017 Gas System Enhancement Reconciliation Filing (Appearance: Revenue Requirement on behalf of the Massachusetts Attorney General’s Office of Ratepayer Advocacy)
Commonwealth of Massachusetts – Department of Public Utilities – Docket No. D.P.U. 18-GREC-05.
82. In Re; The Matter of NSTAR Gas Company d/b/a Eversource Energy, Gas System Enhancement Program Reconciliation Filing (Appearance: Revenue Requirement on behalf of the Massachusetts Attorney General’s Office of Ratepayer Advocacy)
Commonwealth of Massachusetts – Department of Public Utilities – Docket No. D.P.U. 18-GREC-06.
83. In Re: The Matter of the Merger of SUEZ Water NJ, SUEZ Water Toms River, SUEZ Water Arlington Hills, SUEZ Water West Milford, SUEZ Water Princeton Meadows and SUEZ Water Matchaponix (Appearance: Positive Benefits related to the Merger on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. WR18030266

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84. In Re: The Matter of the Columbia Gas of Pennsylvania for a General Rate Increase in Distribution Gas Service (Appearance; Accounting Issues and Revenue Requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utility Commission – Docket No. R-2018-2647577
85. In Re: The Matter of the New Jersey Board of Public Utilities Consideration of the Tax Cuts and Jobs Act of 2017 – Generic Proceeding (Appearance: Revenue Requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. AX18010001
86. In Re: Acquisition of Elizabethtown Gas, a Division of Pivotal Utilities Holdings, Inc. by ETG Acquisition Corp., a Division of South Jersey Industries, Inc., and Related Transactions. (Appearance: Customer Service Issues/Employee and Labor Relations on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – BPU Docket No. GM17121309.
87. In Re: Middlesex Water Company – Base Rate Case Proceeding for Water Service. (Appearance: revenue requirement on behalf of the NJ Division of Rate Counsel).
New Jersey Board of Public Utilities – BPU Docket No. WR17101049.
88. In Re: Township of East Brunswick – Sewer Rate Study – (Evaluation of the existing sewer rate structure and examining and quantify costs for future expansion).
89. In Re: Montana-Dakota Utilities – Base Rate Case Proceeding for Gas Service. (Appearance: revenue requirement on behalf of the North Dakota Public Service Commission). NDPSD Docket No. PU-17-295.
90. In Re: Andover Utility Company – Base Rate Case Proceeding for Wastewater Services. (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel).
New Jersey Board of Public Utilities – BPU Docket No. WR17070726.
91. In Re: Public Service Electric and Gas Company- Approval of Changes in its Electric and Gas Green Programs Recovery Charges “2017 Public Service Electric & Gas Green Programs Cost Recovery Filing. (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel).
New Jersey Board of Public Utilities – BPU Docket Nos. ER17070724 and GR17070725.
92. In Re: Bay States Gas Company d/b/a Columbia Gas of Massachusetts, 2016 Gas System Enhancement Program Reconciliation Filing, (Appearance: revenue requirement on behalf of the Massachusetts Attorney General’s Office of Ratepayer Advocacy).
Commonwealth of Massachusetts Department of Public Utilities – Docket No. D.P.U. 17-GREC-05.

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93. In Re: NSTAR Gas Company d/b/a Eversource Energy, 2016 Gas System Enhancement Program Reconciliation Filing (Appearance: revenue requirement on behalf of the Massachusetts Attorney General's Office of Ratepayer Advocacy.
Commonwealth of Massachusetts Department of Public Utilities – Docket No. D.P.U. 17-GREC-06.
94. In Re: Petition of Columbia Gas of Maryland – Increase in rates for Distribution Service – (Appearance: revenue requirement on behalf of the Office of People's Counsel) Public Service Commission of Maryland – Case No. 9447
95. In Re: Petition of South Jersey Gas Company – Increase in base rates for gas services – (Appearance: revenue requirement on behalf of the NJ Division of Rate Counsel)
New Jersey Board of Public Utilities – Docket No. GR17010071
96. In Re: Petition of UGI Penn Natural Gas – Increase in base rates for gas services – (Appearance: revenue requirement on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania Public Utilities Commission Docket No. R-2016-2580030
97. In Re: Petition of PJM Interconnection, LLC. – Mid-Atlantic Interstate Transmission, LLC. Formula Rate Filing. (Appearance on behalf of the Pennsylvania Office of Consumer Advocate).
FERC Docket No. ER17-211-000
98. In Re: Petition of Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas Company for approval of Increased Base Tariff Rates and Charges for Gas Service and Other Tariff Revisions (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. GR16090826
99. In Re: Petition of SUEZ Water New Jersey, et al – Approval of a Management and Services Agreement pursuant to N.J.S.A 48: 3-7.1 (Appearance on the reasonableness of contract agreements on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WO16080806
100. In Re: Petition of SUEZ Water Arlington Hills Inc. – Approval of an Increase in Rates for Wastewater Services and other Tariff Changes (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR16050510
101. In Re: Petition of Public Service Electric and Gas Company – 2016 Marginal Adjustment Clause (MAC) (Appearance; reconciliation and rate setting on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. GR16060484

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102. In Re: Petition of Public Service Electric and Gas Company for Approval of Changes in its Electric Green Programs Recovery Charges and its Gas Green Program Recovery Charges 2016 PSEG Program Cost Recovery Filing (Appearance: reconciliation and rate setting on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket Nos. ER16070613 and GR16070614
103. In Re: Petition of the Mount Olive Village Sewer Company, Inc., for Approval of an Increase in Rates for Service (Appearance: revenue requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR16050391
104. In Re: Petition of the Mount Olive Village Water Company, Inc. for Approval of an Increase in Rates for Service (Appearance; revenue requirement on behalf of the New Jersey Division of Rate Counsel)
New Jersey Board of Public Utilities Docket No. WR16050390
105. In Re: Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Analysis and Advice to Counsel: computation of the revenue requirement and rate impact on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-01
106. In Re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Appearance: computation of the revenue requirement and rate impact on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-05
107. In Re: Petition for Approval of Gas Infrastructure Contract Between Public Service Company of New Hampshire d/b/a Eversource Energy and Algonquin Gas Transmission, LLC (2016) - (Analysis and Advice to Counsel: compliance with statutes and regulations, review of contract, and ratemaking on behalf of the New Hampshire Office of Consumer Advocate)
NH Public Utilities Commission Docket No. DE 16-241
108. In Re: Central Maine Power Company, Annual Compliance Filing and Price Change (2016) - (Analysis and Advice to Counsel; tax normalization regulatory asset on behalf of the Maine Office of the Public Advocate)
ME Public Service Commission Docket No. 2016-00035
109. In Re: Bulletin 2015-10 Generic Proceeding to Establish Parameters for the Next Generation PBR Plans (Appearance: productivity adjustments/performance-based ratemaking on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20414

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110. In Re: The Matter of Request by Emera Maine for Approval of a Rate Change (2016) - (Appearance: revenue requirement on behalf of the Maine Office of the Public Advocate) Maine Public Utilities Commission Docket No. 15-00360)
111. In Re: the Matter of the Joint Application of the Southern Company, AGL Resources Inc., and Pivotal Holdings, Inc. d/b/a Elkton Gas (2015-2016) - (Analysis and advice to counsel: customer service impacts, employee impacts, supplier diversity on behalf of the Maryland Office of People's Counsel) MD PSC Case No. 9404
112. In Re: The Matter of the Merger of Southern Company and AGL Inc. (2015-2016) - (Appearance: customer service impacts and employee impacts on behalf of the NJ Division of Rate Counsel) New Jersey BPU Docket No. GM15101196
113. In Re: The Matter of the United Water New Jersey, Inc., for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2015-2016) - (Appearance: revenue requirements, rate base issues and operating income on behalf of the NJ Division of Rate Counsel) New Jersey BPU Docket No. WR15101177
114. In Re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Precedent Agreements with Millennium Pipeline Company, LLC (2015) - (Analysis: review of contract and compliance of the Gas Supply Plan on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy) MA D.P.U. 15-130
115. In Re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Agreements for LNG or Liquefaction Services with GDF Suez Gas NA, LLC; Northeast Energy Center, LLC; Metro LNG, L.P.; and National Grid LNG (2015) - (Analysis: review of contract and compliance of the Gas Supply Plan on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy) MA D.P.U. 15-129
116. In Re: Columbia Gas of Massachusetts CY2014 Targeted Infrastructure Reinvestment Factor (TIRF) Compliance Filing (2015) - (Appearance: computation of the revenue requirement impact on the TIRF on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy) MA D.P.U. 15-55
117. In Re: The Matter of the Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its Targeted Infrastructure Reinvestment Factor (TIRF) for CY 2013 (2014) - (Appearance: computation of the revenue requirement impact on the TIRF) MA D.P.U. 14-83

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118. In Re: The Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc. (Atlantic City Electric Company) (2014-2015) - (Appearance: customer service impacts)
New Jersey BPU Docket No. EM14060581
91. In Re: Public Utilities Commission of Ohio – In the Matter of the Application of Ohio Power Company (American Electric Power Ohio) (AEP Ohio) to Adopt a Final Implementation Plan for the Retail Stability Rider – (Appearance - Accounting Issues) (2014) on behalf of the Ohio Office of Consumer Counsel (OCC)
PUCO Case No. 14-1186-EL-RDR
92. In Re: Public Utilities Commission of Ohio - In the Matter of the Application of Aqua Ohio, Inc. to Increase its Rates and Charges for its Waterworks Service. – Revenue and Rates (2014) - (Appearance: operating income, certain rate base issues and income taxes on behalf of the Ohio Office of Consumer Counsel)
PUCO Case No. 13-2124-WW-AIR
93. In Re: New York Public Service Commission, as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. Revenue Requirement (2013-2014) – (Appearance: revenue requirement, rate base issues and operating income on behalf of the Intervenor, the County of Westchester)
NYPSC Case Nos. 13-E-0030, 13-G-0031 and 13-S-0032, et al
94. In Re: North Dakota Public Service Commission, - Application of Northern States Power Company for Authority to Increase Rates for Electric Service in North Dakota, On-Going Revenue Requirement (2013) - (Appearance: revenue requirement and rate base, operating income, operating and maintenance expenses on behalf of the North Dakota Public Service Commission Staff)
North Dakota Case No. PU-12-813
95. In the Matter of the Petition of New Jersey American Water Company for Authorization to Implement a Distribution System Improvement Charge (DSIC) Order Denying Petition and Instituting Stakeholder Process (2008) - (Case manager on policy decision and revenue requirement impact on behalf of the Staff of the NJ Board of Public Utilities)
BPU Docket No. WO08050358
96. In the Matter of the Joint Petition of the City of Trenton, New Jersey and New Jersey-American Water Company, Inc. for Authorization of the Purchase and Sale of the Assets of the Outside Water Utility System ("OWUS") of the City of Trenton, New Jersey and for Other Relief Order Adopting Initial Decision, (2008) - (Case manager on the revenue requirement impact on behalf of the Staff of the NJ Board of Public Utilities)
BPU Docket No. WM08010063
97. In the Matter of the Petition of United Water New Jersey, United Water Toms River, United Water Lambertville, United Water Mid-Atlantic and Gaz de France for Approval as Need for a Change in Ownership and Control (2007) - (Case manager on customer impact,

PCMG and Associates LLC

employee impact and impact on rates on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WM06110767

98. In the Matter of the Petition of United Water Arlington Hills Sewerage, Inc. for an Increase in Rates for Wastewater Service and Other Tariff Changes (2009) - (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR08100929

99. In the Matter of the Petition of United Water New Jersey Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes, (2009) - (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR08090710

100. In the Matter of the Petition of United Water Toms River, Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2008) - (Case manager on the revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR08030139

101. In the Matter of the Joint Petitioners of New Jersey-American Water Company, Inc., S.J. Services, Inc., South Jersey Water Company, Inc. and Pennsgrove Water Supply Company, Inc. for Among Other Things Approval of a Change in Control of South Jersey Water Supply Company, Inc. and Pennsgrove Water Supply Company, Inc. (2007) - (Case manager on the overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WM07020076

102. In the Matter of the Petition of Aqua, New Jersey, Inc. for Approval of an Increase in Rates for Water Service and Other Tariff Changes (2008) - (Case manager on revenue requirement and the overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)

BPU Docket No. WR0712095

PCMG and Associates LLC

103. I/M/O the Joint Petition of Thames Water, Aqua Holdings GMBH, on Behalf of Itself and Its Parent Holdings Company, RWE Aktiengesellschaft, Thames Water Aqua US Holdings, Inc., American Water works Company Inc., Thames Water Holdings Incorporated, E 'town Corporation, New Jersey-American Water Company, Inc., Elizabethtown Water Company, the Mount Holly Water Company and Applied Wastewater Management, Inc. for Confirmation that the Board of Public Utilities Does Not Have Jurisdiction Over, or, Alternatively, for Approval of a Proposed Transaction Involving, Among Other Things, the Sale by Thames Water Aqua Holdings GMBH of Up to 100% of the Shares of the Common Stock of American Waterworks Company, Inc. in One or More Public Offerings (2007) - (Case manager on revenue requirement impacts, effect on rates and effect on service on behalf of the Staff of the NJ Board of Public Utilities)
BPU Docket No. WM06050388
104. In the Matter of the Petition of Elizabethtown Water Company for Approval of an Increase in Rates for Water Service (2007) - (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)
BPU Docket No. WR03070510
105. In the Matter of the Petition of New Jersey American Water Company, Inc. for Approval of Increased Tariff Rates and Charges for Water and Sewer Service; Increased Depreciation Rates and Other Tariff Revisions (2008) - (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)
BPU Docket No. WR08010020
106. In the Matter of Middlesex Water Company for Approval of an Increase in its Rates for Water Service and Other Tariff Changes (2007) - (Case manager on overall revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)
BPU Docket No. WR07040275
107. In the Matter of the Joint Petition of United Water New Jersey, Inc., United Water Arlington Hills, Inc., United Water Hampton, Inc., United Water Vernon Water Hills, Inc., and United Water Lambertville, Inc. for an Increase in Rates and Charges for Water Service and Other Tariff Changes and for Approval to Merge the Operations of the Joint Petitioners into and with United Water New Jersey, Inc. (2007) - (Case manager on revenue requirement and overall rate proceeding on behalf of the Staff of the NJ Board of Public Utilities)
BPU Docket No. WR07020135

SUMMARY REVENUE REQUIREMENT

	(1) PWSA Present Rates	Rev Req Increase Adjustments	PWSA FPFTY 2024	Adjustments	OCA Recommended FPFTY - 2024	References	
1	Total System Revenues	\$ 208,482,665	\$ 46,836,381	\$ 255,319,046	\$ 30,584,475	\$ 239,067,140	
2	Total Direct Operating Expenses	\$ 112,578,051	\$ 17,583,562	\$ 130,161,613	\$ (14,783,691)	\$ 115,377,922	OCA-VI-3
3	Other Operating Expenses	\$ 4,926,007	\$ 823,652	\$ 5,749,659	\$ (319,071)	\$ 5,430,588	
4	Total	\$ 117,504,058	\$ 18,407,214	\$ 135,911,272	\$ (15,102,761)	\$ 120,808,511	
5	Total Debt Service	\$ 79,523,035	\$ 17,409,591	\$ 96,932,626	\$ -	\$ 96,932,626	
6	Total CapEx & Transfers	\$ 8,086,693	\$ 14,343,793	\$ 22,430,486	\$ (6,652,295)	\$ 15,778,191	
7	Total System Wide Rev. Requirement	\$ 205,113,786	\$ 31,753,384	\$ 255,274,384	\$ (21,755,056)	\$ 233,519,328	
8	Surplus (Deficit)	\$ 3,368,879		\$ 44,662		\$ 5,547,812	
9	DSC - Senior Debt	1.454		1.6524		1.6524	
10	DSC - Total Debt	1.132		1.2055		1.2055	
11	Total Proposed Revenue Requirement		\$ 46,836,381		\$ 30,584,475		
12	Overall % Increase		22.465%		14.670%		

(1) PWSA Exhibit EB-2

INCOME STATEMENT - FPFTY 2024							
Acct. No. tab		(1) PWSA		PWSA		OCA	References
		Present Rates	Adjustments	FPFTY 2024	Adjustments	Recommended	
	System Revenues						Ratio to Total
1	Water Sales	\$ 121,498,414	\$ 30,853,944	\$ 152,352,358	\$ 17,823,857	\$ 139,322,271	58.277%
2	Wastewater Sales	\$ 48,046,585	\$ 2,077,972	\$ 50,124,557	\$ 7,048,450	\$ 55,095,035	23.046%
3	Stormwater Sales	\$ 23,303,779	\$ 6,529,481	\$ 29,833,260	\$ 3,418,672	\$ 26,722,451	11.178%
4	Sale for Resale / Contract Sales	\$ 3,726,610	\$ 677,720	\$ 4,404,330	\$ 546,695	\$ 4,273,305	1.787%
5	DSIC Revenues	\$ 8,411,120	\$ 6,627,342	\$ 15,038,462	\$ 1,233,914	\$ 9,645,034	4.034%
6	Other Revenues	\$ 3,496,157	\$ 69,923	\$ 3,566,080	\$ 512,887	\$ 4,009,044	1.677%
7	Penalties & Interest	\$ -	\$ -	\$ -	\$ -	\$ -	0.000%
8	Total System Revenues	\$ 208,482,665	\$ 46,836,382	\$ 255,319,047	\$ 30,584,475	\$ 239,067,140	100.000%
		4.03%	22.47%	5.89%	14.67%		FR II.1
	System Revenue Requirements					1.6524	
	Operating Expenses:					DSC	
	Direct Operating Expenses						
9	910 Executive Director	\$ 2,788,992	\$ 547,787	\$ 3,336,779	\$ (312,346)	\$ 3,024,433	
10	911 Customer Service	\$ 9,214,830	\$ 362,817	\$ 9,577,647	\$ 692,155	\$ 10,269,802	
11	912 MIS	\$ 6,291,824	\$ 1,320,427	\$ 7,612,251	\$ (513,880)	\$ 7,098,371	
12	913 Finance	\$ 6,960,075	\$ 517,298	\$ 7,477,373	\$ (2,007,280)	\$ 5,470,093	
13	Procurement	\$ -	\$ -	\$ -	\$ -	\$ -	
14	915 Human Resources	\$ 1,750,667	\$ 685,202	\$ 2,435,869	\$ (273,597)	\$ 2,162,272	
15	916 Legal	\$ 4,638,131	\$ (422,354)	\$ 4,215,777	\$ (1,715,070)	\$ 2,500,707	
16	917 Safety & Security	\$ 2,051,186	\$ 289,845	\$ 2,341,031	\$ (571,122)	\$ 1,769,909	
17	921 Public Affairs	\$ 1,469,848	\$ 432,841	\$ 1,902,689	\$ (254,703)	\$ 1,647,986	
18	931 Env. Compliance	\$ 4,234,203	\$ 404,429	\$ 4,638,632	\$ (1,160,404)	\$ 3,478,228	
19	918 Warehouse	\$ 531,048	\$ 31,589	\$ 562,637	\$ (66,934)	\$ 495,703	
20	Ops. Capital Assets	\$ -	\$ -	\$ -	\$ -	\$ -	
21	321 Water Quality (Lab)	\$ 2,400,034	\$ 276,349	\$ 2,676,383	\$ (302,722)	\$ 2,373,661	
22	322 Water Treatment Plant	\$ 24,047,029	\$ 3,159,218	\$ 27,206,247	\$ (3,039,479)	\$ 24,166,768	
23	424 Sewer Operations	\$ 3,322,879	\$ 8,034,215	\$ 11,357,094	\$ (423,163)	\$ 10,933,931	
24	325 Water Distribution	\$ 15,929,517	\$ 1,768,782	\$ 17,698,299	\$ (2,286,277)	\$ 15,412,022	
25	930 Eng. & Construction	\$ 26,947,789	\$ 175,116	\$ 27,122,905	\$ (2,421,488)	\$ 24,701,417	
					\$ -	\$ -	
					\$ -	\$ -	
	Other Adjustments (dues, contributions, lobbying)				\$ (127,380)	\$ (127,380)	OCA-VI-9/ I&E RE-14-D
26	Total Direct Operating Expenses	\$ 112,578,052	\$ 17,583,561	\$ 130,161,613	\$ (14,783,691)	\$ 115,377,922	OCA-VI-3 OCA-VI-31/34
			15.62%				
	Other Operating Expenses						
27	Loss/(Gain) on ALCOSAN Billings	\$ 1,766,508	\$ 300,306	\$ 2,066,814	\$ -	\$ 2,066,814	
28	City Services	\$ 3,159,499	\$ 260,130	\$ 3,419,629	\$ (187,462)	\$ 3,232,167	OCA-VI-36
29	COVID Expenses	\$ -	\$ 263,215	\$ 263,215	\$ (131,608)	\$ 131,607	I&E RE-21
30	Total Other Operating Expenses	\$ 4,926,007	\$ 823,651	\$ 5,749,658	\$ (319,070)	\$ 5,430,588	
			16.72%				
31	Total Operating Expenses	\$ 117,504,059	\$ 18,407,212	\$ 135,911,271	\$ (15,102,760)	\$ 120,808,511	
	Debt Service						
32	Senior Debt	\$ 61,933,967	\$ 9,517,675	\$ 71,451,642	\$ -	\$ 71,451,642	
33	Subordinate Debt	\$ 16,089,068	\$ 6,391,916	\$ 22,480,984	\$ -	\$ 22,480,984	
34	Revolving LOC	\$ 1,500,000	\$ 1,500,000	\$ 3,000,000	\$ -	\$ 3,000,000	
35	Total Debt Service	\$ 79,523,035	\$ 17,409,591	\$ 96,932,626	\$ -	\$ 96,932,626	
			21.89%				
	CAPEX & Transfers						
35	Internally Generated Funds-PAYGO	\$ -	\$ -	\$ -	\$ -	\$ -	
36	7.50% Internally Generated Funds-PAYGO/DSIC	\$ 8,411,120	\$ 6,627,342	\$ 15,038,462	\$ (5,317,647)	\$ 9,720,815	OCA-6-17
37	Other Transfers to Reserve	\$ (4,500,000)	\$ 5,500,000	\$ 1,000,000	\$ -	\$ 1,000,000	
38	Bad Debt Expense	\$ 4,099,730	\$ 1,871,806	\$ 5,971,536	\$ (1,334,649)	\$ 4,636,887	OCA 6-13
39	DWSL	\$ -	\$ -	\$ -	\$ -	\$ -	
40	Hardship Grant Funding	\$ -	\$ -	\$ -	\$ -	\$ -	
41	Arrearage Funding	\$ -	\$ 240,000	\$ 240,000	\$ -	\$ 240,000	
42	Stormwater Credit Program Cost	\$ 75,843	\$ 104,646	\$ 180,489	\$ -	\$ 180,489	
43	Total CAPEX & Transfers	\$ 8,086,693	\$ 14,343,794	\$ 22,430,487	\$ (6,652,296)	\$ 15,778,191	
			177.38%				
44	Total Systemwide Revenue Requirement	\$ 205,113,787	\$ 50,160,597	\$ 255,274,384	\$ (21,755,056)	\$ 233,519,328	
45	System Revenue/Surplus/(Deficit)	\$ 3,368,878	\$ (3,324,215)	\$ 44,663	\$ -	\$ 5,547,812	
(1)	PWSA Exhibit EB-2		\$ 46,836,382				

EXECUTIVE DIRECTOR						
910		(1)		OCA		
		PWSA		OCA		
		FPFTY 2024	Adjustments	Recommended		References
	Disallowance of Bonus \$47,223					OCA-VI-2
	Salary - Vacancy Rate ratio of 12.61%	\$ 1,392,142	\$ (216,817)	\$ 1,175,325		OCA-VI-5
2022 - 24.50%						
2023 - 29.78%	Benefits	\$ 303,212	\$ (38,235)	\$ 264,977		OCA-VI-8
	Operating Expenses	\$ -	\$ -	\$ -		OCA-VI-20
	Inventory	\$ 74	\$ (2)	\$ 72		
	General & Administrative	\$ 1,641,352	\$ (57,293)	\$ 1,584,059		Cap at 2.30%
		\$ 3,336,780	\$ (312,347)	\$ 3,024,433		OCA-VI-4
						I&E RE-37
7323	Consultants					
7370	Legal					
7383	Professional Services - Other					

[Projected U.S. inflation rate 2010-2028 | Statista](#)

[CMS Office of the Actuary Releases 2021-2030 Projections of National Health Expenditures | CMS](#)

(1) PWSA COS Model 2024 Tab 910

<u>CUSTOMER SERVICE</u>					
911		(1)			
		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 5,157,434	\$ (650,352)	\$ 4,507,082	OCA-VI-2 OCA-VI-5
2022 - 33.08%					
2023 - 11.40%	Benefits	\$ 1,815,642	\$ (228,952)	\$ 1,586,690	
	Operating Expenses	\$ 251,723	\$ (8,788)	\$ 242,935	Cap at 2.30%
	Inventory	\$ -	\$ -	\$ -	
	General & Administrative	\$ 2,352,848	\$ (82,128)	\$ 2,270,720	Cap at 2.30%
		\$ 9,577,647	\$ (970,221)	\$ 8,607,426	OCA-VI-4
					I&E RE 37
	Credit Card Fees Expense			\$ 470,000	
	Expansion of Bill Discount			\$ 560,915	OCA-18-7
	Arrearage Forgiveness Program			\$ 631,461	
	Total			\$ 1,662,376	
7323	Consultants				
7315	Billing Contract				
7375	Meter Services				OCA-18-3

(1) PWSA COS Model 2024 Tab 911

MANAGEMENT INFORMATION SYSTEM

912		(1)		OCA		
		PWSA		OCA		
		FPFTY 2024	Adjustments	Recommended		References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 2,450,094	\$ (308,957)	\$ 2,141,137		OCA-VI-2 OCA-VI-5
2022 - 41.83%						
2023 - 15.02%	Benefits	\$ 653,409	\$ (82,395)	\$ 571,014		
	Operating Expenses	\$ 2,962,318	\$ (103,401)	\$ 2,858,917		Cap at 2.3%
	Inventory	\$ 1,097	\$ (38)	\$ 1,059		
7323	General & Administrative	\$ 1,545,332	\$ (19,088)	\$ 1,526,244		Cap at 2.3%
		\$ 7,612,250	\$ (513,879)	\$ 7,098,371		OCA-VI-4
						I&E RE-30/34/35
5402	Annual Software Support					
7323	Consultants - Index without \$517,400					I&E RE 37
7383	Professional Services Other					
7680	Cellular Phone					I&E RE 40
7681	Local Phones					

(1) PWSA COS Model 2024 Tab 912

FINANCE		(1)			
913		PWSA		OCA	
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 2,042,753	\$ (257,591)	\$ 1,785,162	OCA-VI-2 OCA-VI-5
2022 - 23.19%					
2023 - 15.84%	Benefits	\$ 515,143	\$ (64,960)	\$ 450,183	
Acct 5190	Operating Expenses	\$ 3,430,539	\$ (1,142,745)	\$ 2,287,794	Cap at 2.3%
	Inventory	\$ 392,201	\$ (13,691)	\$ 378,510	
7255	General & Administrative	\$ 4,516,367	\$ (528,293)	\$ 3,988,074	
		\$ 10,897,003	\$ (2,007,280)	\$ 8,889,723	
	Adjustment	\$ (3,419,630)	\$ -	\$ (3,419,630)	
	Per PWSA Exhibit EB-2	\$ 7,477,373	\$ (2,007,280)	\$ 5,470,093	OCA-VI-4
		PWSA		OCA	
		Proposed		Recommended	
5190	Vehicles 3 yr average \$785,223 - Proposed \$2,000,000 2024 use 2 yr average \$1,177,547 plus 2.3%	\$ 2,000,000	\$ (1,000,000)	\$ 1,000,000	I&E RE 30 OCA-18-8
7260	pagers 2 yr average plus 2.3%	\$ 60,000	\$ (30,000)	\$ 30,000	I&E RE 36
7255	Office Rent	\$ 1,015,130		\$ 1,015,130	OCA-18-6
7323	Consultants				I&E RE-37
7383	Professional Services - Other				

(1) PWSA COS Model 2024 Tab 913

HUMAN RESOURCES		(1)			
915		PWSA		OCA	
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 1,681,698	\$ (212,062)	\$ 1,469,636	OCA-VI-2 OCA-VI-5
2022 - 47.08%					
2023 - 22.50%	Benefits	\$ 386,096	\$ (48,687)	\$ 337,409	
	Operating Expenses	\$ 5,841	\$ (203)	\$ 5,638	Cap at 2.3%
	Inventory	\$ 4,160	\$ (145)	\$ 4,015	
	General & Administrative	\$ 358,072	\$ (12,499)	\$ 345,573	Cap at 2.3%
		\$ 2,435,867	\$ (273,595)	\$ 2,162,272	OCA-VI-4

(1) PWSA COS Model 2024 Tab 915

LEGAL		(1)			
916		PWSA		OCA	
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 992,620	\$ (125,169)	\$ 867,451	OCA-VI-2 OCA-VI-5
2022 - 138.78%					
2023 - 17.06%	Benefits	\$ 256,119	\$ (32,297)	\$ 223,822	
	Operating Expenses	\$ -	\$ -	\$ -	
	Inventory	\$ -	\$ -	\$ -	
7370	General & Administrative	\$ 2,967,039	\$ (1,557,605)	\$ 1,409,434	Cap at 2.3%
		\$ 4,215,778	\$ (1,715,071)	\$ 2,500,707	OCA-VI-4
		PWSA		OCA	
		Proposed		Recommended	
7715	Claims Deductible - 2024 \$750,000 three year average is \$685,585 (2020- 2022) use 2 yr average	\$ 750,000	\$ (397,500)	\$ 352,500	I&E RE 41 OCA-18-9 I&E RE 37
7370	Legal - Rate Case Expense	\$ 2,577,303			OCA Set 6-14
	2023	\$ 2,865,750			
	2024	\$ 2,137,695	\$ (1,068,848)	\$ 1,068,848	
(1)	PWSA COS Model 2024 Tab 916				

SAFETY & SECURITY					
917		(1)			
		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 929,122	\$ (117,162)	\$ 811,960	OCA-VI-2 OCA-VI-5
2022 - 198.66%					
2023 - 13.34%	Benefits	\$ 333,753	\$ (42,086)	\$ 291,667	
5375/5145	Operating Expenses	\$ 935,161	\$ (393,070)	\$ 542,091	
	Inventory	\$ 1,059	\$ (36)	\$ 1,023	Cap at 2.3%
7440	General & Administrative	\$ 141,933	\$ (18,764)	\$ 123,169	Cap at 2.3%
		\$ 2,341,028	\$ (571,119)	\$ 1,769,909	OCA-VI-4 OCA-18-10
		PWSA	OCA		
		Proposed	Recommended		
5375	Radionuclides- Reclassed to Security	\$651,399	\$ (325,700)	\$ 325,700	OCA 18-11
5145	2 yr average for ground maintenance	\$ 53,250	\$ (26,625)	\$ 26,625	2 yr average
					I&E RE-37
7440	Grounds & Maintenance Support 2 yr average for ground maintenance	\$ 27,000	\$ (13,500)	\$ 13,500	
(1)	PWSA COS Model 2024 Tab 917				

PUBLIC AFFAIRS					
921		(1)			
		PWSA		OCA	
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 989,801	\$ (124,814)	\$ 864,987	OCA-VI-2 OCA-VI-5
2022 - 24.16%					
2023 - 22.18%	Benefits	\$ 233,570	\$ (29,453)	\$ 204,117	
Acct. 5145	Operating Expenses	\$ 260,307	\$ (85,812)	\$ 174,495	Cap at 2.3%
	Inventory	\$ -	\$ -	\$ -	
	General & Administrative	\$ 419,013	\$ (14,626)	\$ 404,387	Cap at 2.3%
		\$ 1,902,691	\$ (254,705)	\$ 1,647,986	OCA-VI-4 I&E RE 37
<hr/>					
		PWSA		OCA	
		Proposed		Recommended	
	Ground Maintenance - 2023 - \$150,000				OCA-18-17
5145	and \$159,000 2024	\$ 150,000	\$ (75,000)	\$ 75,000	OCA-18-16

(1) PWSA COS Model 2024 Tab 921

ENVIRONMENTAL COMPLIANCE					
931		(1)			
		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 812,600	\$ (102,469)	\$ 710,131	OCA-VI-2 OCA-VI-5
2022 - 50.77%					
2023 - 15.58%	Benefits	\$ 237,043	\$ (29,891)	\$ 207,152	
	Operating Expenses	\$ 1,873,895	\$ (923,937)	\$ 949,958	Cap at 2.30%
	Inventory	\$ 2,969	\$ (105)	\$ 2,864	
	General & Administrative	\$ 1,712,126	\$ (104,003)	\$ 1,608,123	
		\$ 4,638,633	\$ (1,160,405)	\$ 3,478,228	OCA-VI-4
		PWSA		OCA	
		Proposed		Recommended	
5335	Drag Bucket	\$ 736,200	\$ (368,100)	\$ 368,100	OCA-Set 18-24 I&E RE 46
5348	Line Television	\$ 720,750	\$ (360,375)	\$ 360,375	I&E RE 46
5145	Ground Maintenance - \$45,500 2 yr average		\$ 45,500	\$ 22,750	
5496	Repairs & Maintenance - \$60,000 2 yr year average		\$ 60,000	\$ 30,000	
5570	Testing - \$56,000 in 2023 2 yr average		\$ 56,000	\$ 28,000	
5345	Inspection -\$60,000		\$ 60,000	\$ 30,000	
7330	Construction Management		\$ 86,490	\$ 43,245	I&E RE 37
			\$ 307,990	\$ 153,995	
7330	Construction Management		\$ (86,490)	\$ (43,245)	
			\$ 221,500	\$ 110,750	
(1)	PWSA COS Model Tab 931				

WAREHOUSING		(1)			
918		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 389,615	\$ (49,130)	\$ 340,485	OCA-VI-2 OCA-VI-5
2022 - 14.29%					
2023 - 13.56%	Benefits	\$ 140,226	\$ (17,682)	\$ 122,544	
	Operating Expenses	\$ 19,822	\$ 331	\$ 20,153	Cap at 2.3%
	Inventory	\$ -	\$ -	\$ -	
	General & Administrative	\$ 12,975	\$ (453)	\$ 12,522	Cap at 2.3%
		\$ 562,638	\$ (66,935)	\$ 495,703	OCA-VI-04

(1) PWSA COS Model Tab 918

WATER QUALITY					
321		(1)			
		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 1,225,567	\$ (154,544)	\$ 1,071,023	OCA-VI-2 OCA-VI-5
2022 - 26.68%					
2023 - 12.57%	Benefits	\$ 350,968	\$ (44,257)	\$ 306,711	
	Operating Expenses	\$ 584,270	\$ (85,924)	\$ 498,346	Cap at 2.3%
	Inventory	\$ 2,650	\$ (93)	\$ 2,558	
	General & Administrative	\$ 512,928	\$ (17,904)	\$ 495,024	
		\$ 2,676,383	\$ (302,722)	\$ 2,373,661	OCA-VI-4
		PWSA		OCA	
		Proposed		Recommended	I&E RE 34
5452	Machinery Repairs - \$128,112 2023	\$ 128,112	\$ (64,056)	\$ 64,056	

(1) PWSA COS Model Tab 321

WATER TREATMENT					
322		(1)			
		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 5,968,424	\$ (752,618)	\$ 5,215,806	OCA-VI-2 OCA-VI-5
2022 - 42.01%					
2023 - 11.05%	Benefits	\$ 1,921,659	\$ (242,321)	\$ 1,679,338	
5344	Operating Expenses	\$ 11,101,079		\$ 3,700,845	Cap at 2.3%
	Chemicals		\$ (1,059,087)	\$ 6,341,147	Cap at 6.8%
	Inventory	\$ 126,310	\$ (4,409)	\$ 121,901	
	General & Administrative	\$ 8,088,775	\$ (981,044)	\$ 7,107,731	I&E RE 40
		\$ 27,206,247	\$ (3,039,479)	\$ 24,166,768	OCA-VI-4 OCA-VI-23
			<u>PWSA Propose</u>	<u>2 yr average</u>	
5035	Chlorine Rail Car \$850,000 2023 20% 2024 \$1,020,000				I&E RE 28
5344	Pumping Motor Contract \$600,000 non in prior years		\$ 600,000	\$ 300,000	I&E RE 33 I&E RE 34
				<u>OCA</u>	
			<u>PWSA Proposed</u>	<u>Recommended</u>	
7605	Electric Utility		\$ 6,900,000	\$ 6,000,000	OCA Set 18-12
7650	Gas Utility		\$ 414,000	\$ 360,000	OCA Set 18-12
(1)	PWSA COS Model Tab 322 Water Treatment Chemicals Market is expected to reach a (globenewswire.com)				

SEWER OPERATIONS					
424		(1)			
		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 1,998,926	\$ (252,065)	\$ 1,746,861	OCA-VI-2 OCA-VI-5
2022 - 24.05%					
2023 - 14.54%	Benefits	\$ 503,524	\$ (63,494)	\$ 440,030	
5370	Operating Expenses	\$ 8,665,222	\$ (100,993)	\$ 8,564,229	I&E RE 33
	Inventory	\$ 90,736	\$ (3,167)	\$ 87,569	Cap at 2.3%
	General & Administrative	\$ 98,686	\$ (3,445)	\$ 95,241	Cap at 2.3%
		\$ 11,357,094	\$ (423,163)	\$ 10,933,931	OCA-VI-4
					OCA-VI-23
		PWSA		OCA	
		Proposed		2 yr average	
5370	Operating Contract	\$ 7,500,000			OCA-18-15
5315	CB Cleaning - Stormwater	\$ 500,000			
5390	Welding - lack of expenses in prior years - year average	\$ 117,927	\$ (58,964)	\$ 58,964	OCA-Set 18-14
(1)	PWSA COS Model 2024 Tab 424				

WATER DISTRIBUTION					
325		(1)			
		PWSA	OCA		
		FPFTY 2024	Adjustments	Recommended	References
	Salary - Vacancy Rate Ratio of 12.61%	\$ 10,593,238	\$ (1,335,807)	\$ 9,257,431	OCA-VI-2 OCA-VI-5
2022 - 13.53%					
2023 - 11.69%	Benefits	\$ 3,117,665	\$ (393,138)	\$ 2,724,527	
5030	Operating Expenses	\$ 1,901,104	\$ (466,509)	\$ 1,434,595	Cap at 2.3%
	Inventory	\$ 1,815,250	\$ (63,363)	\$ 1,751,888	
	General & Administrative	\$ 271,042	\$ (27,461)	\$ 243,581	
		\$ 17,698,299	\$ (2,286,277)	\$ 15,412,022	OCA-VI-4
			PWSA	OCA	
			Proposed	2 yr average	
5380	Intra Gov Project Panther Hollow - lack of prior expenses		\$ 471,709	\$ 235,855	OCA-Set 18-18
7730	Fines and Penalties - lack of prior expenses		\$ 18,000	\$ -	OCA-Set 18-20
5030	Chlorine Cylinders		\$ 96,000	\$ 51,264	
5360	Meter lack of prior expenses - 2 yr average		\$ 199,992	\$ 99,996	OCA Set 18-17
6710	Pipe Ductile increases over prior years		\$ 795,000		OCA Set 18-19

(1) PWSA COS Model 2024 Tab 325

<u>ENGINEERING & CONSTRUCTION</u>					
930		(1)		OCA	
		PWSA			References
		FPFTY 2024	Adjustments	Recommended	
	Salary - Vacancy Rate Ratio of 12.61%	\$ 5,308,361	\$ (669,384)	\$ 4,638,977	OCA-VI-2 OCA-VI-5
2022 - 44.15%					
2023 - 12.24%	Benefits	\$ 1,592,933	\$ (200,869)	\$ 1,392,064	
	Operating Expenses	\$ 27,323,296	\$ (1,799,123)	\$ 25,524,173	Cap at 2.3%
	Inventory	\$ 4,849	\$ (169)	\$ 4,680	
7710	General & Administrative	\$ (7,106,536)	\$ 248,058	\$ (6,858,478)	
		\$ 27,122,903	\$ (2,421,486)	\$ 24,701,417	OCA-VI-4 OCA-VI-23
			2023	OCA	
			PWSA Propose	2 yr Average	
7330	Construction Management Reclassed		\$ 1,314,587		I&E RE-34 I&E RE 37 OCA-18-22
5343	Manhole & Point Repair Contract no prior exp		\$ 1,500,000	\$ 750,000	OCA Set 18-23 OCA 18-21
5355	Landscaping and Grounds		\$ 152,756	\$ 76,378	I&E RE 33
(1)	PWSA COS Model 2024 Tab 930				

OTHER OPERATING EXPENSES					
	(1)		OCA		
	PWSA		Recommended		References
	FPFTY 2024	Adjustments			
Loss / (Gain) on ALCOSAN Billing	\$ 2,066,814	\$ -	\$ 2,066,814		
City Services	\$ 3,419,629	\$ (187,462)	\$ 3,232,167		Cap at 2.3%
COVID-Expenses	\$ 263,215	\$ (131,608)	\$ 131,607		I&E RE-21-D
Total	\$ 5,749,658	\$ (319,070)	\$ 5,430,588		OCA-VI-27 OCA-VI-36

(1) PWSA Exhibit EB-2

DEBT SERVICE COVERAGE				
	(1)			
	PWSA		OCA	
	FPFTY 2024	Adjustments	Recommended	References
Operating Revenues	\$ 255,319,047	\$ -	\$ 239,067,140	
ALCOSAN Collections	\$ 92,618,038	\$ -	\$ 92,618,038	OCA-6 26
Revenues	\$ 347,937,085		\$ 331,685,178	I&E RE-15-D
Operating Expenses	\$ (133,581,242)	\$ -	\$ (118,610,090)	
ALCOSAN Charges	\$ (94,684,852)	\$ -	\$ (94,684,852)	
COVID Expenses	\$ (263,215)	\$ -	\$ (131,607)	
Bad Debt Expenses	\$ (5,971,536)	\$ -	\$ (4,636,887)	
Hardship Grant Funding	\$ -	\$ -	\$ -	
Total Expenses	\$ (234,500,845)	\$ -	\$ (218,063,436)	
Add: City Services	\$ 3,419,629	\$ -	\$ 3,232,167	
Revenues Available for Debt Service	\$ 116,855,869	\$ (1,960)	\$ 116,853,909	
Debt Service:				
Existing Debt - Senior Debt	\$ 58,313,859	\$ -	\$ 58,313,859	
Future Debt - Senior Debt	\$ 12,404,232	\$ -	\$ 12,404,232	
WIFIA Loan #1	\$ -	\$ -	\$ -	
Total Senior Debt Service	\$ 70,718,091	\$ -	\$ 70,718,091	
Subordinate Debt	\$ 4,877,900	\$ -	\$ 4,877,900	
Existing Debt - Pennvest	\$ 12,629,321	\$ -	\$ 12,629,321	
Existing Debt - Revolving Debt	\$ 3,000,000	\$ -	\$ 3,000,000	
WIFIA Loan #1	\$ -	\$ -	\$ -	
Future Debt - Pennvest	\$ 5,707,313	\$ -	\$ 5,707,313	
Total Debt Service	\$ 96,932,625	\$ -	\$ 96,932,625	
	\$ -		\$ -	
Senior Debt Service Coverage	1.6524		1.6524	
Total Debt Service Coverage	1.2055		1.2055	

(1) PWSA Exhibit EB-2

CAPEX & TRANSFERS

		(1)			
		PWSA		OCA	
		FPFTY 2024	Adjustments	Recommended	References
	Internally Generated Funds - PAYGO	\$ -		\$ -	
7.50%	Internally Generated Funds - PAYGO (DSIC)	\$ 15,038,462	\$ (5,317,647)	\$ 9,720,815	5.00%
	Other Transfers to Reserves	\$ 1,000,000	\$ -	\$ 1,000,000	OCA 6-32
	Bad Debt Expense	\$ 5,971,536	\$ (1,334,649)	\$ 4,636,887	OCA 6-13
	Damaged Wastewater Service Laterals	\$ -	\$ -	\$ -	
	Hardship Grant Funding	\$ -	\$ -	\$ -	
	Arrearage Funding	\$ 240,000	\$ -	\$ 240,000	
	Stormwater Credit Program Cost	\$ 180,489	\$ -	\$ 180,489	
	Total	\$ 22,430,487	\$ (6,652,296)	\$ 15,778,191	
					OCA-VI-17
					OCA-VI-13

(1) PWSA Exhibit WB-2

PROJECTED CASH FLOW				
	(1)			
	PWSA	Adjustments	OCA	References
	FY 2024		Recommended	
Operating Fund				
Beginning Balance	\$ 87,147,395		\$ 87,147,395	OCA 6-33
Operating Surplus	\$ 44,663		\$ 44,663	
Budgeted Contributions	\$ 1,000,000		\$ 1,000,000	
Contributions to Rate Stabilization Funds	\$ (500,000)		\$ (500,000)	OCA-XV-4
Contributions to Operating Reserve Fund	\$ -			OCA-XV-5
Ending Cash Balance	\$ 87,692,058		\$ 87,692,058	
Unrestricted Cash (Excluding ALCOSAN)	247.5941		279.0856	
Unrestricted Cash (Including ALCOSAN)	145.0103		155.2717	

(1) PWSA Exhibit EB-2

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039919 (SW)
v.	:	R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority	:	R-2023-3039921 (WW)

VERIFICATION

I, Dante Mugrace, hereby state that the facts set forth in my Direct Testimony, OCA Statement 1, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: August 9, 2023
*348460

Signature: *Dante Mugrace*
Dante Mugrace

Consultant Address: PCMG and Associates
90 Moonlight Court
Toms River, NJ 08753

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	)	Docket Nos. R-2023-3039920
v.	)	R-2023-3039921
Pittsburgh Water and Sewer Authority	)	R-2023-3039919

DIRECT TESTIMONY OF

KARL RICHARD PAVLOVIC

**ON BEHALF OF
THE PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE**

August 9, 2023

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I. STATEMENT OF QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Karl Richard Pavlovic. My business address is 22 Brooks Avenue, Gaithersburg, MD 20877.

Q. BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?

A. I am Managing Director of and a Senior Consultant with PCMG and Associates LLC (“PCMG”). PCMG is an association of experts in economics, accounting, finance, and utility regulation and policy, with over 75 years of collective experience providing assistance to counsel and expert testimony regarding the regulation of electric, gas, water, and wastewater utilities.

Q. HAVE YOU PREPARED A SUMMARY OF YOUR QUALIFICATIONS AND EXPERIENCE?

A. Yes. Exhibit KRP-1 to my testimony summarizes my qualifications and experience.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN REGULATORY PROCEEDINGS?

A. Yes. Exhibit KRP-1 also contains a complete list of my engagements as an expert and/or expert witness in matters before state and federal regulatory agencies. I have submitted testimony to the Federal Communications Commission, the Federal Energy Regulatory Commission, the Alaska Public Utilities Commission, the Alberta Utilities Commission, the California Public Utilities Commission, the Kansas Corporation Commission, the Delaware Public Service Commission, the Hawaii Public Utilities Commission, the Maryland Public Service Commission, the Massachusetts Department of Public Utilities, the Illinois Commerce Commission, the Maine Public Utilities Commission, the Missouri

1 Public Service Commission, the North Dakota Public Service Commission, the Public
2 Service Commission of the District of Columbia, and the Pennsylvania Public Utility
3 Commission.

4 **Q. PLEASE SUMMARIZE YOUR REGULATORY EXPERIENCE.**

5 **A.** For over thirty-five years, I have performed analyses and submitted testimony regarding
6 electric, gas and water utility operations, cost of service, rate design, alternative ratemaking
7 mechanisms, and regulatory policy.

8 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA**
9 **PUBLIC UTILITY COMMISSION REGARDING PITTSBURGH WATER AND**
10 **SEWER AUTHORITY?**

11 **A.** Yes. I testified on behalf of the Office of Consumer Advocate regarding PWSA’s Multi-
12 Year Rate Plan (MYRP) and Distribution System Improvement Charge (DSIC) proposals
13 in 2020.¹

14 **II. PURPOSE OF TESTIMONY**

15 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

16 **A.** I am testifying on behalf of the Pennsylvania Office of Consumer Advocate (“OCA”).

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

18 **A.** My testimony addresses in the following order PWSA’s current proposals for (1) a three-
19 year Multi-Year Rate Plan (MYRP) for years 2024, 2025 and 2026; (2) an increase in the
20 Distribution System Improvement Charge (DSIC) percentage from 5% to 7.5%; (3) a
21 reconciling surcharge denominated the Infrastructure Improvement Charge (IIC) to be
22 implemented in years 2025 and 2026; and (4) a reconciling surcharge denominated the

¹ These cases were docketed at Nos. R-2020-3019369, R-2020-3019371 and P-2020-3019019.

1 Customer Assistance Charge (CAC) to be implemented in years 2025 and 2026. These four
2 PWSA proposals are addressed seriatim in Sections III.B through III.E in my testimony
3 below.

4 III. DISCUSSION

5 A. SUMMARY

6 **Q. PLEASE SUMMARIZE THE OVERALL RECOMMENDATION YOU MAKE IN**
7 **YOUR TESTIMONY.**

8 **A.** As detailed below, I recommend that:

- 9 • The Commission deny PWSA's request for a MYRP;
- 10 • The Commission deny PWSA's Petition to increase its DSIC cap from 5% to 7.5%;
- 11 • The Commission deny PWSA's request for approval to institute an IIC; and
- 12 • The Commission deny PWSA's Petition for a CAC.

13 B. MULTI-YEAR RATE PLAN (MYRP)

14 **Q. HAVE YOU EXAMINED AND ANALYZED PWSA'S PROPOSED MYRP?**

15 **A.** Yes. The information regarding PWSA's proposed MYRP is found primarily in the
16 testimonies and exhibits of PWSA Witnesses Barca,² Smith,³ Mechling⁴ and Fay.⁵

² PWSA St. No. 2, pages 44-47; Exhibit EB-2.

³ PWSA St. No. 7, pages 4-7 and pages 47-49; Schedules HJS-21 W, HJS-22 W, HJS-20 WW, HJS-21 WW.

⁴ PWSA St. No. 6, page 24; Exhibits JAM-11 and 12 (water) and JAM-13 and 14 (wastewater).

⁵ PWSA St. No. 9, pages 37-39; Exhibits CF-4 and CF-7.

1 **Q. WHAT IS YOUR OVERALL ASSESSMENT OF PWSA’S PROPOSED MYRP?**

2 A. As I discuss in detail below, PWSA’s proposed MYRP is deficient regarding the statutory
3 and regulatory provisions governing an MYRP. Specifically, the MYRP is deficient
4 measured against most of the cost and rate design, customer impact, administrative
5 efficiency and regulatory lag, and reliability factors that the Commission considers in
6 determining whether an MYRP is just and reasonable. The MYRP is also deficient in that
7 it incorporates no mechanism for ratepayer protections, no role for the Commission to
8 ensure that ratepayers are protected from unwarranted cost and no performance metrics for
9 the Commission’s evaluation. Finally, there are several practical reasons why PWSA is not
10 well-suited for a MYRP. These reasons include that (1) PWSA’s anticipated ownership of
11 its system in 2025 may trigger changes that are not identifiable yet, (2) the potential for
12 amendments or termination of PWSA’s Cooperation Agreement with the City of Pittsburgh
13 to change and impact rates and operations significantly after January 1, 2025; and (3) the
14 risk of ratepayers overpaying if PWSA continues to fail to achieve its projected levels of
15 capital spending.

16 **Q. WHAT ARE THE PENNSYLVANIA STATUTORY PROVISIONS GOVERNING**
17 **A MULTIYEAR RATE PLAN?**

18 A. 66 Pa. C.S. §1330 Alternative Ratemaking for Utilities (Act 2018-58) sets forth the
19 statutory framework for utility MYRP as a form of alternative ratemaking⁶ that is intended
20 to further innovations in utility operations and information technology within the otherwise

⁶ **§1330 (b) Alternative rate mechanisms.**-- (1) Notwithstanding any other provision of law, including, but not limited to, sections 2806.1(k)(2) (relating to energy efficiency and conservation program) and 2807(f)(4) (relating to duties of electric distribution companies), the commission may approve an application by a utility in a base rate proceeding to establish alternative rates and rate mechanisms, including, ... (iv) multiyear rate plans ...

1 traditional regulatory requirement of just and reasonable rates and rate mechanisms.⁷
2 Specifically, §1330 (1) defines an MYRP as extending over a period of years and with a
3 rate adjustment mechanism,⁸ (2) provides for rate base/rate of return recovery under an
4 MYRP except for city natural gas distribution operation recovery under cash flow
5 ratemaking,⁹ (3) provides that capital costs and expenses recovered via an MYRP must be
6 reasonable and prudently incurred and used and useful,¹⁰ and (4) provides that nothing in
7 §1330 may be construed as limiting the Commission’s existing ratemaking authority.¹¹

8 **Q. WHAT ARE THE PENNSYLVANIA REGULATORY PROVISIONS**
9 **GOVERNING A MULTIYEAR RATE PLAN?**

10 **A.** 52 Pa. Code §69.3302 DISTRIBUTION RATES—STATEMENT OF POLICY expands
11 the §1330 policy objectives to include reducing disincentives for promoting §1330
12 objectives, additionally providing incentives to improve system economic efficiency and

⁷ **§1330 (a) Declaration of policy.**--The General Assembly finds and declares as follows:
(1) Innovations in utility operations and information technologies are creating new opportunities for all customers, and it is in the public interest for the commission to approve just and reasonable rates and rate mechanisms to facilitate customer access to these new opportunities while ensuring that utility infrastructure costs are reasonably allocated to and recovered from customers and market participants consistent with the use of the infrastructure.
(2) It is the policy of the Commonwealth that utility ratemaking should encourage and sustain investment through appropriate cost-recovery mechanisms to enhance the safety, security, reliability or availability of utility infrastructure and be consistent with the efficient consumption of utility service.

⁸ **§1330 (f) Definitions.**-- "**Multiyear rate plan.**" A rate mechanism under which the commission sets base rates and revenue requirements for a multiyear plan period and authorizes periodic changes in base rates, including, but not limited to, adjustments to account for inflation and capital investments without the necessity for base rate proceedings during the approved plan period.

⁹ **§1330 (b) Alternative rate mechanisms.**-- (2) An alternative rate mechanism established under this section may include rates under section 1307 (relating to sliding scale of rates; adjustments) or 1308 (relating to voluntary changes in rates) and may provide for recovery of returns on and return of capital investments or, in the case of city natural gas distribution operations, recovery under the cash flow ratemaking method. [I note that while PWSA is not a city natural gas distribution operation, it too utilizes cash flow ratemaking.]

¹⁰ **§1330 (b) Alternative rate mechanisms.**-- (3) Capital costs and expenses recovered through alternative rates and rate mechanisms shall be reasonable and prudently incurred and used and useful in providing service. Nothing in this paragraph shall be construed to prohibit or limit the recovery of revenue, as appropriate, under a commission-approved performance-based rate plan.

¹¹ **§1330 (e) Construction.**--Nothing in this section shall be construed as limiting the existing ratemaking authority of the commission or be construed to invalidate or void any rate mechanisms approved by the commission prior to the effective date of this section.

1 avoiding unnecessary future capital investments, while (1) ensuring adequate utility
2 revenue to maintain the safe, secure and reliable operation of its system and (2) reflecting
3 sound cost of service principles and a rate structure that is just and reasonable and considers
4 customer impacts.¹² The policy statement, 52 Pa. Code §69.3302, also provides 14 factors
5 the Commission may consider in determining just and reasonable alternative distribution
6 ratemaking mechanisms and rate designs.¹³

¹² **§69.3301. Purpose and scope.** Federal and State policy initiatives promote the efficient use of electricity, natural gas and water through technologies and information, including distributed energy resources. The purpose of this policy statement is to invite the proposal, within a utility’s base rate proceeding, of fixed utility distribution ratemaking mechanisms and rate designs that further promote these Federal and State policy objectives, the objectives of 66 Pa. C.S. § 1330 (relating to alternative ratemaking for utilities), and may include reducing disincentives for promoting these objectives, providing incentives to improve system economic efficiency, and avoiding unnecessary future capital investments while ensuring that fixed utilities receive adequate revenue to maintain the safe, secure and reliable operation of their distribution systems. At the same time, an alternative rate design methodology should reflect the sound application of cost of service principles, establish a rate structure that is just and reasonable, and consider customer impacts.

¹³ **§69.3302. Distribution rate considerations.**

(a) In determining just and reasonable alternative distribution ratemaking mechanisms and rate designs that promote the purpose and scope of this statement of policy and the objectives of 66 Pa. C.S. § 1330 (relating to alternative ratemaking for utilities), the Commission may consider, among other relevant factors, the following:

- (1) How the ratemaking mechanism and rate design align revenues with cost causation principles as to both fixed and variable costs.
- (2) How the ratemaking mechanism and rate design impact the fixed utility’s capacity utilization.
- (3) Whether the ratemaking mechanism and rate design reflect the level of demand associated with the customer’s anticipated consumption levels.
- (4) How the ratemaking mechanism and rate design limit or eliminate interclass and intraclass cost shifting.
- (5) How the ratemaking mechanism and rate design limit or eliminate disincentives for the promotion of efficiency programs.
- (6) How the ratemaking mechanism and rate design impact customer incentives to employ efficiency measures and distributed energy resources.
- (7) How the ratemaking mechanism and rate design impact low-income customers and support consumer assistance programs.
- (8) How the ratemaking mechanism and rate design impact customer rate stability principles.
- (9) How weather impacts utility revenue under the ratemaking mechanism and rate design.
- (10) How the ratemaking mechanism and rate design impact the frequency of rate case filings and affect regulatory lag.
- (11) If or how the ratemaking mechanism and rate design interact with other revenue sources, such as Section 1307 automatic adjustment surcharges, 66 Pa. C.S. § 1307 (relating to sliding scale of rates; adjustments), riders such as 66 Pa. C.S. § 2804(9) (relating to standards for restructuring of electric industry) or system improvement charges, 66 Pa. C.S. § 1353 (relating to distribution system improvement charge).
- (12) Whether the alternative ratemaking mechanism and rate design include appropriate consumer protections.
- (13) Whether the alternative ratemaking mechanism and rate design are understandable to consumers.
- (14) How the ratemaking mechanism and rate design will support improvements in utility reliability.

1 **Q. HAS THE COMMISSION PREVIOUSLY APPROVED A MULTIYEAR RATE**
2 **PLAN, AS DEFINED BY 66 Pa. C.S. §1330, FOR A PENNSYLVANIA UTILITY?**

3 **A.** To my knowledge, no. PWSA also indicates that the Commission has not approved a
4 MYRP as defined in the statute.¹⁴

5 **Q. WHAT ARE THE SPECIFICS OF PWSA’S PROPOSED MYRP?**

6 **A.** PWSA’s proposed MYRP has a plan period of three years, FY 2024, FY 2025 and FY
7 2026, and is based on projected revenue requirements for each of the three years with
8 increases of \$48.8 million (22.5%), \$45.4 million (17.8%), and \$53.9 million (17.9%),
9 respectively.¹⁵ The rates for 2024 are based on the COSS applied to the projected 2024
10 revenue requirement.¹⁶ The rates for 2025 are based on the 2024 COSS results applied to
11 the 2025 revenue requirement with adjustments to (a) eliminate the usage allowance, (b)
12 implement the IIC and (c) implement the CAC.¹⁷ The rates for 2026 are projected by
13 applying across the board the 2026 revenue requirement increase of 17.9%.¹⁸

(b) In any distribution rate filing by a fixed utility under 66 Pa. C.S. § 1308 (relating to voluntary changes in rates) that proposes an alternative ratemaking mechanism and rate design, the fixed utility shall explain how these factors impact the distribution rates for each customer class. **Source** The provisions of this § 69.3302 adopted August 23, 2019, effective August 24, 2019, 49 Pa.Bull. 4819

¹⁴ Exhibit KRP-2 (PWSA’s Response to OCA-XVIII-5).

¹⁵ PWSA St. No. 2, page 44, lines 8-9; Smith Direct, PWSA St. No. 7, page 4, lines 4-10.

¹⁶ PWSA St. No. 7, page 3, lines 16-18 and page 4, lines 20-21; see Exhibits HSJ-1, HSJ-23W (water rates), HSJ-23WW (wastewater rates) and HSJ-12SW (storm water rates).

¹⁷ PWSA St. No. 7, page 4, lines 20-23 and page 47, lines 2-22; see Exhibits HSJ-1, HSJ-23W (water rates), HSJ-23WW (wastewater rates) and HSJ-12SW (storm water rates).

¹⁸ PWSA St. No. 7, page 4, lines 24-25 and page 49, lines 2-18; see Exhibits HSJ-1, HSJ-23W (water rates), HSJ-23WW (wastewater rates) and HSJ-12SW (storm water rates).

1 **Q. DOES PWSA’S PROPOSED MYRP INCLUDE AN ANNUAL RECONCILIATION**
2 **MECHANISM FOR PERIODIC CHANGES IN BASE RATES DURING THE**
3 **THREE YEAR PLAN PERIOD OF CONSECUTIVE RATE INCREASES?**

4 **A.** No. PWSA simply proposes second and third rate increases in 2025 and 2026 based on
5 expenses, revenue, and capital debt issuances that it today projects for 2024, 2025 and
6 2026, without proposing any periodic review of its actual expenses, revenues, capital costs,
7 financing needs, quality of service, or other factors in 2024, 2025 and 2026. In other words,
8 PWSA essentially treats each of 2024, 2025 and 2026 as separate fully projected future
9 rate years. As a consequence, should actuals for any of these inputs differ significantly
10 from the projections underlying the MYRP’s rates for 2024, 2025 and 2026, the result will
11 be either under recovery or, more likely, given PWSA’s past performance discussed below,
12 over recovery of PWSA’s actual revenue requirement to the detriment of its customers.

13 **Q. PWSA WITNESS SMITH CITED HIS EXPERIENCE IN CASES BEFORE THE**
14 **RHODE ISLAND PUBLIC SERVICE COMMISSION AND HE OUTLINED THE**
15 **BASIC PROCESS USED IN THOSE CASES TO ENSURE ACCOUNTABILITY BY**
16 **IMPLEMENTING CERTAIN PROTECTIONS FOR VERIFYING COSTS. ARE**
17 **THOSE PROPOSED HERE?**

18 **A.** No. While Witness Smith describes the MYRP process in Rhode Island as consisting of
19 the following 5 steps,¹⁹ he does not support the same process for PWSA.

- 20 1. The utility submits a MYRP application for a rate increase to the Commission.

¹⁹ PWSA St. No. 7, page 5 line 21 to page 6 line 7.

- 1 2. The Commission conducts a full investigation and hearing on the MYRP.
- 2 3. The Commission approves or denies the application. If approved, the first year rates
- 3 are approved and subsequent year rates are tentatively approved.
- 4 4. Before implementing subsequent years' tentatively approved rates, the utility
- 5 submits a compliance filing with information regarding actual cost increases and
- 6 proposed rates designed to recover actual costs.
- 7 5. The Commission either approves the rates or disallows certain costs and adjusts rates.

8 As I explain below, the MYRP that Witness Smith designed for PWSA does not include
9 an adjustment mechanism of the kind he describes in steps 4 and 5 above.

10 **Q. DOES PWSA ARGUE THAT OTHER PORTIONS OF ITS FILING MUST BE**
11 **APPROVED TO SUPPORT THE MYRP?**

12 **A.** Yes. I note here that the testimony of the PWSA witnesses suggest that PWSA considers
13 the reconciling DSIC, IIC and CAC surcharges as components of its MYRP.²⁰ For ease of
14 explication, however, I address each of the three reconciling surcharges in separate sections
15 below. As I recommend that all of these proposals should be denied, it is not necessary for
16 me to evaluate whether and how they may be inextricably intertwined, but I do understand
17 that PWSA has a burden to support each of its proposals on their own merits.

²⁰ PWSA St. No. 2, page 46 lines 15-16 and Exhibit EB-2, page 1 lines 1-7; PWSA St. No. 7, page 47 line 1 to page 48 line 24 and page 49 line 1 to page 50, line and Exhibits HJS-20W, HJS-24W, HJS-19WW and HJS-23WW; PWSA St. No. 6, page 28 lines 15-17.

1 **Q. DID PWSA PROPOSE ANY MINIMAL PERFORMANCE METRICS?**

2 **A.** No. PWSA failed to propose even the basic performance metrics for an MYRP that one
3 would expect, including a process, timeline and adequate processes for reconciliation of
4 PWSA's actual expenses, actual revenues, actual capital costs and measures of system
5 reliability and quality of service. None of these are proposed by PWSA in this case.
6 Additionally, as more fully discussed by OCA Witness Barbara Alexander in OCA
7 Statement No. 5. PWSA has not provided any meaningful assurance or mechanism to meet
8 reasonable customer service and service quality performance. PWSA simply does not
9 propose any performance metrics for the Commission to gauge the accuracy and
10 effectiveness of its MYRP.

11 **Q. TO YOUR KNOWLEDGE, DOES THE PENNSYLVANIA PUBLIC UTILITY**
12 **COMMISSION HAVE A PROCESS OR ANY POLICIES FOR HOW UTILITIES**
13 **ARE OBLIGATED TO SUBSTANTIATE FUTURE RATES OVER THE COURSE**
14 **OF A MYRP?**

15 **A.** No. To my knowledge, there is no process identified that would require PWSA to
16 substantiate future rates for proposed FY 2025 and FY 2026 rates if PWSA's MYRP is
17 approved in this case. If no process exists, it does not appear that ratepayers would be
18 protected against unjust and unreasonable rates.

19 **Q. WHICH OF THE COMMISSION'S §69.3302 FACTORS ARE RELEVANT TO**
20 **THE COMMISSION'S CONSIDERATION OF PWSA'S PROPOSED MYRP?**

21 **A.** Twelve of the Commission's fourteen MYRP factors are relevant to PWSA's MYRP.
22 Factors 6 and 9 concern the operations of electric and gas utilities only. The twelve factors

1 can be grouped under the following four substantive categories of concern. For ease of
2 reference, I have retained the factor numbering in §69.3302.

3 **1. Cost and Rate Design Factors**

4 (1) How the ratemaking mechanism and rate design align revenues with cost
5 causation principles as to both fixed and variable costs.

6 (2) How the ratemaking mechanism and rate design impact the fixed utility's
7 capacity utilization.

8 (3) Whether the ratemaking mechanism and rate design reflect the level of demand
9 associated with the customer's anticipated consumption levels.

10 (4) How the ratemaking mechanism and rate design limit or eliminate interclass
11 and intraclass cost shifting.

12 (5) How the ratemaking mechanism and rate design limit or eliminate disincentives
13 for the promotion of efficiency programs.

14 (7) How the ratemaking mechanism and rate design impact low-income customers
15 and support consumer assistance programs.

16 (8) How the ratemaking mechanism and rate design impact customer rate stability
17 principles.

18 **2. Customer Impact Factors**

19 (12) Whether the alternative ratemaking mechanism and rate design include
20 appropriate consumer protections.

21 (13) Whether the alternative ratemaking mechanism and rate design are
22 understandable to consumers.

23 **3. Reliability Factor**

24 (14) How the ratemaking mechanism and rate design will support improvements in
25 utility reliability.

1 **4. Administrative Efficiency and Regulatory Lag Factor**

2 (10) How the ratemaking mechanism and rate design impact the frequency of rate
3 case filings and affect regulatory lag.

4 (11) If or how the ratemaking mechanism and rate design interact with other
5 revenue sources, such as Section 1307 automatic adjustment surcharges, 66 Pa.
6 C.S. § 1307 (relating to sliding scale of rates; adjustments), . . . or system
7 improvement charges, 66 Pa. C.S. § 1353 (relating to distribution system
8 improvement charge)

9 **Q. DID PWSA ADDRESS HOW ITS PROPOSED MYRP MEETS THESE FACTORS?**

10 **A.** PWSA addressed 10 of these factors with brief assertions that its MYRP satisfies each of
11 the 10,²¹ leaning heavily on factor 10 regarding administrative efficiency.

12 **Q. WHAT IS YOUR ASSESSMENT OF PWSA’S PROPOSED MYRP WITH**
13 **REGARD TO THE COST AND RATE DESIGN FACTORS?**

14 **A.** PWSA asserts that its MYRP (1) permits a better alignment of fixed and variable costs with
15 revenues because rates based on a single test year will diverge from the costs and revenues
16 actually experienced by the utility in subsequent years,²² (2) permits a better alignment
17 with the customers’ anticipated consumption level,²³ (3) will have no impact on its existing
18 low-income customer assistance programs,²⁴ and (4) will provide rate certainty for
19 customers to plan and facilitate investment in water efficiency measures.²⁵

20 Because PWSA’s MYRP does not include an annual reconciliation mechanism, as
21 described above, the first and second assertions are simply false. An annual reconciliation

²¹ PWSA St. No. 2, page 45 line 1 to page 46 line 35.

²² PWSA St. No. 2, page 45 lines 12-20.

²³ PWSA St. No. 2, page 45 lines 27-28.

²⁴ PWSA St. No. 2, page 45 lines 31-32.

²⁵ PWSA St. No. 2, page 46 lines 3-4.

1 mechanism would properly align rates with costs and revenues in 2024, 2025 and 2026 and
2 mitigate any over or under recovery in those years, but that has not been proposed here and
3 there is no process currently in place for the Commission’s oversight.

4 Additionally, as OCA Witness Mierzwa indicated in Statement No. 3, PWSA is currently
5 a party to several wholesale contracts that now obligate PWSA to terms that under-recover
6 it actual costs to provide such service. I understand that Witness Mierzwa recommended
7 that PWSA attempt to renegotiate those contracts as soon as it is possible, and that at least
8 one contract could be renegotiated by 2025. Approving the MYRP now would prohibit
9 PWSA from incorporating any additional contract revenue into FY 2025 or FY 2026 and
10 would continue the inequitable rate treatment even after contract terms may expire.
11 Additionally, Witness Mierzwa indicated that there may be City of Pittsburgh properties
12 that are not yet metered and for which revenue is currently foregone. The Commission’s
13 approval of PWSA’s MYRP may result in an inability to account for unquantified and
14 unknown revenue that the City properties at issue should be paying and carry that lost
15 revenue forward for several more years.

16 In addition, OCA Witness Roger Colton outlines those hardships faced by PWSA’s low-
17 income customers and their ongoing ability to afford essential utility services including
18 PWSA’s services.²⁶ These customers are particularly vulnerable to the risks of
19 overcollection inherent in PWSA’s MYRP.

²⁶ OCA St. 4.

1 **Q. WHAT IS YOUR ASSESSMENT OF PWSA'S PROPOSED MYRP WITH**
2 **REGARD TO THE CUSTOMER IMPACT FACTORS?**

3 **A.** PWSA asserts that its MYRP (1) will assure that the rates are just and reasonable by each
4 year setting the revenue requirement after an examination of PWSA's projected revenues,
5 expenses and cash needs for those years²⁷ and (2) will provide notice of the MYRP to
6 customers and notice prior to the proposed rate increases.²⁸

7 The first assertion is simply false. While PWSA Witness Smith does describe such annual
8 adjustments as part of MYRPs in Rhode Island,²⁹ nowhere in Witness Smith's explanation
9 of the setting of rates for years 2025 and 2026³⁰ is an annual examination of projected
10 revenues, expenses and cash needs even mentioned, let alone explained. I discussed the
11 lack of an annual reconciliation mechanism for PWSA's MYRP above. As regards the
12 second assertion, such notices are required for single-year rate proceedings and therefore
13 do not constitute additional customer protections with regard to PWSA's MYRP.

14 **Q. WHAT IS YOUR ASSESSMENT OF PWSA'S PROPOSED MYRP WITH**
15 **REGARD TO THE RELIABILITY FACTOR?**

16 **A.** PWSA asserts that its MYRP will assure that PWSA will have sufficient revenues to
17 engage in necessary repairs and maintenance and continue to modernize water and
18 wastewater systems, making those systems more reliable.³¹ However, I note that in OCA
19 Statement No. 6, Witness Fought's testimony, he has indicated concerns about PWSA

²⁷ PWSA St. No. 2, page 46 lines 19-23.

²⁸ PWSA St. No. 2, page 46 lines 26-28.

²⁹ PWSA St. No. 7, page 5 line 19 to page 6 line 22.

³⁰ PWSA St. No. 7, page 47 line 1 to page 50 line 2.

³¹ PWSA St. No. 2, page 46 lines 31-35.

1 expending revenue for inequitable surface restoration costs imposed by the City of
2 Pittsburgh. According to Witness Fought, the current arrangement could lead to PWSA
3 customers paying for service restoration of all City streets, and that is one of the reasons
4 that Witness Fought recommended that PWSA be required to amend its Cooperation
5 Agreement with the City when eligible to do so in 2025. The MYRP would be antithetical
6 to providing sufficient revenue for repair and maintenance in this regard, as it appears to
7 carry forward the inequitable restoration costs in each year of the plan term, negating the
8 ability to account for any additional revenue could have if PWSA were renegotiated.

9 **Q. WHAT IS YOUR ASSESSMENT OF PWSA'S PROPOSED MYRP WITH**
10 **REGARD TO THE ADMINISTRATIVE EFFICIENCY AND REGULATORY LAG**
11 **FACTORS?**

12 **A.** PWSA asserts that its MYRP (1) will dramatically reduce the frequency of rate case
13 filings, costs and regulatory lag³² and (2) will work in tandem with PWSA's existing DSIC
14 or any of the new reconcilable charges PWSA is proposing.³³

15 As regards administrative efficiency, PWSA's proposed three-year MYRP would increase
16 administrative efficiency from PWSA's perspective because PWSA would not have to file
17 anything more or do anything more to receive approval of its rates through 2026. Witness
18 Barca asserts that the MYRP's predetermined rates reduce operating uncertainty
19 inefficiency, given PWSA's policy of not placing projects in the capital expenditure budget
20 and beginning construction until rate recovery is assured.³⁴

³² PWSA St. No. 2, page 46 lines 7-8 and page 46 line 38 to page 47 line 11.

³³ PWSA St. No. 2, page 46 lines 15-16.

³⁴ PWSA St. No. 2, page 47 lines 1-11.

1 The price to be paid for this administrative efficiency is that the Commission and ratepayers
2 would be deprived of any oversight of the justness and reasonableness of PWSA's 2024,
3 2025 and 2026 rates through consideration of changing circumstances, including actual
4 expenses, actual revenues, actual capital expenditures, and other factors in 2024, 2025 and
5 2024 to the detriment of its ratepayers and the public interest. Finally, assuming that
6 PWSA would agree to some type of reconciliation process for each year of the MYRP, it
7 would cost PWSA, the Commission, and others time and expense to implement such
8 guardrails. While the resources, time, and financial costs cannot be quantified now because
9 they do not exist, they would be incurred annually for each year of the plan term and would
10 certainly have an administrative burden on all involved.

11 In terms of the question of regulatory certainty, I would also note that PWSA has elected
12 to proceed under the Fully Projected Future Test Year (FPFTY) rules and thus is already
13 getting the advantage of setting rates based on future projections more than a year out from
14 when rates will actually go into effect. With the FPFTY, all parties are asked to project
15 what the world will look like in the future based on the known present. This is difficult
16 enough one-year out, it is close to pure speculation for any period more than that and when
17 coupled with the lack of any ability to correct overcollection in the out years, it shifts all
18 of the risks of this speculation onto customers.

19 **Q. HAVE YOU IDENTIFIED ANY PRACTICAL REASONS WHY PWSA'S MYRP**
20 **SHOULD BE REJECTED?**

21 A. Yes, In addition to the multiple reasons I listed above that warrant rejection of PWSA's
22 MYRP, three other important reasons also support the rejection. The first is that while
23 PWSA's water and wastewater conveyance system is owned by the City of Pittsburgh, that

1 will change not long after the end of the FPFTY in this case. Since 1995, PWSA has
2 assumed responsibility for operating and maintaining the system under a Lease Agreement
3 with the City. Significantly, PWSA intends to purchase the system and become the official
4 owner on September 1, 2025.³⁵ At this time, it is unclear what type of impact PWSA's new
5 ownership of the system assets may have on its financial position and upon its operations,
6 and information about any impact may not be available until PWSA becomes the owner in
7 2025. Because the MYRP does not and cannot account for any such changes, the rate
8 projections it adopts cannot account for any impact.

9 Additionally, while PWSA is subject to the terms of the 2019 Cooperation Agreement with
10 the City, which has the force of law under act 70 of 2020,³⁶ I understand that the agreement
11 may be amended or terminated after January 1, 2025. I also note that in OCA Statement
12 No. 6, OCA Witness Fought has recommended that certain amendments should be made
13 to the Cooperation Agreement to more equitably distribute costs to the City. Because the
14 MYRP cannot capture the rate impact of any changes or termination of the Cooperation
15 Agreement that may be made after January 1, 2025, its projections may be skewed.

16 **Q. DO CONCERNS ABOUT PWSA'S CONSISTENT OVERPROJECTIONS OF ITS**
17 **CAPITAL BUDGET ALSO SUPPORT REJECTION OF ITS MYRP?**

18 A. Yes. PWSA has fallen short of spending its projected capital improvements budget every
19 year from FY 2019-FY 2022.³⁷ As a recent example, for 2022, PWSA projected a spend
20 of \$158,934,290 but it only spent \$111,140,185, meaning that PWSA over projected the

³⁵ PWSA St. No. 1, page 21.

³⁶ PWSA St. No. 1, page 21.

³⁷ Exhibit KRP-6 (PWSA response to I&E RS-1).

1 budget by almost \$48 million (30%). Significantly, PWSA’s capital budget comprises 55%
2 of its total revenue requirement in this case.³⁸ Additionally, PWSA’s capital improvement
3 budget seeks to double its current level of spending.³⁹ The practical reality of these facts is
4 that while PWSA has significantly underspent its capital budget since it became a public
5 utility in 2018, over half of the revenue PWSA now requests is built upon the assumption
6 that PWSA will now not only meet its spending projections but that it will actually double
7 its spending. The continued shortfalls in capital improvement expenditures indicate that
8 PWSA’s projections have been inaccurate and would likely lead to unjust and unreasonable
9 rates if relied upon to now predict rates even further into the future and built on the
10 assumption that PWSA will now double the budget it has failed to meet in the past.

11 **Q. WHAT IS YOUR RECOMMENDATION REGARDING PWSA’S PROPOSED**
12 **MYRP?**

13 **A.** Given all of the deficiencies demonstrated above and in the testimonies of other OCA
14 witnesses, PWSA’s MYRP should not be approved by the Commission. PWSA has elected
15 to proceed under the Commission’s framework for use of a fully projected future test year
16 in rate proceedings and that is the appropriate framework for analyzing rates in this
17 proceeding. Rates should be set based on the FPFTY ending December 31, 2024.

³⁸ PWSA St. No. 2, page 24.
³⁹ PWSA St. No. 2, page 24.

1 **C. DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)**

2 **Q. WHAT IS PWSA’S DSIC PROPOSAL?**

3 **A.** In both PWSA Witness Barca’s testimony and in separately filed petitions which have since
4 been consolidated in this proceeding,⁴⁰ PWSA requests that both its water and wastewater
5 DSIC cap percentages be raised from 5% to 7.5% of other applicable rates and charges
6 revenue. PWSA has also requested a blanket waiver of any requirements of Section 1358
7 and of any other requirements of the Public Utility Code that are necessary to approve its
8 requests.

9 **Q: HAS PWSA PROVIDED ADEQUATE SUPPORT THAT ITS REQUEST FOR A**
10 **7.5% DSIC SHOULD BE GRANTED?**

11 **A:** No. It is my understanding from Counsel at the OCA that to request more than 5%, PWSA
12 must make a specific waiver request. The OCA will address in briefing its position that
13 PWSA did not adequately support its request for waiver. Regardless, I do not believe that
14 there is a factual basis to support a DSIC that is more than 5%.

15 **Q. WHAT IS PWSA’S DSIC?**

16 **A.** PWSA’s DSIC is used by PWSA “to recover the reasonable and prudent costs incurred to
17 repair, Improve or replace eligible property that is part of [its] distribution system.”⁴¹
18 PWSA’s current 5% water and wastewater DSICs are the result of the settlement in
19 PSWA’s 2020 rate case⁴² and are set forth under the title of Surcharges in PWSA’s Water

⁴⁰ PWSA filed both Petitions on May 9, 2023 at Docket Nos. P-2023-3040734 and P-2023-3040735 respectively, and I will refer to these together as its DSIC Petitions.

⁴¹ 66 Pa. C.S. § 1351.

⁴² *Pa PUC v. Pittsburgh Water and Sewer Authority*, Dockets R-2020-3017951, R-2020-3017970 and P-2020-30190190

1 Tariff⁴³ and Wastewater Tariff.⁴⁴ The tariffs specify (1) by plant account number the types
2 of facilities allowed,⁴⁵ (2) calculation of the DSIC costs and DSIC rate,⁴⁶ (3) quarterly
3 updates,⁴⁷ (4) the cap percentage,⁴⁸ and (5) annual audits/reconciliations.⁴⁹ As noted in the
4 tariffs, DSIC costs are recovered from customers by applying the cap percentage to the
5 total amount billed each customer for water and wastewater service under PWSA's
6 otherwise applicable rates and charges.⁵⁰ PWSA uses the revenue recovered through the
7 DSIC for PAYGO, i.e., internally generated, funding of DSIC eligible projects.⁵¹

8 **Q. WHAT ARE THE PENNSYLVANIA STATUTORY AND REGULATORY**
9 **PROVISIONS RELEVANT TO PWSA'S DSIC PROPOSALS?**

10 **A.** 66 Pa. C.S. Chapter 32 Water and Sewer Authorities of the Second Class sets forth the
11 overall statutory requirements for the regulation of a Water and Sewer Authority such as
12 PWSA, specifically providing for (1) on request waiver of any provision⁵² and (2) the
13 establishment of a DSIC.⁵³ 66 Pa CS Chapter 13 Subchapter B Distribution Systems sets
14 forth the DSIC statutory framework. The provisions relevant to PWSA's DSIC proposals
15 define the components and frequency of the calculation of recoverable costs and the DSIC

⁴³ See Exhibit KRP-3 Current Water DSIC Tariff.

⁴⁴ See Exhibit KRP-4 Current Wastewater DSIC Tariff.

⁴⁵ Exhibit KRP-3 Sec. 1.b. and Exhibit KRP-4 Sec. 1.b.

⁴⁶ Exhibit KRP-3 Sec. 2. and Exhibit KRP-4 Sec. 2.

⁴⁷ Exhibit KRP-3 Sec. 2.a and Exhibit KRP-4 Sec. 2.a.

⁴⁸ Exhibit KRP-3 Sec. 4.a and Exhibit KRP-4 Sec. 4.a.

⁴⁹ Exhibit KRP-3 Sec. 4.b and Exhibit KRP-4 Sec. 4.b.

⁵⁰ Exhibit KRP-3 Sec. 2.c and Exhibit KRP-4 Sec. 2.c.

⁵¹ PWSA St. No. 2, page 27 line 23 to page 28 line 4.

⁵² **§3202. Application of provisions of title. (a) Application.-- ... (b) Exception.--**Upon request of an authority, the commission may suspend or waive the applicability of any provision of this title to the authority, except for this section.

⁵³ **§3205. Maintenance, repair and replacement of facilities and equipment. ... (b) Petition.--**An authority may petition the commission for the establishment of a distribution system improvement charge. An authority which establishes a distribution system improvement charge shall comply with all applicable requirements of Subchapter B of Chapter 13 (relating to distribution systems).

1 charge,⁵⁴ provide for audit and annual reconciliation,⁵⁵ and set a percent cap on the amount
2 billed to customers.⁵⁶ 52 Pa. Code §121. DSIC/LTIIP conditions utility DSIC eligibility
3 on an approved LTIIP that accelerates replacement of aging infrastructure⁵⁷ and terminates
4 the DSIC upon a utility's non-compliance with its approved LTIIP.⁵⁸

⁵⁴ **§1357 Computation of charge. (a) Recovery.**--The following shall apply: ... (2) After calculation of the initial charge under paragraph (1), the distribution system improvement charge must be updated on a quarterly basis to reflect eligible property placed in service during the three-month period ending one month prior to the effective date of each distribution system improvement charge update. (3) The fixed cost of eligible property shall consist of depreciation and pretax return, except as provided for in subsection (c) for city natural gas distribution operation.

§1357 Computation of charge. (c) Recovery of costs.--Utilities may file tariffs establishing a sliding scale of rates or other method for the automatic adjustment of the rates of the utility to provide for recovery of the depreciation and pretax return fixed costs of eligible property, as approved by the commission, that are completed and placed in service between base rate proceedings. For city natural gas distribution operations, recoverable costs shall be amounts reasonably expended or incurred to purchase and install eligible property and associated financing costs, if any, including debt service, debt service coverage and issuance costs.

§1357 Computation of charge. (d) Calculation.-- (1) The distribution system improvement charge shall be expressed as a percentage carried to two decimal places and shall be applied in a manner consistent with section 1358 (relating to customer protections) to each customer under the utility's applicable rates and charges. The charge shall not be applied to amounts billed for public fire protection service by water utilities and the State tax adjustment surcharge. (2) The distribution system improvement charge shall be calculated by dividing one-fourth of the annual fixed costs associated with all eligible property under the distribution system improvement charge by the projected revenue for the quarterly period during which the distribution system will be collected. The projected revenues shall not include revenues from public fire protection service earned by water utilities and the State tax adjustment surcharge.

⁵⁵ **§1358 Customer protections. (e) Audit and reconciliation.**--The following shall apply: (1) The distribution system improvement charge shall be subject to the following: (i) Audit at intervals determined by the commission. (ii) Annual reconciliation based on a reconciliation period consisting of the 12 months ending December 31 of each year. The commission may also permit quarterly reconciliation. (2) The revenue received under the distribution system improvement charge for the reconciliation period shall be compared to the utility's eligible costs for that period. The difference between revenue and costs shall be recouped or refunded, as appropriate, in accordance with section 1307(e), over a one-year period or quarterly period commencing April 1 of each year. (3) If revenues received from the distribution system improvement charge exceed eligible costs, the over collections shall be refunded with interest. Interest on the over collections shall be calculated at the residential mortgage lending rate specified by the Secretary of Banking in accordance with the act of January 30, 1974 (P.L.13, No.6), referred to as the Loan Interest and Protection Law, and shall be refunded in the same manner as an over collection.

⁵⁶ **§1358 Customer protections. (a) Limitation.**-- ... (2) A distribution system improvement charge granted to a water utility under former section 1307(g) (relating to sliding scale of rates; adjustments) or this subchapter may not exceed 7.5% of the amount billed to customers.

⁵⁷ **Section 121.1 - Purpose** To be eligible to recover the reasonable and prudently incurred costs regarding the repair, improvement and replacement of eligible property from a DSIC, a utility shall submit an LTIIP for Commission approval. See 66 Pa. C.S. § 1353 (relating to distribution system improvement charge). The LTIIP must show the acceleration of the replacement of aging infrastructure by the utility and be sufficient to ensure and maintain adequate, efficient, safe, reliable and reasonable service to customers.

⁵⁸ **Section 121.8 - Enforcement of LTIIP implementation** (c) The remedy for noncompliance with an approved LTIIP is the termination of the utility's approved DSIC mechanism.

1 **Q. TO WHAT PURPOSE DOES PWSA PROPOSE TO USE ITS PROPOSED**
2 **INCREASE IN THE DSIC CAP FROM 5% to 7.5% IN ITS MYRP?**

3 **A.** PWSA Witness Barca states that PWSA proposes to use the cap increase to (1) accelerate
4 the rate at which projects within its LTIP are completed and (2) increase its internally
5 generated funds.⁵⁹

6 **Q. WHAT IS PWSA’S JUSTIFICATION FOR THE PROPOSED INCREASE OF ITS**
7 **DSIC CAP FROM 5% TO 7.5%?**

8 **A.** Witness Barca presents five arguments purportedly supporting the DSIC cap increase to
9 7.5%.

- 10 1. PAYGO, i.e., internally generated, financing via DSIC revenue is less expensive
11 than long term debt financing. Thus increasing the DSIC Cap from 5% to 7.5%
12 percent will increase the amount of less expensive financing available to PWSA.⁶⁰
- 13 2. PWSA’s Financial Management Policy requires financial performance to be
14 evaluated on an annual basis with the goal of funding at least 10% capital
15 expenditures from PAYGO, i.e., internally generated, funding. Increasing the
16 DSIC cap from 5% to 7.5% will contribute to PWSA’s meeting that goal.
- 17 3. The rate of inflation over the past two years has resulted in the loss of purchasing
18 power at the current DSIC rate of 5%.⁶¹ Increasing the DSIC cap from 5% to 7.5%
19 will make up for that loss of purchasing power.

⁵⁹ PWSA St. No. 2, page 28 lines 5- 15.
⁶⁰ PWSA St. No. 2, page 29 lines 1-13.
⁶¹ PWSA St. No. 2, page 28 lines 7-9.

1 4. PWSA seeks to accelerate the rate at which eligible projects within the LTIP are
2 completed.⁶² Increasing the DSIC cap from 5% to 7.5% will accelerate the
3 completion of DSIC-eligible LTIP projects.

4 5. PWSA also seeks to increase its level of internally generated funds in an effort to
5 reduce its financial leverage or debt ratio.⁶³ Increasing the DSIC cap from 5% to
6 7.5% will reduce PWSA's debt ratio.

7 I will address these arguments seriatim. As explained more fully below, my response to
8 the first argument is that PAYGO funding via the DSIC is inconsistent with Section
9 1357, violating the regulatory principle of ratable recovery of the costs of capital assets.
10 My responses to the other arguments follow thereafter.

11 **Q. IN YOUR OPINION, HAS PWSA DEMONSTRATED THAT INCREASING ITS**
12 **WATER AND WASTEWATER DSICS IS NECESSARY FOR IT TO ENSURE**
13 **AND MAINTAIN ADEQUATE, EFFICIENT, SAFE, RELIABLE AND**
14 **REASONABLE SERVICE?**

15 A. No.

16 **1. DSIC PAYGO Funding**

17 **Q. WHAT IS YOUR RESPONSE TO THE ARGUMENT THAT DSIC PAYGO**
18 **REVENUE IS LESS EXPENSIVE THAN LONG TERM DEBT FINANCING?**

19 A. My response is three-fold. First, DSIC PAYGO recovery is not an option under Section
20 1357(c) and is inconsistent with the recovery options set forth in Section 1357(c). Second,
21 PAYGO DSIC recovery violates the regulatory principle of ratable recovery of the costs

⁶² PWSA St. No. 2, page 28 lines 6-7.
⁶³ PWSA St. No. 2, page 28 lines 9-11.

1 of capital assets, which violation in turn leads to the over recovery of capital costs from
2 current customers and the under recovery of capital costs from later generations of
3 customers in violation of intergenerational equity.⁶⁴ Thus, increasing PWSA’s DSIC cap
4 to 7.5% will only increase the amount of DSIC eligible capital assets the recovery of the
5 costs of which is in violation of the principle of ratable recovery, over recovering capital
6 costs from current customers and under recovering capital cost from future customers.
7 Third, as I explain below in response to PWSA’s other arguments, PWSA’s DSIC is not
8 PWSA’s only option for accessing capital asset financing that is less expensive than long
9 term debt.

10 **Q. IN WHAT WAYS IS PAYGO DSIC FUNDING INCONSISTENT WITH SECTION**
11 **1357?**

12 **A.** Section 1357(c), “Recovery of costs,” states that the costs of a utility’s DSIC eligible assets
13 are to be recovered via depreciation and return over the life of the capital asset. This is not
14 PWSA’s DSIC PAYGO recovery, where the full cost of a DSIC eligible capital asset is
15 recovered from ratepayers at the time that it is incurred.⁶⁵ Section 1357(c) provides for a
16 municipal gas utility to recover long term debt costs of DSIC eligible capital over the term
17 of the debt. This is also not PWSA’s DSIC PAYGO recovery and, in any event, PWSA is

⁶⁴ USEPA-NARUC, Consolidated Water Rates: Issues and Practices in Single-Tariff Pricing, 1999, page 22 – “Economic theory also argues for utility pricing that is *equitable* in terms of allocating costs to those responsible for those costs. In this conception, equity essentially serves efficiency goals. Three kinds of equity can be considered. Horizontal equity suggests that those who impose similar costs should pay the same rate. A related ratemaking principle is that rates should be “nondiscriminatory.” Vertical equity suggests that those who impose different costs should pay different rates that reflect those cost differences. Ratemaking allows for “due discrimination” when costs among customer groups vary substantially. Finally, intergenerational equity considers equity along a temporal dimension, suggesting that one generation of customers should not be forced to cover costs imposed by another generation of customers.”

⁶⁵ PWSA St. No. 2, page 27 lines 7-8; see Exhibit KRP 5 PWSA responses to OCA-XVI-19 and OCA-XVI-20, pages 1 and 2 for water and wastewater, respectively.

1 not a municipal gas utility. Moreover, both options in Section 1357(c) require recovery
2 over a number of years (either asset service life or the term of the debt) which is wholly
3 inconsistent with PWSA's PAYGO recovery of the costs at the time in which they are
4 incurred. From a regulatory perspective, despite the cost savings associated with PAYGO
5 funding, DSIC PAYGO funding of the capital assets listed in PWSA's DSIC tariffs and
6 PWSA's LTIP violates the regulatory principle of ratable recovery of the cost of capital
7 assets.

8 **2. PWSA's Policy goal of funding at least 10% capital expenditures**
9 **from PAYGO**

10 **Q. WHAT IS YOUR RESPONSE TO PWSA's 10% PAYGO CAPITAL**
11 **EXPENDITURE POLICY ARGUMENT?**

12 **A.** My response is that the DSIC is not the only PAYGO financing option available to PWSA.
13 Examination of Witness Barca's MYRP income statements in Exhibit's EB-1 and EB-2
14 reveals that PWSA has two PAYGO funding options for projects in PWSA's current
15 LTIP,⁶⁶ which is also confirmed in Witness Barca's testimony that "PWSA has two
16 sources of internally generated funds within this case."⁶⁷ Those two sources are (1) funds
17 generated through "[tariff] rate dollars" and (2) "DSIC funds." Assuming that there is a
18 sound basis for this PAYGO 10% policy, which Witness Barca does not provide, DSIC
19 PAYGO funding, rather than rate dollar funding, for the capital assets defined in the DSIC
20 tariffs is in clear violation of the principle of ratable recovery and should not be used in
21 pursuit of this unsupported policy.

⁶⁶ Exhibit EB-2, page 1 lines 36 and 37.

⁶⁷ PWSA St. No. 2, page 27 line 21 to page 28 line 4.

1 **3. Inflation Loss of Purchasing Power**

2 **Q. WHAT IS YOUR RESPONSE TO PWSA'S LOSS OF PURCHASING POWER**
3 **ARGUMENT?**

4 **A.** Even assuming that inflation has resulted in a loss of purchasing power, increasing the
5 DSIC cap to 7.5% to make up that loss would be inconsistent with regulatory ratemaking
6 principles. Regulatory ratemaking is on principle forward looking and therefore does not
7 take account of past losses or financial deficiencies. An increase in the DSIC cap cannot
8 be justified as a past shortfall make-up mechanism. Moreover, because the DSIC is
9 calculated by applying the cap 5% to rates, as rates increase the amount recovered by the
10 DSIC will increase as rates increase and account for whatever inflation is reflected in the
11 costs underlying PWSA's rates. Thus, increasing the cap percentage to account for
12 inflation would double dip based on a speculative impact of inflation for which PWSA has
13 not provided quantified evidentiary support.

14 **4. DISC Acceleration of the Completion Rate for LTIP projects**

15 **Q. DOES WITNESS BARCA EXPLAIN HOW INCREASING THE DSIC CAP TO**
16 **7.5% WILL ACCELERATE THE COMPLETION OF LTIP PROJECTS?**

17 **A.** Not in his discussion of the DSIC. However, in his discussion of the MYRP he refers to a
18 PWSA policy to not place projects in the capital expenditure budget and begin construction
19 until rate recovery is assured,⁶⁸ which would explain this, since the DSIC is an ongoing
20 reconcilable charge that assures rate recovery of the costs of DSIC eligible projects. Again
21 assuming that there is a sound basis for this policy, which Witness Barca does not provide,

⁶⁸ PWSA St. No. 2, page 47 lines 1-11.

1 the FPFTY already provides the rate recovery assurance, so there is no need to provide that
2 rate recovery assurance by increasing the DSIC cap from 5% to 7.5%. Additionally, I note
3 that for the last five years, with the benefit of the FPFTY and its ability to implement a full
4 5% DSIC on the first date that new rates go into effect, PWSA has consistently and
5 significantly failed to meet its construction budgets,⁶⁹ which strongly suggests that the
6 purported PWSA policy is not an actual brake on project completion rates and that
7 increasing the DSIC cap will not accelerate project completion rates.

8 **5. Impact on PWSA Debt Ratio**

9 **Q. WHAT SUPPORT DOES WITNESS BARCA PROVIDE REGARDING THE**
10 **DSIC'S IMPACT ON PWSA'S DEBT RATIO?**

11 **A.** Witness Barca states that DSIC PAYGO revenues at the 5% cap have reduced PWSA's
12 debt ratio from 112% in 2018 to 100% in 2022 and that increasing the cap to 7.5% for
13 2024-2026 will further reduce PWSA's debt ratio below 90%.⁷⁰

14 **Q. WHAT IS YOUR RESPONSE TO PWSA'S DEBT RATIO REDUCTION**
15 **ARGUMENT?**

16 **A.** My response is three-fold. First, Witness Barca provides no evidence that debt ratio
17 reduction beyond its current level of 100% is needed. Second, the DSIC is only able to
18 contribute to the reduction of the debt ratio because PWSA uses it as a source of PAYGO
19 funding in violation of the principle of ratable recovery of capital assets. Third, assuming
20 that reducing PWSA's debt ratio is an appropriate regulatory objective for PWSA, as I

⁶⁹ Exhibit KRP-6 (PWSA response to I&E RS-1).

⁷⁰ PWSA St. No. 2, page 28 lines 11 to page 29 line 1.

1 noted above, PWSA has a non-DSIC source of PAYGO funding that it can use to reduce
2 its debt ratio.

3 **Q. WHAT IS YOUR RECOMMENDATION REGARDING PWSA’S REQUEST TO**
4 **INCREASE ITS WATER AND WASTEWATER DISC CAPS TO 7.5%?**

5 **A.** As detailed above, PWSA has not demonstrated a need for the DSIC cap increase, nor has
6 it supported the need for any waivers requested. For that reason, I recommend that the
7 Commission deny PWSA’s request to increase its water and wastewater DSIC caps from
8 5% to 7.5%.

9 **C. INFRASTRUCTURE IMPROVEMENT CHARGE (IIC)**

10 **Q. WHAT IS PWSA’S PROPOSED INFRASTRUCTURE IMPROVEMENT**
11 **CHARGE?**

12 **A.** According to Witness Barca, PWSA’s Infrastructure Improvement Charge (IIC) is an
13 automatic adjustment clause (reconciling surcharge) to recover from customers the
14 principle and interest for PENNVEST loans and Water Infrastructure Finance and
15 Innovation Act (WIFIA) loans for funding significant infrastructure projects.⁷¹ The IIC (1)
16 will become effective in FY 2025, (2) will be reconciled on a semi-annual basis, (3) will
17 automatically adjusted as PWSA obtains new PENNVEST and WIFIA loans, and (4) the
18 amount of the charge to pay for fully amortized loans will be rolled into base rates in
19 subsequent base rate proceeding.⁷² The water and wastewater IIC rates per thousand

⁷¹ PWSA St. No. 2, page 47 line 23 to page 48 line 4; see also Meehling Direct, page 27 lines 15-22 and Exhibits JAM-12 water tariff pages 8B-8D, JAM-14 wastewater tariff pages 9B-9D and JAM-16 storm water tariff pages 8A-8C.

⁷² PWSA St. No. 2, page 48 line 20 to page 49 line 9.

1 gallons for MYRP years 2025 and 2026 will be calculated by calculating the PENNVEST
2 and WIFIA debt service requirement for each year and dividing that amount by projected
3 gallons for each year; the stormwater ICC rates per ERU are calculated by dividing the
4 debt service for PENNVEST and WIFIA funded stormwater projects by the total number
5 of stormwater ERUs.⁷³

6 **Q. WHY IS PWSA PROPOSING THE IIC?**

7 **A.** Witness Barca states that the IIC “will expedite PWSA’s ability to obtain additional low-
8 cost funding through PENNVEST and WIFIA by having a stable revenue source to ensure
9 the required debt covenants and additional bonds test can be met in addition to having funds
10 available to pay annual debt service.”⁷⁴

11 **Q. WHAT IS YOUR RESPONSE TO THESE REASONS?**

12 **A.** Witness Barca appears to be implying that PENNVEST and WIFIA may only lend funds
13 for capital expenditures to PWSA if PWSA can show they will have rate generated revenue
14 that will meet debt covenants and bond test and pay annual debt service. That is why the
15 IIC applies only to PENNVEST and WIFIA loans and has the provision that the IIC charge
16 will be automatically adjusted to reflect new PENNVEST and WIFIA loans as they are
17 obtained. My response is that PWSA has provided no evidence to support of its assertion
18 that the IIC is needed to expedite its obtaining PENNVEST and WIFIA loans. In fact, as
19 PWSA Witness Pickering explained, PWSA has been quite successful in obtaining
20 PENNVEST funding already.⁷⁵ Additionally, I understand that the Commission has

⁷³ PWSA St. No. 7, page 48 lines 7-12 and page 49 line 20 to 50 line 2; see Exhibit Schedules HJS-22W, HJS-21WW and HJS-11SW.

⁷⁴ PWSA St. No. 2, page 48, lines 7-12.

⁷⁵ PWSA St. No. 1, page 26.

1 typically limited any surcharge on PENNVEST recovery for smaller water and wastewater
2 companies.

3 **Q. WHAT IS THE STATUS OF RECONCILING SURCHARGES LIKE THE IIC IN**
4 **REGULATORY THEORY AND PRACTICE?**

5 **A.** The technical term for reconciling surcharges like the IIC is “cost tracker” and cost trackers
6 are viewed with disfavor in both regulatory theory and practice because they allow for the
7 automatic pass through of costs to ratepayers and thus weaken a utility’s incentive to
8 control costs.⁷⁶ A cost tracker is appropriate only under circumstances where the costs in
9 question are (1) largely outside of control of a utility, (2) unpredictable and volatile and (3)
10 substantial and recurring.⁷⁷ By PWSA’s own telling, the costs to be covered by the IIC are
11 (1) wholly under PWSA’s control because PWSA has complete control over whether it
12 enters into a loan agreement with PENNVEST and WIFIA, (2) are not unpredictable and
13 volatile precisely because PWSA has complete control over whether it enters into a loan
14 agreement with PENNVEST and WIFIA and (3) are neither substantial nor unpredictably
15 recurring, precisely again because PWSA has complete control over whether it enters into
16 a loan agreement with PENNVEST and WIFIA. I also note that PWSA has provided no
17 substantive evidence to the contrary.

⁷⁶ Exhibit KRP-7 - “How Should Regulators View Cost trackers?” National Regulatory Research Institute, September 2009, page 4-5.

⁷⁷ Exhibit KRP-7 “How Should Regulators View Cost trackers?” National Regulatory Research Institute, September 2009, page 12 of 23.

1 **Q. DOES THE COMMISSION HAVE ANY POLICY STATEMENTS THAT ARE**
2 **RELEVANT TO PWSA’S IIC PROPOSAL?**

3 **A.** Yes. The Commission has a policy statement, *Treatment of PENNVEST obligations*, at 52
4 PA. Code § 69.363. Under the Commission’s policy statement, water and wastewater
5 companies with outstanding PENNVEST obligations that have not been reflected in rates
6 of future PENNVEST obligations, may establish an automatic adjustment limited solely to
7 the recovery of PENNVEST principal and interest obligations. Rate recovery would only
8 be permitted after receipt of the applicable DEP inspection and final PENNVEST
9 amortization schedule. Finally, PENNVEST obligations should be listed on customers’
10 bills as a separate line item, and any complaints arising under the adjustment clause are to
11 be referred to the Commission’s Office of administrative Law Judge for a hearing and
12 adjudication.

13 **Q. PART OF THE POLICY STATEMENT INDICATES THAT UTILITIES SHOULD**
14 **SEPARATELY IDENTIFY PENNVEST INTEREST CHARGES ON**
15 **CUSTOMERS’ BILLS. IS PWSA PROPOSING TO SEPARATELY IDENTIFY**
16 **PENNSVEST AND WIFIA INTEREST CHARGES ON CUSTOMERS’ BILLS?**

17 **A.** No. Although PWSA Witness Mechling claims that the IIC will provide greater
18 transparency of the costs it is recovering,⁷⁸ she also admits that PWSA is not proposing to
19 separately identify the rates on customer bills.⁷⁹

⁷⁸ PWSA St. No. 6, page 30. Witness Mechling makes the same claim regarding the Customer Assistance Charge I address below.
⁷⁹ PWSA St. No. 6, page 31.

1 **Q. WHAT DO YOU CONCLUDE REGARDING THE IIC?**

2 **A.** I conclude that PWSA has provided no evidence that the IIC is necessary for it to obtain
3 PENNVEST and WIFIA loans at favorable rates, that the IIC will weaken PWSA's
4 incentive to control the costs of its capital assets, and that PWSA has not shown that the
5 IIC is consistent with the Commission's PENNVEST policy statement. Additionally,
6 PWSA's proposal to lump IIC costs into base rates on customers' bills deprives customers
7 of an opportunity to understand the components that comprise their bills and lacks
8 transparency. For these reasons, I recommend that the Commission reject PWSA's
9 proposed Infrastructure Improvement Charge.

10 **D. CUSTOMER ASSISTANCE CHARGE (CAC)**

11 **Q. WHAT IS PWSA'S PROPOSED CUSTOMER ASSISTANCE CHARGE?**

12 **A.** According to Witness Barca, PWSA's Customer Assistance Charge (CAC) is an automatic
13 adjustment clause (reconciling surcharge) to recover from customers (1) the discounts to
14 customers per the Bill Discount Program, (2) the operating costs for the PHG20 Cares
15 team, (3) the costs of PWSA's Hardship Fund and (4) past due arrearages forgiven by the
16 Arrearage Forgiveness Program.⁸⁰ The CAC (1) will become effective in FY 2025, (2) will
17 be adjusted on a semi-annual basis, (3) will be reconciled on an annual basis.⁸¹ The water
18 and wastewater CAC rates per thousand gallons for MYRP years 2025 and 2026 will be
19 calculated by calculating the revenues and costs identified above for each year and dividing
20 that amount by projected gallons for each year; the stormwater CAC rates per ERU are

⁸⁰ PWSA St. No. 2, page 49 lines 12-17.

⁸¹ PWSA St. No. 2, page 49 line 20 to page 50 line 3; see also PWSA St. No. 6, page 28 lines 8-13 and Exhibits JAM-12 water tariff pages 8E-8F, JAM-14 wastewater tariff pages 9E-9F and JAM-16 storm water tariff pages 8D-8E.

1 calculated by dividing the revenues and costs identified above by the total number of
2 stormwater ERUs.⁸²

3 **Q. WHY IS PWSA PROPOSING THE CAC?**

4 **A.** Witnesses Barca and Mechling offer various reasons for gathering the costs of the listed
5 programs together in a reconcilable surcharge. Witness Barca states that PWSA’s customer
6 assistance programs have become increasingly expensive.⁸³ Witness Mechling states that
7 (1) a reconciling surcharge will ensure that PWSA neither under recovers nor over recovers
8 the costs of the programs during the MYRP period because the costs are based on
9 projections⁸⁴ and (2) the CAC supports the MYRP because it will minimize the need to file
10 future rate cases should the actual costs differ from the projected costs.⁸⁵ I note that Witness
11 Mechling’s two reasons appear to be a distinction without a difference.

12 **Q. WHAT IS YOUR RESPONSE TO THESE REASONS?**

13 **A.** That PWSA’s customer assistance costs are growing and that actual costs might differ from
14 projected costs can easily be said of any of PWSA’s costs. That in itself provides no reason
15 to single out these particular costs and include them in a reconciling surcharge.

16 **Q. WHAT IS THE STATUS OF RECONCILING SURCHARGES LIKE THE CAC IN**
17 **REGULATORY THEORY AND PRACTICE?**

18 **A.** As I noted above, the technical term for reconciling surcharges is “cost tracker” and cost
19 trackers are viewed with disfavor in both regulatory theory and practice because they allow

⁸² PWSA St. No. 7, page 48 lines 14-24 and page 49 line 20 to 50 line 2; see Exhibit Schedules HJS-22W, HJS-21WW and HJS-11SW.

⁸³ PWSA St. No. 2, page 49, lines 13-14.

⁸⁴ PWSA St. No. 6, page 27 line 23 to page 28 line 5.

⁸⁵ PWSA St. No. 2, page 28 lines 13-17 and page 29, lines 8-19.

1 for the automatic pass through of costs to ratepayers and thus weaken a utility’s incentive
2 to control costs.⁸⁶ A cost tracker is appropriate only under circumstances where the costs
3 in question are (1) largely outside of control of a utility, (2) unpredictable and volatile and
4 (3) substantial and recurring.⁸⁷ By PWSA’s own telling, the customer assistance costs in
5 the CAC are (1) largely under PWSA’s control because PWSA’s has control over the terms
6 and administration of the customer assistance programs, (2) are not unpredictable and
7 volatile precisely because the administration of the programs is under PWSA’s control and
8 (3) are neither substantial nor unpredictably recurring, precisely again because the
9 administration of the programs is under PWSA’s control. I note that PWSA has provided
10 no substantive evidence to the contrary.

11 **Q. HAS THE COMMISSION RECENTLY REJECTED A PROPOSAL SIMILAR TO**
12 **THE CAC BECAUSE IT WAS NOT CONSISTENT WITH THE PUBLIC UTILITY**
13 **CODE?**

14 A. Yes. As acknowledged by PWSA Witness Mechling, in May of 2022, the Commission
15 rejected Aqua Pennsylvania’s proposal to implement a universal service rider.⁸⁸ The Aqua
16 Order that Ms. Mechling references indicates that the Commission views reconcilable
17 riders as exceptional and that they have been limited essentially to when legislatively

⁸⁶ Exhibit KRP-7 “How Should Regulators View Cost trackers?” National Regulatory Research Institute, September 2009, page 4-5.

⁸⁷ Exhibit KRP-7 “How Should Regulators View Cost trackers?” National Regulatory Research Institute, September 2009, page 8.

⁸⁸ PWSA St. No. 6, page 26, referencing *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Final Order entered May 16, 2022 at Docket Nos. R-2021-3027385 and R-2021-3027286 at 302-320.

1 mandated or when directed by the Commission.⁸⁹ I note that neither of those two criteria
2 are operative for PWSA's CAC.

3 **Q. HAS PWSA REQUESTED ANY WAIVERS RELATED TO THE CAC?**

4 A. Yes. Witness Mechling indicates that PWSA is requesting suspension or waiver of the
5 applicability of the Public Utility Code necessary for PWSA to implement the CAC, citing
6 only the Commission's general authority to suspend or waive the applicability of any
7 provision to PWSA.⁹⁰

8 **Q. DO YOU SUPPORT PWSA'S WAIVER REQUEST?**

9 A. No. Witness Mechling does not specify the provisions for which PWSA requests a waiver
10 and does not provide any substantive reasons for the waiver of the unspecified provisions.
11 For these reasons I do not support PWSA's waiver request.

12 **Q. WHAT DO YOU CONCLUDE REGARDING PWSA'S PROPOSED CAC?**

13 A. I conclude that the CAC will weaken PWSA's incentive to control the costs of its customer
14 assistance programs and that PWSA has made no showing that there are exceptional
15 circumstances that support the CAC. For these reasons I recommend that the Commission
16 reject PWSA's proposed Customer Assistance Charge.

17 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

18 A. Yes. However, I reserve the right to supplement this testimony if further information is
19 provided by PWSA.

⁸⁹ *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Final Order entered May 16, 2022 at Docket Nos. R-2021-3027385 and R-2021-3027286 at 314.

⁹⁰PWSA St. No. 6, page 29 line19 to page 30 line 1.

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KARL RICHARD PAVLOVIC, Ph.D.

Education

Purdue University – MA and Ph.D. in Philosophy

Karl-Ruprecht Universität, Heidelberg, Germany – graduate study

Yale University – BA in Philosophy

Positions

Senior Consultant – PCMG and Associates	2015-Present
Senior Consultant – Snavelly King Majoros and Associates	2010-2014
Director – FTI Consulting	2008-2010
President – DOXA, Inc	1994-2008
Partner – Snavelly King and Associates	1983-1994
Assistant Professor – University of Florida-Gainesville	1978-1983

Professional Experience

Dr. Pavlovic provides clients with economic and policy analyses of commercial operations and expert testimony in support of litigation, negotiation and strategic planning. His analyses and testimony are distinguished by systematic articulation and testing of assumptions, thorough evaluation of data, innovative application of statistical tools and economic principles, and clarity and precision of presentation. Dr. Pavlovic has provided expert testimony on the operations, costs and revenues of gas and electric utilities, the impacts of restructuring wholesale and retail electric markets, effects of mergers, the operation and competitiveness of petroleum and electric markets, the market valuation of crude oil, electric and gas reliability, and the performance of energy efficiency, renewable energy, and peak reduction programs.

Major projects directed by Dr. Pavlovic have included: analytical assistance to counsel and testimony on all aspects of the restructuring of wholesale and retail electric markets in the Eastern Interconnection; technical representation of the District of Columbia People’s Counsel on the DC PSC’s Pepco Productivity Improvement Working Group and various PJM working groups; impact evaluation study of pilot energy efficiency and renewable energy programs in the District of Columbia; analysis of petroleum markets, expert testimony, and coordination of technical testimony in the Trans-Alaska Pipeline quality bank litigation; Independent Technical Review of the economic models used by the US Army Corps of Engineers for the Ohio River System Investment Plan; assistance to a major independent telephone company in the formulation and implementation of corporate strategic plans, applications for long-distance authority, and settlement negotiations with major domestic and foreign carriers.

By education and professional experience Dr. Pavlovic has expertise in formal and mathematical logic, statistics, economics, financial analysis, econometrics, and computer modeling. With 33 years’ experience as a consultant and expert witness, Dr. Pavlovic has in-depth knowledge of

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commercial and industrial operations in the energy, transportation, and telecommunications industries and is familiar with a wide range of experimental and investigative methods in science and engineering.

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Regulatory Projects and Appearances

1. In re: Petition of Middlesex Water Company for an Increase in Rates for Water Service and Other Tariff Changes (2023) - (Appearance: cost of service and rate design on behalf of the Township of East Brunswick, New Jersey)
NJ BPU Docket No. WR23050292
2. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2022 Gas System Enhancement Plan Reconciliation Filing (2023) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 23-GREC-06
3. In re: Petition of Eversource Gas Company of Massachusetts d/b/a Eversource Energy for Approval of its 2022 Gas System Enhancement Plan Reconciliation Filing (2023) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 23-GREC-05
4. In re: Petition of Berkshire Gas Company for Approval of its 2022 Gas System Enhancement Plan Reconciliation Filing (2023) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 23-GREC-02
5. In re: Pittsburgh Water and Sewer Authority General Base Rate Increase Filing (2023) – (Appearance: gas and electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2023-3039920 et al
6. In re: UGI Electric Company General Base Rate Increase Filing (2023) – (Appearance: electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3037368
7. In re: Application of Hawaii Water Service Company, Inc. for Approval of a General Rate Increase for its Pukalani Wastewater Division and Certain Tariff Changes (2023) – (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2022-0186
8. In re: Application of Lanai Water Company, Inc. for Review and Approval of Rate Increases; Revised Rate Schedules; and Changes to its Tariff (2023) – (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2022-0233

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9. In re: Application of Southern Maryland Electric Cooperative, Inc., for Authority to Revise Its Rates and Charges for Electric Service and Certain Rate Design Changes (2023) – (Appearance: cost of service and rate design on behalf of the Maryland Office of the People’s Counsel)
MD PSC Case No. 9688
10. In re: Application of San Diego Gas & Electric Company for Authority to Establish Its Authorized Cost of Capital for Utility Operations for 2023 (2022) – (Appearance: business risk and cost of equity on behalf of Utility Consumers’ Action Network)
CA Public Utilities Commission Application 22-04-012
11. In re: Valley Energy, Inc. General Base Rate Increase Filing (2022) – (Appearance: gas cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3032300
12. In re: Citizens’ Electric Company General Base Rate Increase Filing (2022) – (Appearance: electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3032369
13. In re: PECO Energy Company (Gas Division) General Base Rate Increase Filing (2022) – (Appearance: gas and electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2022-3031113
14. In re: Petition of Eversource Gas Company of Massachusetts d/b/a Eversource Energy for Approval of its 2021 Gas System Enhancement Plan Reconciliation Filing (2022) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 22-GREC-05
15. In re: Petition of Liberty Utilities (New England Natural Gas Company Corp.) d/b/a Liberty for Approval of its 2021 Gas System Enhancement Plan Reconciliation Filing (2022) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 22-GREC-04
16. In re: Petition of Berkshire Gas Company for Approval of its 2021 Gas System Enhancement Plan Reconciliation Filing (2022) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 22-GREC-02

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17. In re: Nova Scotia Power 2022-2024 General Rate Application (2022) - (Appearance: cost of service on behalf of the Nova Scotia Utility and Review Board)
NS UARB M10431
18. In re: the Application of Northern States Power Company for Authority to Increase Rates for Natural Gas Service in North Dakota (2021) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-20-441
19. In re: Application of San Diego Gas & Electric Company for Authority to Establish Its Authorized Cost of Capital for Utility Operations for 2022 and to Reset the Annual Cost of Capital Mechanism (2021) – (Appearance: wildfire risk accounting and ratemaking on behalf of Utility Consumers’ Action Network)
CA Public Utilities Commission Application 21-08-014
20. In re: Petition of HPBS, Inc. for review and approval of Central Scheduling System (CSS) charge increase and revised CSS schedule (2021) – (Appearance: rate design on behalf of the Hawaii Department of Commerce and Consumer Affairs)
HI DCCA Docket No. PTP-2021-001
21. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2020 Gas System Enhancement Plan Reconciliation Filing (2021) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 21-GREC-06
22. In re: Petition of Eversource Gas Company of Massachusetts d/b/a Eversource Energy for Approval of its 2020 Gas System Enhancement Plan Reconciliation Filing (2021) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 21-GREC-05
23. In re: Petition of Berkshire Gas Company for Approval of its 2020 Gas System Enhancement Plan Reconciliation Filing (2021) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-02
24. In re: the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in North Dakota (2021) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Advocacy Staff)
ND PSC Case No. PU-20-441

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25. In re: Pike County Light & Power Company 2020 General Base Rate Increase Filing – (Appearance: gas and electric cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2020-3022134 and R-2020-3022135
26. In re: Young Brothers LLC’s Application for Approval of a New Cost of Service Model (2020) – (Appearance: cost of service on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2020-0135
27. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-06
28. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-05
29. In re: Petition of Berkshire Gas Company for Approval of its 2019 Gas System Enhancement Plan Reconciliation Filing (2020) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 20-GREC-02
30. In re: Pittsburgh Water and Sewer Authority 2020 General Base Rate Increases 2020 – (Appearance: multi-year rate plan and performance-based ratemaking on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket Nos. R-2020-3017970 and R-2020-3017951
31. In re: Commonwealth Edison Company Petition for approval of a Revision to Integrated Distribution Company Implementation Plan Creation of Rate Residential Time of Use Pricing Pilot (“Rate RTOUP”) – On Rehearing (2020) – (Appearance: price signal and customer response on behalf of the Illinois Attorney General)
IL Commerce Commission Docket Nos. 18-1725/18-1824
32. In re: Hawaii Electric Company, Inc. Application for Approval of a General Rate Increase and Revised Rate Schedules and Rules (2019) - (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2019-0085

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33. In re: Application of San Diego Gas & Electric Company for Authority to: (i) Adjust its Authorized Return on Common Equity, (ii) Adjust its Authorized Embedded Costs of Debt and Preferred Stock, (iii) Adjust its Authorized Capital Structure; (iv) Increase its Overall Rate of Return, (v) Modify its Adopted Cost of Capital Mechanism Structure, and (vi) Revise its Electric Distribution and Gas Rates Accordingly, and for Related Substantive and Procedural Relief (2019) – (Appearance: wildfire risk accounting and ratemaking on behalf of Utility Consumers’ Action Network)
CA Public Utilities Commission Application 19-04-017
34. In re: Proposed Amendments to N.J.A.C. 14:9 Adoption of Water and Sewer Uniform System of Accounts (2019) – (Assistance to counsel: water and sewer accounting on behalf of the Division of Rate Counsel)
NJ Board of Public Utilities Docket Nos. WX19050612 and WX19050613
35. In re: Petition of Public Service Electric and Gas Company for Approval of Gas Base Rate Adjustments Pursuant to its Gas System Modernization Program (2019) – (Assistance to Counsel: infrastructure replacement accounting)
NJ Board of Public Utilities Docket No. GE19040522
36. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2018 Gas System Enhancement Plan Reconciliation Filing (2019) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 19-GREC-06
37. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2018 Gas System Enhancement Plan Reconciliation Filing (2019) - (Assistance to Counsel: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 19-GREC-05
38. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2019) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9602
39. In re: PECO Energy Company Non-Bypassable Transmission Service Charge (NBT) Semiannual Adjustment (2019) - (Appearance: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
PA Public Utility Commission Docket No. M-2018-3005860

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40. In re: PECO Energy Company Transmission Formula Rate Application (2018) - (Appearance: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Federal Energy Regulatory Commission Docket ER17-1519-000
41. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2017 Gas System Enhancement Plan Reconciliation Filing (2018) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 18-GREC-06
42. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2017 Gas System Enhancement Plan Reconciliation Filing (2018) - (Appearance: prudence/used and useful, accounting, cost of service and rate design on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 18-GREC-05
43. In re: The Application of the Potomac Edison Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2018) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9490
44. In re: Rate Applications of Kansas City Power & Light – Missouri and Kansas City Power & Light – Greater Missouri Operations (2018) – (Appearance: consolidated operations, cost of service and rate design on behalf of the Missouri Office of Public Counsel)
MO Public Service Commission Case Nos. ER-2018-0145 and ER-2018-0146
45. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2018) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9472
46. In re: Mid-Atlantic Interstate Transmission, L.L.C. 2018 Transmission Formula Rate Protocol Filings (2018) - (Analysis and Advice to Counsel: accounting)
Federal Energy Regulatory Commission Docket ER17-211-000
47. In re: The Gas Company d/b/a Hawaii Gas Application for Approval of Rate Increases and Revised Rate Schedules and Rules (2017) - (Appearance: cost of service and rate design on behalf of the Hawaii Division of Consumer Advocacy)
HI Public Utilities Commission Docket No. 2017-0105
48. In re: Montana-Dakota Utilities Co., Application to Increase Natural Gas Rates (2017) - (Appearance: cost of service and rate design on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-12-813

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49. In re: The Application of Delmarva Power and Light Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2017) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9455
50. In re: Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 17-GREC-06
51. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2016 Gas System Enhancement Plan Reconciliation Filing (2017) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 17-GREC-05
52. In re: In the matter of the application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2017) - (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9447
53. In re: PJM Interconnection, L.L.C. - PECO Energy Company Transmission Formula Rate Application (2017) - (Analysis and Advice to Counsel: accounting, cost of service and rate design)
Federal Energy Regulatory Commission Docket ER17-1519-000
54. In re: Northern Illinois Gas Company d/b/a Nicor Gas Company Proposed General Increase in Gas Rates (2017) - (Appearance: prudence/used and useful and plant accounting re. accelerated asset replacement program on behalf of the Illinois Citizens Utility Board)
IL Commerce Commission Docket No. 17-0124
55. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2017) - (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9443
56. In re: PJM Interconnection, L.L.C. - Rockland Electric Company Transmission Rate Application (2017) (Analysis and Advice to Counsel: accounting, cost of service and rate design on behalf of the New Jersey Division of Rate Counsel)
Federal Energy Regulatory Commission Docket ER17-856-000

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57. In re: PJM Interconnection, L.L.C. - Mid-Atlantic Interstate Transmission, L.L.C. Transmission Formula Rate Application (2016) - (Analysis and Advice to Counsel: accounting, cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Federal Energy Regulatory Commission Docket ER17-211-000
58. In re: The Application of Delmarva Power and Light Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9424
59. In re: The Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electric Energy (2016) – (Appearance: cost of service and rate design on behalf of the Maryland Office of People’s Counsel)
MD Public Service Commission Case No. 9418
60. In re: Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Analysis and Advice to Counsel: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-01
61. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of its 2015 Gas System Enhancement Plan Reconciliation Filing (2016) - (Appearance: prudence/used and useful and plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 16-GREC-05
62. In re: Petition for Approval of Gas Infrastructure Contract Between Public Service Company of New Hampshire d/b/a Eversource Energy and Algonquin Gas Transmission, LLC (2016) - (Appearance: compliance with statutes and regulations, prudence, cost/benefit, and ratemaking on behalf of the New Hampshire Office of Consumer Advocate)
NH Public Utilities Commission Docket No. DE 16-241
63. In re: Central Maine Power Company, Annual Compliance Filing and Price Change (2016) - (Analysis and Advice to Counsel: tax normalization regulatory asset on behalf of the Maine Office of the Public Advocate)
ME Public Service Commission Docket No. 2016-00035
64. In re: Bulletin 2015-10 Generic Proceeding to Establish Parameters for the Next Generation PBR Plans (2016) - (Appearance: productivity adjustments/performance based ratemaking on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20414

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65. In re: Emera Maine, Proposed Rate Increase in Rates (2016) - (Analysis and Advice to to Counsel: evaluation of management audit of implementation of Customer Information System on behalf of the Maine Office of the Public Advocate)
ME Public Service Commission Docket No. 2015-00360
66. In re: The Merger of the Southern Company and AGL Resources Inc. - Joint Application of the Southern Company, AGL Resources Inc., and Pivotal Utility Holdings, Inc., d/b/a Elkton Gas (2015-2016) - (Appearance: earnings, synergy savings, rates, operations, supply procurement, safety, and reliability on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9404
67. In re: Petition of Bay State Gas Company d/b/a Columbia Gas of Massachusetts for Approval of Firm Transportation Agreements with Millennium Pipeline Company, LLC (2015-2016) - (Analysis, Advice to Counsel, and Assistance on Brief: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-142
68. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Precedent Agreements with Millennium Pipeline Company, LLC (2015-2016)
- (Analysis, Advice to Counsel, and Assistance on Brief: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-130
69. In re: Petition of Boston Gas Company and Colonial Gas Company d/b/a National Grid for Approval of Agreements for LNG or Liquefaction Services with GDF Suez Gas NA, LLC; Northeast Energy Center, LLC; Gaz Metro LNG, L.P.; and National Grid LNG (2015- 2016) - (Analysis and Advice to Counsel: compliance with gas supply plan, rates, and reliability on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-129
70. In re: Columbia Gas of Massachusetts CY2014 Targeted Infrastructure Reinvestment Factor Compliance Filing (2015) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 15-55
71. ENMAX Energy Corporation (EEC) 2015-2016 Regulated Rate Option Non-Energy Tariff Application (2015-2016) - (Appearance: cost allocation, rate design, non-energy risk on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Proceeding 20480

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72. In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc. (2014) - (Advice to Counsel: impact on customers on behalf of the New Jersey Division of Rate Counsel)
NJ Board of Public Utilities BPU Docket No. EM1406
73. In re: Application of Baltimore Gas and Electric Company For Adjustments To Its Electric and Gas Base Rates (2014) (Analysis and Advice to Counsel in Settlement: earnings, investment tracker, cost allocation and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9355
74. In re: Columbia Gas of Massachusetts CY2013 Targeted Infrastructure Reinvestment Factor Compliance Filing (2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Massachusetts Attorney General Office of Ratepayer Advocacy)
MA Department of Public Utilities Docket No. D.P.U. 14-83
75. In re: Potential Business Combination of Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. (2014-2015) - (Analysis and Advice to Counsel: impact on rates and consolidation of rates on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.U-33244
76. In the Matter of the Application of Ohio Power Company to Adopt a Final Implementation Plan for the Retail Stability Rider (2014) - (Analysis and Advice to Counsel: rate design)
OH Public Utilities Commission Case No. 14-1186-EL-RDR
77. In re: Examination of Long-Term Natural Gas Hedging Proposals (2014-2015) - (Analysis and Advice to Counsel: natural gas procurement on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.R-32975-LPSC, ex parte
78. In re: 2013 Integrated Resource Planning Process for Southwestern Electric Power Company Pursuant to General Order Dated April, 20, 2012 (2014-2015 - (Analysis and Advice to Counsel: IRP design and evaluation on behalf of the Louisiana Public Service Commission Staff)
LA Public Service Commission Docket No.I-33013 SWEPCO, ex parte
79. In the Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Adopt an Infrastructure Replacement Surcharge Mechanism (2013-2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9332

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80. In the Matter of the Application of Baltimore Gas and Electric Company for Approval of a Gas System Strategic Infrastructure Development and Enhancement Plan and Accompanying Cost Recovery Mechanism (2013-2014) - (Appearance: PBR tracker design/rates, prudence/used and useful, plant accounting on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9331
81. In the Matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates and Miscellaneous Tariff Changes (2013-2014) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Delaware Public Service Commission Staff)
DE Public Service Commission Docket No. 13-115
82. In the Matter of the Application of Northern States Power Company for Authority to Increase Rates for Electric Service in North Dakota (2013) - (Appearance: cost allocation and rate design on behalf of the North Dakota Public Service Commission Staff)
ND Public Service Commission Case No. PU-12-813
83. In the Matter of the Application of Columbia Gas of Maryland, Inc. for Authority to Increase Rates and Charges (2013) - (Appearance: expense tracker design/rates and evaluation on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9316
84. In the Matter of the Application of Baltimore Gas and Electric Company for Adjustment in its Electric and Gas Base Rates (2012) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Maryland Office of People's Counsel)
MD Public Service Commission Case No. 9299
85. In the Matter of the Application of Delmarva Power & Light Company for an Increase in Electric Base Rates and Miscellaneous Tariff Changes (2012) - (Appearance: earnings, investment tracker design/rates, cost allocation and rate design on behalf of the Delaware Public Service Commission Staff)
DE Public Service Commission Docket No. 11-528
86. ENMAX Energy Corporation (EEC) 2012-2014 Regulated Rate Option Non-Energy Tariff Application (2012-2013) - (Analysis and Advice to Counsel: rate design and non-energy risk on behalf of the Alberta Utilities Consumer Advocate)
Alberta Utilities Commission Application #1608745 Proceeding 2069

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87. In the Matter of the Petition of Atlantic City Electric Company for Approval of Amendments to Its Tariff to Provide for an Increase in Rates and Charges for Electric Service Pursuant to *N.J.S.A. 48:2-21* and *N.J.S.A. 48:2-21.1* and for Other Appropriate Relief (2011) - (Analysis and Advice to Counsel: depreciation on behalf of the New Jersey Division of Rate Counsel)
NJ Board of Public Utilities Docket No. ER11080469
88. In the Matter of the Application of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service (2011) - (Appearance: investment tracker design/rates, cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1087
89. Electric Transmission Formula Rate Annual Informational Filing of Central Maine Power Company (2011) - (Advice to Counsel: formula transmission rates, cost allocation and rate design on behalf of the Maine Attorney General)
Federal Energy Regulatory Commission Docket No. ER09-934-000 (2011)
90. Electric Transmission Formula Rate Annual Informational Filing of Bangor Hydro Electric Company (2011) - (Analysis, Report and Advice to Counsel: formula rate on behalf of the Massachusetts Attorney General)
Federal Energy Regulatory Commission Docket No. ER09-938-000
91. Pennsylvania Public Utility Commission Office of Consumer Advocate Office of Small Business Advocate v. City of Bethlehem – Bureau of Water (2011) - (Appearance: cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate)
Pennsylvania PUC Docket Nos. R-2011-2244756, C-2011-2246910, and C-2011- 2248241
92. Southern California Edison Company Transmission Owners Tariff (2011) - (Analysis and Advice to Counsel: depreciation on behalf of M-S-R Public Power Agency)
Federal Energy Regulatory Commission Docket No. ER11-2061-000
93. In the Matter of the Petition of Kansas City Power & Light Company for Determination of the Ratemaking Principles and Treatment that Will Apply to the Recovery in Rates of the Cost to be Incurred by KCP&L for Certain Electric Generation Facilities under K.S.A. 66- 1239 (2011) - (Appearance: advance determination of prudence on behalf of the Kansas Citizens' Utility Ratepayer Board)
Kansas Corporation Commission Docket No. 11-KCPE-581-PRE
94. Midwest Independent Transmission System Operator, Inc., and Ameren Illinois Company (2011) - (Analysis and Advice to Counsel: depreciation on behalf of the Wholesale Distribution Service Customer Group)
Federal Energy Regulatory Commission Docket No. ER11-2788-000

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95. Electric Generation Plant Valuation Study (2010-2012) - (Analysis: generation plant valuation)
California Department of Water Resources
96. Tampa Electric Company Wholesale Power Tariff (2010-2011) - (Analysis and Advice to Counsel: depreciation on behalf of the Orlando Utilities Commission)
Federal Energy Regulatory Commission Docket No. ER10-2061-000
97. Pacific Gas & Electric Company, Transmission Owner Tariff (2010-2011) - (Analysis and Advice to Counsel: depreciation on behalf of the Transmission Agency of Northern California)
Federal Energy Regulatory Commission Docket No. ER10-2026-000
98. Natural Gas Price Forecast Model Consulting (2008-2010) - (line of business development) FTI Consulting
99. Impact Evaluation Study of the District of Columbia Department of the Environment's Two-Year Pilot Reliable Energy Trust Fund Programs (2007-2008) - (Appearance: evaluation of implementation and cost effectiveness of energy efficiency, renewable energy, and demand response pilot programs on behalf of the District of Columbia Department of the Environment)
D.C. Public Service Commission Formal Case No. 945
100. In the Matter of the Application of the Potomac Electric Power Company for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service (2007-2008)- Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1053
101. In the Matter of the Investigation of Interconnection Standards in the District of Columbia (2006) - (Analysis and Advice to Counsel: interconnection standards and tariff design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1050
102. In the Matter of the Investigation into the Omnibus Utility Emergency Amendment Act of 2005, Specifically Regarding the Establishment of the Natural Gas Trust Fund Programs (2006) - (Analysis and Advice to Counsel: program design on behalf of the District of Columbia Department of the Environment)
D.C. Public Service Commission Formal Case No. 1037

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103. Emergency Application of the Potomac Electric Power Company For A Certificate of Public Convenience and Necessity To Construct Two 69kV Overhead Transmission Lines and Notice of The Proposed Construction of Two Underground 230kV Transmission Lines (2005-2006) - (Appearance: facilities need on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1044
104. Investigation Into Potomac Electric Power Company's Distribution Service Rates (2003- 2005) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1032
105. Investigation of the Feasibility of Removing Pre-Existing Aboveground Utility Lines and Cables and Relocating Them Underground in the District of Columbia (2003) - (Analysis and Advice to Counsel: cost/benefit analysis on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1026
106. Guadalupe L. Garcia v. Ann Veneman, Secretary, US Department of Agriculture (2003- 2006) - (Appearance: statistical analysis on behalf of the Plaintiff)
U.S. District Court for the District of Columbia
107. Mirant Corporation, et al., Debtors (2003-2005) - (Analysis and Advice to Counsel: cost of service on behalf of the People's Counsel for the District of Columbia)
U.S. District Court for the Northern District of Texas
108. Complaint: Office of the People's Counsel of the District of Columbia v. Mirant Americas Energy Marketing, L.P. (2003) - (Analysis and Advice to Counsel: cost of service on behalf of the People's Counsel for the District of Columbia)
Federal Energy Regulatory Commission
109. Investigation into the Effect of the Bankruptcy of Mirant Corporation on Retail Electric Service in the District of Columbia (2003-2005) - (Appearance: customer and rate impact on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1023
110. Development and Designation of Standard Offer Service in the District of Columbia (2003- 2007) - (Appearance: cost of service allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1017
111. Independent Review Panel, Project Management Plan, Ohio River Main Stem Study (2003- 2005) - (50 year economic simulation model evaluation)
U.S. Army Corps of Engineers

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112. Investigation into Affiliated Activities, Promotional Practices, and Codes of Conduct of Regulated Gas and Electric Companies (2002-2004) - (Analysis and Advice to Counsel: cost allocation on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1009
113. Independent Review Panel, Ohio River Main Stem Study, System Investment Plan (2001) - (50 year economic simulation model evaluation)
U.S. Army Corps of Engineers
114. Joint Application of PEPCO and New RC, Inc. for Authorization and Approval of Merger Transaction (2001-2002) - (Appearance: cost allocation and affiliate transactions on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 1002
115. Investigation into Explosions Occurring in Underground Distribution Systems of PEPCO (2001-2006) - (Analysis and Advice to Counsel: electric systems operation and planning on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 991
116. Pennsylvania-New Jersey-Maryland Power Pool/PJM LLC (ISO/RTO) (2000-2005) - (Member Working Group technical representation on behalf of The People's Counsel for the District of Columbia)
117. Trans Alaska Pipeline System 1996 Quality Bank Complaint Remand (2000-2008) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
118. Ohio River Main Stem Study, Independent Technical Review (1999) - (50 year economic simulation model evaluation)
U.S. Army Corps of Engineers
119. Investigation of January 1999 Electric Service Interruption (1999-2004) - (Appearance: emergency response evaluation on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 982
120. Trans Alaska Pipeline System 1996 Quality Bank Complaint Appeal (1998-2000) - (Analysis and Advice to Counsel: technical record below on behalf of ExxonMobil)
U.S. Court of Appeals for the District of Columbia

121. Electric Retail Competition Investigation (1997-2006) - (Appearance: electric utility restructuring, electric energy procurement, cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 945
122. Trans Alaska Pipeline System 1996 Quality Bank Complaint (1996-1998) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
123. Trans Alaska Pipeline System 1989 Quality Bank Complaint Remand (1995-1998) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
124. Prudhoe Bay Unit Operating Agreement Hearings (1995) - (Analysis and Advice to Counsel: cost of service on behalf of ExxonMobil)
Alaska Oil and Gas Conservation Commission
125. Prudhoe Bay Unit Natural Gas Liquids Hearings (1995) - (Analysis and Advice to Counsel: liquids valuation on behalf of ExxonMobil)
Alaska Department of Natural Resources/Department of Revenue (1995)
126. Potomac Electric Power Co. 3rd Integrated Least-Cost Plan (1995) - (Appearance: forecast operations and costs on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 917, Phase II
127. All American Pipeline Quality Bank Complaint (1994-1995) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
128. Trans Alaska Pipeline System 1989 Quality Bank Complaint Appeal (1994-1995) - (Analysis and Advice to Counsel: technical record below on behalf of ExxonMobil)
U.S. Court of Appeals for the District of Columbia
129. Investigation of the January 1994 Energy Crisis (1994) - (Appearance: emergency response evaluation on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 936
130. Washington Gas Light Co. Gas Rate Case (1994) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 934

131. Washington Gas Light Co. 3rd Integrated Least-Cost Plan (1994) - (Appearance: forecast operations and costs on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 921
132. Potomac Electric Power Co. Electric Rate Case (1993) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 929
133. Washington Gas Light Co. Gas Rate Case (1993) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 922
134. Trans Alaska Pipeline System Pumpability Complaint (1992) - (Analysis and Advice to Counsel: cost of service and rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission
135. Potomac Electric Power Co. 2nd Integrated Least-Cost Plan (1992) - (Appearance: forecast operations and costs on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 917
136. Potomac Electric Power Co. Electric Rate Case (1992) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 912
137. Potomac Electric Power Co. Fuel Clause Audit and Productivity Improvement Plan (1991- 2005) (Analysis, Participation in Technical Sessions, and Advice to Counsel; electric utility plant investment and operating costs productivity and benefit/cost analysis on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 766
138. Potomac Electric Power Co. Electric Rate Case (1991) - (Appearance: cost allocation and rate design on behalf of the People's Counsel for the District of Columbia)
D.C. Public Service Commission Formal Case No. 905
139. Anchorage Telephone Utility (1991-1995) - (Analysis and Advice to Counsel: cost of service)
Federal Communications Commission
140. Trans Alaska Pipeline System 1989 Quality Bank Complaint (1990-1993) - (Appearance: crude oil valuation and tariff rate design on behalf of ExxonMobil)
Federal Energy Regulatory Commission

PCMG and Associates LLC

141. Telefonica Larga Distancia de Puerto Rico International Service Tariffs (1990-1992) - (Appearance: cost of service and rate design)
Federal Communications Commission
142. Southern Bell Intrastate Depreciation Study (1989-1990) - (Analysis and Advice to Counsel: telecommunications operation)
Florida Public Service Commission
143. Lake Erie Iron Ore Antitrust Litigation: Erie-Western Pennsylvania Port Authority v. Penn Central et al. (1988-1989) - (Analysis and Advice to Counsel: truck operations and damages on behalf of the Norfolk and Western Railroad)
U.S. District Court for the Eastern District of Pennsylvania
144. Unimar International Chapter 11 Reorganization (1988) - (Analysis and Advice to Counsel: cost of service on behalf of Unsecured Creditors)
U.S. Bankruptcy Court for the Western District of Washington at Seattle
145. National Forest Road Cost Analysis System (1986) - (Analysis: cost allocation system design)
U.S. Department of Agriculture, Forest Service
146. Puerto Rico Telephone Company Long Distance Facilities and Service Applications (1985- 1990) - (Appearance: cost of service and rate design on behalf of the Puerto Rico Telephone Company)
Federal Communications Commission
147. All American Cable and Radio/AT&T de Puerto Rico International Rate Complaint (1985- 1990) - (Appearance: cost of service and rate design on behalf of the Puerto Rico Telephone Company)
Federal Communications Commission
148. Caribbean Telecommunications Facilities Planning Docket (1984-1990) - (Appearance: operations forecast and planning on behalf of the Puerto Rico Telephone Company)
Federal Communications Commission

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XVIII (18)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XVIII-5 Has the PA Commission allowed a multi-year rate plan, as defined by 66 Pa. C.S. § 1330, for water / wastewater utilities in the past? If so, please provide the Commission Order or any documentation that the Commission used to support the implementation of a multi-year rate plan. If so, what were the criteria (formula, index or methodology) that were used to develop the rates over the forecasted periods?

Response: No.

Response provided by: Deanne O’Dell, Esq.

Date response provided: July 25, 2023

The Pittsburgh Water
and Sewer Authority

Supplement No. 5
Tariff Water - Pa. P.U.C. No. 1
First Revised Page No. 59
Canceling Original Page No. 59

PART V: SURCHARGES

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)

In addition to the net charges provided for in this Tariff, a charge of 5.0% will apply consistent with the Commission Order dated December 3, 2020 at Docket No. P-2020-3019019, approving the DSIC.

(I)

1. General Description

- a. Purpose: To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements and to develop and implement solutions to regional supply problems.

The costs of extending facilities to serve new customers are not recoverable through the DSIC.

- b. Eligible Property: The DSIC-eligible property will consist of the following:
- Services (account 333000), meters (account 334100) and hydrants (account 335000) installed as in-kind replacements for customers;
 - Mains and valves (account 331800) installed as replacements for existing facilities that have worn out, are in deteriorated condition, or are required to be upgraded to meet under 52 Pa Code § 65 (relating to water service);
 - Main extensions (account 331800) installed to eliminate dead ends and to implement solutions to regional water supply problems that present a significant health and safety concern for customers currently receiving service from the water utility;
 - Main cleaning and relining (account 331800) projects; and
 - Unreimbursed costs related to highway relocation projects where a water utility must relocate its facilities; and
 - Other related capitalized costs.

(I) = Increase

The Pittsburgh Water
and Sewer Authority

Supplement No. 5
Tariff Water - Pa. P.U.C. No. 1
First Revised Page No. 60
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- c. Effective Date: The DSIC will become effective upon one (1) day notice after submission of a compliance tariff in compliance with a Commission order.

2. Computation of the DSIC

- a. Calculation: The DSIC shall be calculated to recover the fixed costs of eligible plant additions that have not previously been reflected in the Authority's rates and have been or are projected to be placed in service in the calendar year in which the DSIC is charged. The DSIC charge shall be levelized so that, on an annual basis, it will collect the recoverable costs for eligible plant additions that have been or are anticipated to be placed in service during the calendar year. DSIC charges shall be reconciled and may be adjusted on a calendar quarter basis for: 1) actual experienced sales volumes; and 2) revisions to projected DSIC eligible capital expenditures.

The dates and types of changes in the DSIC rate will occur as follows:

Effective Date of Change	Date to which DSIC-Eligible Plant Additions Reflected	
April 1	Annual levelized C-factor rate adjustments	
July 1	Optional rate adjustment for +/- 2% over/under collection	(C)
October 1	Rate adjustment for +/- 2% over/under collection	(C)
January 1	Optional rate adjustment for +/- 2% over/under collection	(C)

- b. Recoverable Costs: The recoverable costs shall be amounts reasonably expended or incurred to purchase and install eligible property and associated financing costs, if any, including debt service, debt service coverage, and issuance costs.

(C) = Change

The Pittsburgh Water
and Sewer Authority

Tariff Supplement No. 5
Tariff Water - Pa. P.U.C. No. 1
First Revised Page No. 61
Canceling Original Page No. 61

- c. Application of DSIC: The DSIC will be expressed as a percentage carried to two decimal places and will be applied to the total amount billed to each customer for water service under the Authority's otherwise applicable rates and charges. To calculate the DSIC, one-fourth of the annual recoverable costs associated with all property eligible for cost recovery under the DSIC will be divided by the Authority's projected revenue for water services (including all applicable clauses and riders) for the quarterly period during which the charge will be collected, exclusive of revenues from public fire protection service. (C)
- d. Formula: The formula for calculation of the DSIC is as follows: (C)

$$\text{DSIC} = \frac{\text{DSI} + e}{\text{PQR}}$$

Where:

- DSI = Recoverable costs (defined in Section b. directly above)
- e = the amount calculated under the annual reconciliation feature or Commission audit, as described below.
- PQR = Projected quarterly revenues for distribution service (including all applicable clauses and riders) including any revenue from existing customers plus netted revenue from any customers which will be gained or lost by the beginning of the applicable service period.

3. Quarterly Updates: Supporting data for each quarterly update will be filed with the Commission and served upon the Commission's Bureau of Investigation and Enforcement, the Office of Consumer Advocate, and the Office of Small Business Advocate at least ten (10) days prior to the effective date of the update.

(C) = Change

4. Customer Safeguards

- a. Cap: The DSIC is capped at 5.0% of the amount billed to customers for distribution service (including all applicable clauses and riders), inclusive of amounts billed for annual reconciliation pursuant to the "e" factor set forth above, as determined on an annualized basis.
- b. Audit/Reconciliation: The DSIC is subject to audit at intervals determined by the Commission. Any cost determined by the Commission not to comply with any provision of 66 Pa C.S. §§ 1350, et seq., shall be credited to customer accounts. The DSIC is subject to annual reconciliation based on a reconciliation period consisting of the twelve months ending December 31 of each year. The revenue received under the DSIC for the reconciliation period will be compared to the Authority's eligible costs for that period. The difference between revenue and costs will be recouped or refunded, as appropriate, in accordance with Section 1307(e), over a one-year period commencing on April 1 of each year. If DSIC revenues exceed DSIC-eligible costs, such over-collections will be refunded with interest. Interest on over-collections and credits will be calculated at the residential mortgage lending specified by the Secretary of Banking in accordance with the Loan Interest and Protection Law (41 P.S. §§ 101, et seq.) and will be refunded in the same manner as an over-collection.
- c. Customer Notice: Customers shall be notified of changes in the DSIC by including appropriate information on the first bill they receive following any change. An explanatory bill insert shall also be included with the first billing.
- d. All customer classes: The DSIC shall be applied equally to all customer classes. Provided that, the DSIC will not apply to public fire protection customers.

The Pittsburgh Water
and Sewer Authority

Supplement No. 5
Tariff Wastewater - Pa. P.U.C. No. 1
First Revised Page No. 64
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PART V: SURCHARGES

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)

In addition to the net charges provided for in this Tariff, a charge of 5.0% will apply consistent with the Commission Order dated December 3, 2020 at Docket No. P-2020-3019019, approving the DSIC.

(I)

1. General Description

- a. Purpose: To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements and to develop and implement solutions to regional supply problems.

The costs of extending facilities to serve new customers are not recoverable through the DSIC.

- b. Eligible Property: The DSIC-eligible property will consist of the following:
- Collection sewers, collecting mains and service laterals, including sewer taps, curb stops and lateral cleanouts installed as in-kind replacements for customers; Accounts (360, 361 and 363)
 - Collection mains and valves for gravity and pressure systems and related facilities such as manholes, grinder pumps, air and vacuum release chambers, cleanouts, main line flow meters, valve vaults and lift stations installed as replacements or upgrades for existing facilities that have worn out, are in deteriorated condition or are required to be upgraded by law, regulation or order; Accounts (360, 361, 364 and 365)

(I)= Increase

The Pittsburgh Water
and Sewer Authority

Supplement No. 5
Tariff Wastewater - Pa. P.U.C. No. 1
First Revised Page No. 65
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- Collection main extensions installed to implement solutions to wastewater problems that present a significant health and safety concern for customers currently receiving service from the wastewater utility; Accounts (360, 361 and 363)
 - Collection main rehabilitation including inflow and infiltration projects; Accounts (360, 361 and 363)
 - Unreimbursed costs related to highway relocation projects where a wastewater utility must relocate its facilities; and
 - Other related capitalized costs.
- c. Effective Date: The DSIC will become effective upon one (1) day notice after submission of a compliance tariff in compliance with a Commission order.

2. Computation of the DSIC

- a. Calculation: The DSIC shall be calculated to recover the fixed costs of eligible plant additions that have not previously been reflected in the Authority's rates and have been or are projected to be placed in service in the calendar year in which the DSIC is charged. The DSIC charge shall be levelized so that, on an annual basis, it will collect the recoverable costs for eligible plant additions that have been or are anticipated to be placed in service during the calendar year. DSIC charges shall be reconciled and may be adjusted on a calendar quarter basis for: 1) actual experienced sales volumes; and 2) revisions to projected DSIC eligible capital expenditures.

The dates and types of changes in the DSIC rate will occur as follows:

Effective Date of Change	Date to which DSIC-Eligible Plant Additions Reflected	
April 1	Annual levelized C-factor rate adjustments	
July 1	Optional rate adjustment for +/- 2% over/under collection	(C)
October 1	Rate adjustment for +/- 2% over/under collection	(C)
January 1	Optional rate adjustment for +/- 2% over/under collection	(C)

(C) = Change

Issued: December 16, 2020

Effective:

January 14, 2021

The Pittsburgh Water
and Sewer Authority

Supplement No. 5
Tariff Wastewater - Pa. P.U.C. No. 1
First Revised Page No. 66
Canceling Original Page No. 66

- b. Recoverable Costs: The recoverable costs shall be amounts reasonably expended or incurred to purchase and install eligible property and associated financing costs, if any, including debt service, debt service coverage, and issuance costs.
- c. Application of DSIC: The DSIC will be expressed as a percentage carried to two decimal places and will be applied to the total amount billed to each customer for wastewater service under the Authority's otherwise applicable rates and charges. To calculate the DSIC, one-fourth of the annual recoverable costs associated with all property eligible for cost recovery under the DSIC will be divided by the Authority's projected revenue for wastewater services (including all applicable clauses and riders) for the quarterly period during which the charge will be collected.
- d. Formula: The formula for calculation of the DSIC is as follows:

(C)

(C)

$$\text{DSIC} = \frac{\text{DSI} + e}{\text{PQR}}$$

Where:

DSI = Recoverable costs (defined in Section B. directly above)

e = the amount calculated under the annual reconciliation feature or Commission audit, as described below.

PQR = Projected quarterly revenues for distribution service (including all applicable clauses and riders) including any revenue from existing customers plus netted revenue from any customers which will be gained or lost by the beginning of the applicable service period.

3. Quarterly Updates: Supporting data for each quarterly update will be filed with the Commission and served upon the Commission's Bureau of Investigation and Enforcement, the Office of Consumer Advocate, and the Office of Small Business Advocate at least ten (10) days prior to the effective date of the update.

(C) = Change

4. Customer Safeguards

- a. Cap: The DSIC is capped at 5.0% of the amount billed to customers for distribution service (including all applicable clauses and riders), inclusive of amounts billed for annual reconciliation pursuant to the "e" factor set forth above, as determined on an annualized basis
- b. Audit/Reconciliation: The DSIC is subject to audit at intervals determined by the Commission. Any cost determined by the Commission not to comply with any provision of 66 Pa C.S. §§ 1350, et seq., shall be credited to customer accounts. The DSIC is subject to annual reconciliation based on a reconciliation period consisting of the twelve months ending December 31 of each year. The revenue received under the DSIC for the reconciliation period will be compared to the Authority's eligible costs for that period. The difference between revenue and costs will be recouped or refunded, as appropriate, in accordance with Section 1307(e), over a one-year period commencing on April 1 of each year. If DSIC revenues exceed DSIC-eligible costs, such over-collections will be refunded with interest. Interest on over-collections and credits will be calculated at the residential mortgage lending specified by the Secretary of Banking in accordance with the Loan Interest and Protection Law (41 P.S. §§ 101, et seq.) and will be refunded in the same manner as an over-collection.
- c. Customer Notice: Customers shall be notified of changes in the DSIC by including appropriate information on the first bill they receive following any change. An explanatory bill insert shall also be included with the first billing.
- d. All customer classes: The DSIC shall be applied equally to all customer classes.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XVI**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XVI-19 Please refer to PWSA’s January 1, 2023 Quarterly Distribution System Improvement Charge Water report dated December 15, 2022. Please confirm (1) that the monthly capital project amounts shown on page 2 of 2 of the report are total plant investment costs for each project in each month and (2) that the “Projected Recoverable Costs” on page 1 of 2 are calculated by applying 5.00% to the “Projected Revenues.”

Response:

- 1) Yes.
- 2) Yes.

Response provided by: Edward Barca, Director of Finance

Date response provided: July 10, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XVI**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XVI-20 Please refer to PWSA’s January 1, 2023 Quarterly Distribution System Improvement Charge Wastewater report dated December 15, 2022. Please confirm (1) that the monthly capital project amounts shown on page 2 of 2 of the report are total plant investment costs for each project in each month and (2) that the “Projected Recoverable Costs” on page 1 of 2 are calculated by applying 5.00% to the “Projected Revenues.”

Response:

- 1) Yes.
- 2) Yes.

Response provided by: Edward Barca, Director of Finance

Date response provided: July 10, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
RS-1 to RS-3
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RS-1 Reference PWSA Statement No. 2, p. 22 regarding PWSA’s capital budget. Provide a schedule that shows a comparison of projected capital improvements to actual capital improvements by account number for the water and wastewater systems, separately, on an annual basis for the years ended 2018, 2019, 2020, 2021, and 2022.

Response: See attachment I&E-RS-1.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 5, 2023

Comparison Projected Capital Improvements
to Actual 2018, 2019, 2020, 2021, and 2022

	<u>FY 2018 Actual</u>	<u>FY 2019 Budget</u>	<u>FY 2019 Actual</u>
Water Treatment Plant	7,275,878	15,549,274	15,665,185
Water Pumping and Storage	11,732,850	26,421,559	9,667,165
Water Distribution	27,185,518	69,439,053	55,588,889
Wastewater System	9,225,987	11,509,835	15,152,656
Total	- 55,420,233	122,919,721	96,073,895

*There was no formal Capital Improvement Plan in FY 2018.

Comparison Projected Capital Improvements
to Actual 2018, 2019, 2020, 2021, and 2022

<u>FY 2020 Budget</u>	<u>FY 2020 Actual</u>	<u>FY 2021 Budget</u>	<u>FY 2021 Actual</u>
16,884,025	8,959,256	15,112,066	5,946,283
31,065,447	7,304,722	56,863,770	5,941,184
77,597,135	65,838,953	76,245,552	76,722,470
35,140,573	8,767,047	35,741,675	20,632,500
160,687,180	90,869,978	183,963,063	109,242,437

Comparison Projected Capital Improvements
to Actual 2018, 2019, 2020, 2021, and 2022

FY 2022 Budget	FY 2022 Actual
6,253,411	3,360,755
55,208,438	20,032,802
56,341,652	50,828,845
41,130,789	36,917,782
158,934,290	111,140,185



National Regulatory
Research Institute

How Should Regulators View Cost Trackers?

Ken Costello, Principal

National Regulatory Research Institute

September 2009

09–13

Acknowledgments

The author wishes to thank Mr. Scott Hempling and Mr. Adam Pollock, both of NRRI; Professor Dr. Douglas N. Jones of The Ohio State University; Mr. Michael McFadden of McFadden Consulting Group; Professor Carl Peterson of the University of Illinois Springfield; and Mr. Joseph W. Rogers of the Massachusetts Attorney General Office for their comments on an earlier draft of this paper. The author is responsible for any remaining errors in the document.

Online Access

The reader can find this paper on the Web at
http://www.nrri.org/pubs/gas/NRRI_cost_trackers_sept09-13.pdf.

Executive Summary

A cost tracker allows a utility to recover its actual costs from customers for a specified function on a periodical basis outside of a rate case. This paper discusses the major issues that state public utility commissions face in evaluating the costs and benefits of these devices.

Several state commissions have approved new cost trackers for a wide array of utility functions in both the electric and natural gas sectors. State commissions have traditionally limited the use of cost trackers, partially because of the perception that they create “bad” incentives and shift risks to a utility’s customers. The recent approvals depart from past regulatory practices that sanction trackers only under highly restricted conditions.

The author asserts that state commissions have not given adequate attention to the negative features of cost trackers, which are at odds with the public interest. Specifically, cost trackers diminish the positive effects of regulatory lag and retrospective reviews in deterring utility waste and cost inefficiency. Trackers also could reduce regulatory scrutiny in evaluating cost prudence.

This paper contends that regulators should view cost recovery in a rate case as the “default” practice. A rate case assures scrutiny of a utility’s costs and provides strong motivation for the utility to control those costs between rate cases. The utility therefore bears burden to show why a cost tracker is in the public interest. The utility should demonstrate that it would suffer severe financial difficulties under “extraordinary circumstances” without the tracker.

This paper also recommends that regulators consider the advantages of replacing cost trackers (excluding fuel and purchased gas cost trackers) with a single rate-of-return tracker in the form of an earnings-sharing mechanism. This alternative can overcome some of the problems with cost trackers, namely perverse or weak incentives for cost control, the mismatching of total costs and revenues, and inadequate regulatory oversight of costs. An earnings-sharing mechanism also achieves the major objective of cost trackers, which is to prevent a utility from suffering serious financial problems between rate cases.

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How Should Regulators View Cost Trackers?

This paper discusses the major issues regulators face in evaluating the costs and benefits of cost trackers.¹ This paper responds to state public utility commissions' recent actions in approving new cost trackers for a wide array of utility functions in both the electric and natural gas sectors. Historically, state commissions have limited the use of cost trackers, partially because of the perception that they create "bad" incentives and shift risks to a utility's customers. The recent approvals differ from past regulatory practices that sanctioned trackers only under highly restricted conditions.

The author contends that state commissions have not given adequate attention to the negative features of cost trackers. By conflicting with certain regulatory objectives, cost trackers thwart the public interest. Cost trackers undercut the positive effects of regulatory lag and retrospective reviews in deterring utility waste and cost inefficiency. They also could lessen regulatory scrutiny in evaluating the prudence of costs.

This paper defines cost trackers and discusses how they benefit utilities. It then provides the rationales for cost trackers and how they relate to regulatory principles for cost recovery. The paper examines two scenarios; in the first, regulators allow comprehensive cost trackers, while in the second they allow none. The paper ends by recommending a regulatory policy and identifying questions regulators should ask when investigating cost trackers.

I. The Definition and Mechanics of a Cost Tracker

A cost tracker allows a utility to recover its actual costs from customers for a specified function on a periodical basis outside of a rate case.² A tracker, in other words, involves the recovery of a utility's actual costs in the periods between rate cases. These costs could include

¹ Regulators sometimes refer to cost trackers as "riders."

² A cost tracker can either provide interim rate relief for a utility or be a permanent fixture that adjusts rates between rate cases based on upward and downward movements in those costs specified in a tracker. As an alternative to a cost tracker, a utility can file for emergency rate relief whenever it encounters a serious financial problem. The commission can specify conditions under which a utility can file an emergency or interim rate filing petitioning for immediate rate relief. This paper does not examine the different regulatory approaches to relieving utilities of any temporary or more permanent serious financial problems. Such a study could compare each approach, including cost trackers, based on its effect on different regulatory objectives.

those that deviate from some baseline or are zero-based.³ Baseline costs, for example, could include bad debt costs⁴ reflected in present rates as determined in the last rate case. A cost tracker could allow adjustments in rates when actual bad-debt costs depart from the baseline level. These adjustments would occur periodically as prescribed previously by a commission.

To benefit customers when actual cost falls below the baseline level, a cost tracker must be “symmetrical.” The unpredictability of a cost item—which, as this paper discusses later, is one underlying rationale for a cost tracker—means that test-year cost estimates can overstate or understate the actual costs. Virtually all fuel and purchased gas cost trackers are symmetrical, with customers benefiting when commodity-energy costs fall (e.g., since the autumn of 2008).

Cost trackers also could apply to all of the costs associated with a particular business function or task. Under this zero-based approach, for example, the entire cost of a gas utility’s new investments in upgrading the safety of its distribution system would be amortized and recovered later from customers in lieu of inclusion in base rates. The same cost recovery procedure can occur for a utility’s energy-efficiency initiatives.

Some cost trackers, such as fuel adjustment clauses (FAC) and purchased gas adjustments (PGAs), adjust rates in response to changes in the price of fuels used by generating facilities and purchased gas for gas utilities.⁵ Certain cost trackers approved over the last couple of years allow for rate adjustments when the cost for a particular business function, for whatever reason, changes. A tracker for bad debt, for example, does not distinguish between an increase because of a greater number of nonpaying customers or higher debt per customer.

³ “Zero-based” refers to *all* the costs associated with a specific function, rather than just increments or decrements from test-year costs.

⁴ These costs represent money owed by customers to a utility that the utility has determined to be uncollectible.

⁵ NRRI has conducted several studies on FACs and PGAs. *See*, for example, Robert E. Burns, Mark Eifert, Peter Nagler, *Current PGA and FAC Practices: Implications for Ratemaking in Competitive Markets* (Columbus, Ohio: NRRI, November 1991), NRRI 91-13; Robert E. Burns and Mark Eifert, “Designing Fuel and Purchased Gas Adjustment Clauses to Provide for Incentive Compatibility in a More Competitive Environment,” *Proceedings of the Eighth NARUC Biennial Regulatory Information Conference* (Columbus, Ohio: NRRI, September 1992); Kevin A. Kelly, Timothy Pryor, Nat Simons, *Electric Fuel Adjustment Clause Design* (Columbus, Ohio: NRRI, 1979), NRRI 79-3; and Douglas N. Jones, Russell J. Profozich, Timothy Biggs, *Electric and Gas Utility Rate and Fuel Adjustment Clause Increases, 1978 and 1979* (Columbus, Ohio: NRRI, 1981), NRRI 81-5.

II. Principles for Cost Recovery

A. “Reasonable opportunity” criterion

State commissions have applied myriad criteria for utility cost recovery. Regulators are legally bound to allow utilities the opportunity to recover prudently incurred costs. Prudent costs reflect utility management that makes rational and well-informed decisions. The word “opportunity” can refer to the utility having a good chance of earning its authorized rate of return and is distinct from an entitlement.⁶ “Earning the authorized rate of return” means that the utility recovers its prudent variable costs (e.g., operations and maintenance) and earns a return of and on prudently incurred fixed costs, including its cost of capital as determined in the last rate case.

B. Incentive effects of cost trackers

Commissions traditionally allow cost recovery only after a rate case review. Other alternatives such as a cost tracker would require that a utility show violation of the “opportunity” condition for particular cost items. A violation can occur when a certain cost is substantial, unpredictable, and generally beyond a utility’s control. Other than costs relating to fuel and purchased power and gas, few other costs fall within the confines of “special circumstances.”⁷ Parties to regulatory proceedings naturally disagree over when these circumstances exist. To clarify their positions to utilities, intervening groups, and the general public, commissions should consider issuing policy statements articulating standards for the recovery of costs through trackers.

Regulators, until recently, have taken a cautious approach to trackers, partially because they weaken the incentive of a utility to control its costs.⁸ Controlling utility costs is a primary

⁶ One interpretation is that the utility earns its authorized rate of return over a number of years, rather than each year. Regulators, investors, and utilities do not expect uniform rates of return across years. Instead, they ostensibly presume that in some years the rate of return will be below the authorized level, while in other years it would be above the authorized level. Regulators, for example, set rates based on “normal” weather. They expect that summer weather will be hotter than normal in some years and cooler than normal in others. For a typical electric utility, having a hotter-than-normal summer and a cooler-than-normal summer often means the utility earns a high rate of return and a low rate of return for those years respectively. But regulators expect normal weather over a number of years.

⁷ An exception also might include the costs associated with a major storm causing extensive damage to a utility’s infrastructure.

⁸ The cost trackers discussed in this paper assume price adjustments based on changes in the actual cost of the utility. If instead price adjustments relate to cost changes for a peer group or other factors outside the control of the utility, the incentive problems identified in this paper would mostly disappear. Some cost trackers attempt to incorporate benchmarks that reflect performance exogenous to an individual utility. Defining the appropriate benchmark is a crucial but difficult task in designing a performance-based tracker. *See*, for example, Ken Costello and

objective of regulators because it contributes to lower rates and reflects efficient utility management. Cost trackers can, in various ways, result in higher utility costs.⁹ First, they undercut the positive effects of regulatory lag on a utility's costs. "Regulatory lag" refers to the time gap between when a utility undergoes a change in cost or sales levels and when the utility can reflect these changes in new rates. Economic theory predicts that the longer the regulatory lag, the more incentive a utility has to control its costs; when a utility incurs costs, the longer it has to wait to recover those costs, the lower its earnings are in the interim. The utility, consequently, would have an incentive to minimize additional costs. Commissions rely on regulatory lag as an important tool for motivating utilities to act efficiently.¹⁰ As economist and regulator Alfred Kahn once remarked:

Freezing rates for the period of the lag imposes penalties for inefficiency, excessive conservatism, and wrong guesses, and offers rewards for their

James F. Wilson, *A Hard Look at Incentive Mechanisms for Natural Gas Procurement*, NRRI 06-15, November 2006, at <http://www.nrri.org/pubs/gas/06-15.pdf>.

⁹ Theoretical and empirical studies provide some evidence of the incentive problems associated with one kind of cost trackers, FACs. See, for example, David P. Baron and Raymond R. DeBont, "Fuel Adjustment Mechanisms and Economic Efficiency," *Journal of Industrial Economics*, Vol. 27 (1979): 243-69; David P. Baron and Raymond R. DeBont, "On the Design of Regulatory Price Adjustment Mechanisms," *Journal of Economic Theory*, Vol. 24 (1981): 70-94; David L. Kaserman and Richard C. Tepel, "The Impact of the Automatic Adjustment Clause on Fuel Purchase and Utilization Practices in the U.S. Electric Utility Industry," *Southern Economics Journal*, Vol. 48 (1982): 687-700; and Frank A. Scott, Jr., "The Effect of a Fuel Adjustment Clause on a Regulated Firm's Selection of Inputs," *The Energy Journal*, Vol. 6 (1985): 117-126. The first two studies applied a general model to show that FACs tend to cause a utility to overuse fuel relative to other inputs, pay more for fuel prices, and choose non-optimal, fuel-intensive generation technologies. The third study provided empirical support for this prediction. The fourth study showed that some types of FACs cause bias in fuel use and that FACs in general weaken the incentive of a utility to search for lower-priced fuel. It provided empirical evidence that electric utilities with an FAC pay higher fuel prices than utilities without an FAC.

¹⁰ Regulatory lag is a less-than-ideal method, however, for rewarding an efficient, and penalizing an inefficient, utility. Some of the additional costs could fall outside the control of a utility (e.g., increase in the price of materials), and any cost declines might not correlate with a more managerially efficient utility (e.g., deflationary conditions in the general economy). As discussed elsewhere in this paper, regulators are more receptive to cost trackers when: (1) regulatory lag can cause a substantial movement in a utility's rate of return between rate cases, and (2) the utility has little control over how much its actual costs will deviate from its test-year costs.

opposites; companies can for a time keep the higher profits they reap from a superior performance and have to suffer the losses from a poor one.¹¹

Rational utility management, as a general rule, would exert minimal effort in controlling costs if it has no effect on the utility's profits.¹² This condition occurs when a utility is able to pass through (with little or no regulatory scrutiny) higher costs to customers with minimal consequences for sales. Cost containment constitutes a real cost to management. Without any expected benefits, management would exert minimum effort on cost containment. The difficult problem for the regulator is to detect when management is lax. Regulators should concern themselves with this problem; lax management translates into a higher cost of service and, if undetected, higher rates to the utility's customers. Regulators should closely monitor and scrutinize costs, such as those subject to cost trackers, that utilities have little incentive to control.

When mechanisms for cost recovery differ across functional areas, perverse incentives can arise that would make it profitable for the utility not to pursue cost-minimizing activities.¹³ The result is higher rates to utility customers. A utility with a FAC might postpone maintenance of a power plant even when it would cost less than the savings in fuel costs. The utility could not immediately (or even at any time) recover additional maintenance costs, while it could pass the higher fuel costs through the FAC.

Cost trackers, in the long run, can bias a utility's technological and investment decisions. A utility recovering fuel costs through a FAC, for example, might want to adopt fuel-intensive generation technologies even if they are more expensive from a life-cycle perspective.¹⁴ The result, again, is higher rates to utility customers.

¹¹ Alfred E. Kahn, *Economics of Regulation, Vol. 2* (New York: John Wiley & Sons, 1971), 48.

¹² I assume here that reducing cost has no effect on the quality or quantity of utility service. Controlling costs, therefore, refers to eliminating or reducing "wasteful" expenses that would result in no decline in the value of utility service. The author imagines a situation in which utilities would attempt to defer maintenance costs until the commission sets new base rates that account for those costs.

¹³ In the example above, regulators could eliminate any perverse incentive by simply allowing a cost tracker for maintenance expenses.

¹⁴ See, for example, the Baron and DeBondt studies cited in footnote 9.

Cost trackers also could motivate utilities to shift more of their costs to functions subject to trackers.¹⁵ They might, for example, want to classify routine maintenance costs as a capital expense that receives tracker cost recovery. Such shifts could lead to earning an excessive rate of return. Regulators implementing trackers should carefully define applicable costs. They should also examine costs claimed under trackers to ensure that the utility recovers only appropriate costs through the tracker.¹⁶

An important incentive for cost control by regulated utilities is the threat of cost disallowance from retrospective review.¹⁷ To the extent that cost trackers dilute the frequency and quality of these reviews, further erosion of incentives for cost control occurs. With less regulatory oversight and auditing, which often accompany rate cases, a utility might have less concern over the costs it incurs. Regulators have long recognized the importance of retrospective reviews in motivating a utility to avoid cost disallowances from grossly subpar performance.

If a utility has a number of cost trackers, the regulator might want to consider staggering the timing of retrospective reviews to avoid having inadequate staff resources to review the adjustments for individual cost trackers. Some utilities have comprehensive trackers that recover a wide array of costs (e.g., purchased gas, bad debt, energy-efficiency activities, and environmental activities). For these trackers, it would be especially challenging for a regulator to conduct an adequate retrospective review of each item simultaneously.¹⁸

A contradiction seemingly exists between the criterion that trackers should apply only to those costs beyond the control of a utility and the assertion that the modified incentives caused by trackers can lead to inflated costs. One response is that a utility has at least some control over most of its costs. Except for certain taxes and some other cost items, the actions of utility

¹⁵ One example is when a tracker for new capital expenditures creates an incentive for a utility to shift labor costs from maintenance to capital projects. In this instance, the utility can schedule employees to work on the capital projects, and maintenance is delayed. The utility consequently reduces its maintenance costs and thereby keep the savings, and increase its capital expenditures, which it recovers through the tracker. I thank Michael McFadden for this example.

¹⁶ I thank Adam Pollock for this insight.

¹⁷ Many regulatory experts view retrospective reviews as dissuading a utility from poor decisions with the threat of a penalty—for example, making the utility more diligent and careful in its planning and procurement. Given asymmetric information, where a utility knows more about its operations and market supply/demand conditions than the commission, some analysts characterize retrospective views as a second-best mechanism to market-like incentives. For most gas utilities, the strong incentives for controlling purchased gas costs derive mainly from the time lag between the incurrence of a cost and its recovery from retail customers, and regulatory prudence reviews where, for example, abnormal costs attract special attention and a review.

¹⁸ I thank Joseph Rogers for this insight.

management can affect costs. Even for fuel or purchased gas, utility management's actions can affect their total costs. Although for the most part the marketplace determines the price paid for these items, utilities can negotiate prices under long-term contracts and decide on the mix and sources of different fuels and purchased gas.¹⁹

Commissions also tend to avoid cost recovery that results in radical price volatility to utility customers. Such a policy could preclude monthly price adjustments from changes in fuel costs or purchased gas costs. It also might result in a phase-in of the construction costs of a new base-load-generating facility.

III. Utilities' Perspective on Cost Trackers

Under traditional ratemaking, the utility recovers all costs after a rate case review. It requires no commission activity between rate cases. Traditional ratemaking provides base rates based on the test year. A commission relies heavily on cost-of-service studies to determine base rates. Base rates have two characteristics: (1) a commission sets them in a formal rate case, and (2) they remain fixed until the utility files a new rate case and the commission makes a subsequent decision. The costs represent those calculated for a designated test year and exclude those costs recovered in trackers and other mechanisms. No matter how much the actual utility's costs and revenues deviate from their test-year levels, rates remain fixed until the commission approves new ones in a subsequent rate case. The exception is when a commission allows for interim rate relief under highly abnormal conditions that jeopardize a utility's financial condition.

Utilities have argued that a more dynamic market environment, characterized by the increased unpredictability and volatility of certain costs, justifies the recovery of certain costs through a tracker rather than in base rates.²⁰ Utilities have also asserted that the static nature of the "test year" sometimes denies them a reasonable opportunity to earn their authorized rate of return. They contend that cost trackers advance the ratemaking goals by matching revenues to actual costs.

In contrast to base rates, cost trackers offer a utility the advantages of: (1) shortening the time lag between the incurrence of a cost and its recovery in rates (i.e., curtailing regulatory lag),

¹⁹ A utility, for example, might be lax in finding the best deals for gas supplies, in applying more resources by employing more highly qualified staff, or in acquiring superior market intelligence. See, for example, Ken Costello, *Gas Supply Planning and Procurement: A Comprehensive Regulatory Approach*, NRRI 08-07, June 2008, at http://nrri.org/pubs/gas/Gas_Supply_Planning_and_Procurement_jun08-07.pdf.

²⁰ See, for example, Russell A. Feingold, "Rethinking Natural Gas Utility Rate Design: A Framework for Change," presented at the American Gas Foundation Executive Forum, held at The Ohio State University, May 23, 2006.

(2) increasing cost-recovery certainty,²¹ and (3) lessening the regulatory scrutiny of its costs. Normally, in a rate case a regulator closely reviews the utility's costs before approving them for recovery from customers. Regulators often less rigorously scrutinize a utility's costs when recovered through a tracker.²² Overall, cost trackers lower a utility's financial risk by stabilizing its earnings and cash flow.

Utilities increasingly have asked their state public utility commissions to depart from traditional regulation by approving new cost-recovery mechanisms for different business activities. Some gas utilities want to expand the scope of their PGA clauses to include a wider array of costs. Current cost trackers in the natural gas sector, other than those for purchased gas costs, apply to functions including pipeline integrity management, pipeline replacement costs (e.g., accelerated cast iron main replacement program), bad debt, energy-efficiency costs, general infrastructure costs, manufactured gas plant remediation, stranded restructuring costs, property taxes, post-retirement employee benefits, and environmental costs.

IV. Regulatory Rationales for Cost Trackers

A. "Extraordinary circumstances"

State commissions have traditionally approved cost trackers only under "extraordinary circumstances." Commissions recognize the special treatment given to costs recovered by a tracker; they consider cost trackers an exception to the general rule for cost recovery. This view places the burden on a utility to demonstrate why certain costs require special treatment.

The "extraordinary circumstances" justifying most of the cost trackers that commissions have historically approved have been for costs that are: (1) largely outside the control of a utility, (2) unpredictable and volatile,²³ and (3) substantial and recurring. Historically, commissions required that all three conditions exist if a utility wanted to have costs recovered through a tracker. Fuel costs were a good candidate because of their influence by factors beyond

²¹ Between rate cases, for example, a utility might incur costs unanticipated by the test-year calculation and thus not recovered from its customers.

²² The regulator, for example, might have less time to review these costs or just might consider them too unimportant to warrant a separate review. Another explanation might be that rate cases are transparent and well-publicized, putting pressure on regulators to closely review all aspects of a rate case filing. These reasons are just the author's speculations. A pertinent research question is whether this hypothesis has validity.

²³ Even if the forecast of a cost item is highly accurate in the long run, it can fluctuate widely in the short run, causing possible serious cash-flow problems for the utility. The utility might then have to purchase short-term debt and other financing. The author thanks Carl Peterson for this insight.

the control of a utility, their volatility, and their large size. Commissions recently have approved cost trackers when not meeting all three conditions, especially the third (substantial and recurring costs).²⁴

The last “extraordinary circumstance,” substantial and recurring costs, greatly restricts the costs eligible for cost tracker recovery. Differences between their test year and actual cost can have a material effect on a utility’s rate of return. Legal precedent dictates that regulators must set reasonable rates that allow a prudent utility to operate successfully, maintain its financial integrity, attract capital, and compensate its investors commensurate with the risks involved.²⁵ A utility should recover revenues in excess of its operating expenses to provide a “fair return” to investors. Businesses including utilities need to earn a profit to compensate investors for business, financial, and other risks.²⁶

Some state commissions have softened or ignored the “substantial and recurring” component of the “extraordinary circumstances” standard. Bad debt, the subject of recent cost trackers, features financial effects that are typically not substantial. Utilities have contended that the unpredictability of this cost makes it difficult to incorporate it accurately into the base rate. Yet, even if this assertion is true, it is questionable whether any bad-debt cost unaccounted for in the test year would inflict substantial financial harm on a typical utility.²⁷

²⁴ Commissions’ rulings seem to reflect the view that regulators have much discretion in approving cost trackers as long as these actions reflect reasonable ratemaking given the facts and circumstances.

²⁵ The U.S. Supreme Court outlined these conditions in its 1944 order for *FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 605 (1944).

²⁶ The return on equity for a utility corresponds to the term “normal profits.” Both terms involve the cost a utility incurs to attract funds from investors.²⁶ Let us assume that utility performance should replicate the performance of competitive firms where firms receive normal profits in the long run. A utility would, therefore, earn a return that is reasonable but not excessive. A reasonable return should allow the utility to maintain its credit quality and attract needed capital on reasonable terms, but do no more. Commissions usually consider a rate of return within a “zone of reasonableness” as sufficient but not excessive. They do not guarantee that the utility will earn within this zone; they merely give the utility the opportunity if it performs efficiently and economically.

²⁷ The outcome would vary across utilities and by period. Especially in bad economic times in conjunction with high energy prices, bad debt can quickly soar, making test-year estimates grossly inaccurate. “Substantial financial harm” has no definitive meaning. It can refer to a situation where a utility has difficulties in raising funds for new investments or faces severe cash flow problems. Such situations can harm customers in the long run, for example, by reducing service reliability and diminishing the utility’s credit quality, which in turn can lead to the utility having a higher cost of capital. A tracker for bad debt can also affect how the utility responds to customers who are behind in their payments. It can, for example, make the utility

B. “Severe financial consequences”

Historically, commissions have approved cost trackers to avoid the possibility of a utility suffering a serious financial problem because of cost increases unforeseen at the time of the last rate case.²⁸ Justification for cost trackers is, therefore, greater when a commission relies on a historical test year that does not recognize the volatility of certain costs or their upward trend over time. Let us assume that a certain operating cost has trended upward (e.g., 2 percent per year) over the past several years. Let us also assume that the commission allows only a historical test year. In this example the utility is likely to under-recover this particular cost. What effect this outcome would have on the utility’s overall rate of return depends on the magnitude of any cost increase relative to the utility’s earnings and whether other costs fell while rates were in effect.

Commissions do not expect utilities to earn the authorized rate of return during each future period over which new prices are in effect.²⁹ Commissions implicitly impute a risk premium in the authorized rate of return, partially to account for the earnings volatility from fluctuations in costs or revenues from the test year. Trackers affect what is called “business risk.” Business risk refers to the uncertainty linked to the operating cash flows of a business. Business risk is multi-dimensional, inclusive of sales, cost, and operating risks. In the Capital Asset Pricing Model (CAPM), for example, the lower the utility’s expected earnings volatility, the lower the measure of the utility’s risk relative to the market portfolio (i.e., “beta”). Because

more lax in its credit policies, which could result in fewer service disconnections, especially for low-income households. In the absence of a tracker, the utility presumably would intensify its efforts to collect money owed by delinquent customers. I thank Michael McFadden for this insight.

²⁸ See, for example, Paul L. Joskow, “Inflation and Environmental Concern: Structural Changes in the Process of Public Utility Regulation,” *Journal of Law and Economics*, Vol. 17 (1974): 291-327. A premise behind the wide acceptance of fuel adjustment clauses was that because electric utilities were not responsible for the escalation of fuel costs, commissions should not hold them accountable. Virtually all electric utilities in the 1970s experienced an unprecedented rise in fuel costs, for example, inferring an exogenous event beyond the control of any single utility. Prior to this time, even though FACs were common but fuel prices were much more stable, commissions generally associated changes in the utility’s rate of return between rate cases with utility-management performance. A lower rate of return reflected poor performance and a higher rate of return superior performance. (A 1974 study found that 42 out of 51 jurisdictions had some form of fuel adjustment clause. See National Economic Research Associates, “The Fuel Adjustment Clause: A Survey of Criticism, Justifications, and Its Applications in the Various Jurisdictions,” 1974.)

²⁹ This statement supports the contention that commissions do not intend the prices they set in a rate case to reflect the utility’s actual cost of service for each future year. Commissions, however, judge that the prices they set will allow the utility an opportunity (i.e., a reasonable chance) to earn its authorized rate of return or some return close to the authorized level.

trackers reduce a utility's business risk, a regulator might want to consider revising downward the risk premium of a utility with additional cost trackers or a revenue-decoupling tracker, resulting in a lower return on equity.

If a commission wants to guarantee that the utility will recover its authorized earnings, it would favor a rate design that allows the utility to recover all of its fixed costs in a monthly service charge or a customer charge.³⁰ Since generally commissions do not, they implicitly recognize the positive incentive effect from allowing a utility's actual rate of return to deviate from the authorized level. Commissions also know that if a utility is continuously earning below its authorized rate of return, the utility has the right to file a general rate increase.

The previous discussion explains why most regulators have favored adjusting rates between rate cases only when such adjustments avoid serious financial situations for utilities. If a commission wanted to assure the utility that it will always earn its authorized rate of return, it would allow the utility to recover all of its actual costs through trackers.³¹ Commissions generally do not allow the tracking of all costs because of incentive and other problems, which this paper discusses in Section II.B.

C. An illustration: FACs and PGAs

The wide popularity of FACs and PGAs among utilities and most commissions reflects the perception that these mechanisms are necessary to prevent a utility from earning a rate of return substantially below what was authorized. This perception stems from the magnitude of fuel and purchased gas costs relative to a utility's earnings. Other categories of costs, such as bad debt, are much smaller in size and therefore have smaller earnings consequences.

Until fuel costs started to fluctuate sharply in the 1970s, some energy utilities had to operate without the ability to adjust prices outside a rate case.³² These utilities shouldered the risks of events between rate cases, but they also retained any high returns from favorable happenings. Prior to around 1970, for example, many electric utilities earned rates of return that were much higher than the authorized levels because of technological improvements, high sales growth, and economies of scale, in addition to the acquiescence of commissions.³³

³⁰ Such a rate design would not guarantee the utility earning its authorized rate of return, as unexpected variable costs would cause the utility's earnings to decline.

³¹ This recovery would include fixed costs the commission found prudent in the last rate case. Guarantee of full recovery of all costs would also require a revenue tracker such as revenue decoupling, assuming that the utility recovers some of its fixed costs in the volumetric or commodity charge.

³² The genesis for these dramatic fuel-cost increases was the Oil Embargo by OPEC and the other Persian Gulf troubles of the 1970s.

³³ Although most state commissions had authority to initiate proceedings to reduce rates, few chose to exercise it.

Not surprisingly, virtually all state commissions believed that trackers for large items such as fuel costs and purchased gas costs were necessary to prevent inordinate rate-of-return fluctuations. Implicit in this belief is the view that the burden on utility shareholders would otherwise be onerous. This factor overwhelmed the arguments against trackers. The major objective of FACs and PGAs, implanted during that era, was to shield the utility's earnings from commodity price volatility. Both debt and equity investors favor these mechanisms in reducing the riskiness of a utility's earnings and cash flow.

V. Two Extreme States of the World: Several and No Cost Trackers

A. A hodgepodge of cost trackers, or a single rate-of-return tracker

If a commission wants a utility always to earn close to its authorized rate of return, it would favor rate adjustments between rate cases for both: (1) actual costs deviating from test-year costs, and (2) actual revenues deviating from test-year revenues. This outcome would require cost trackers covering all of the utility's costs in addition to a revenue decoupling mechanism. (The revenue decoupling mechanism would allow the utility to recover all fixed costs that the commission approved for recovery in the last rate case.)

Putting the utility's future on "autopilot" seems like a reasonable course of action if financial stability is the prime regulatory objective. Considering incentive problems and excessive risk-shifting to customers, this option comes across as much less appealing.

An earnings-sharing mechanism (ESM), which consolidates different cost and revenue trackers, is one ratemaking procedure for stabilizing a utility's rate of return between rate cases. Under this mechanism, the utility adjusts its rates periodically (e.g., annually) when its actual return on equity falls outside some specified band. As an illustration, if the band encompasses a 10 to 14 percent rate of return on equity (with 12 percent as the utility's authorized rate of return established in the last rate case) when the actual return is 9 percent, the utility could adjust its rates upward to increase its return to, or bring it closer to, 10 percent.³⁴

An ESM helps to stabilize a utility's rate of return without a full-scale rate case review. Earnings sharing should reduce the frequency of future rate cases and allow adjusted rates to reflect recent market developments, including those affecting a utility's costs.³⁵ Compared to

³⁴ The band implicitly reflects the range for the return on equity that the regulator deems both adequate to keep the utility from financial jeopardy and not so excessive as to be exorbitant. The interpretation of these financial conditions is subjective and open to debate.

³⁵ Under traditional ratemaking, reducing the frequency of rate cases might allow the utility to over-earn by a substantial amount because of the multi-year accumulation of higher-than-expected sales or lower-than-expected costs, or both. Commissions probably are not so concerned when the utility over-earns for a one- or two-year period, but would be when it over-earns by a "significant" amount over several consecutive years. This reaction would be more

traditional ratemaking, where rates remain fixed between rate cases, ESM weakens regulatory lag and thereby reduces the incentive of a utility to control its costs between rate cases.³⁶ A commission can lessen this problem by requiring the utility to demonstrate its prudence and offer reasons why specific cost items were higher than their test-year levels.³⁷

In sum, an ESM would trigger a price adjustment between rate cases only when the aggregation of revenue and cost departures from test-year levels cause the utility's rate of return to fall outside a specified "band" region. An ESM takes into account the overall profitability of a utility. It assumes the role of a rate-of-return tracker that, in effect, amalgamates different cost trackers into a single cost-recovery mechanism.

The ESM differs from conventional trackers, which account for specific costs or functions in isolation from the utility's overall financial position. Trackers' focus on an individual cost categories can cause utilities to delay coming in for rate cases, with the utility earning an "excessively" high rate of return in the interim. Let us assume that the commission has approved a tracker for new infrastructure expenditures. The new infrastructure expects to lower the utility's maintenance and other operating costs. If the last rate case did not recognize these lower operating costs, the utility's rate of return would be higher, yet because of the tracker, the utility suffers no interim financial losses from incurring infrastructure expenditures.

acute if the commission believes that fortuitous circumstances, rather than superior utility management, caused the high earnings.

³⁶ This incentive problem exists only when the utility is outside the "band" region and the mechanism requires sharing of "excessive" or "deficient" earnings with customers. This fact suggests a wide "band," as the utility operating within the "band" would have "high-powered" incentives to manage costs because it retains all the economic gains.

³⁷ The incentive problem would be less pronounced compared to a conventional cost tracker. As long as the utility's rate of return is within the "band" region, it has a similar incentive for cost control as it would between rate cases with fixed prices. (The word "similar" is used because if the "band region" is wide enough, it could defer the next rate case to either increase or decrease rates. This deferral would further strengthen the incentive of the utility to control costs.) Outside the "band" region, the utility's incentive depends upon whether ESM requires the sharing of high or low rates of return between the utility and its customers. Assume, for example, that the "band" region is a 10 to 14 percent rate of return on equity. During the year, the utility earns 15 percent; if the utility has to split the difference between the higher boundary of the "band" region and the actual rate of return by adjusting its prices down, in the example the utility would realize a 14.5 percent rate of return. We assume that the mechanism is symmetrical, so if the utility earns below the lower boundary of the "band" region, say, a 9 percent rate of return, it can adjust prices up to realize a rate of return closer to the lower boundary. This sharing arrangement means that if the utility allows its costs to rise, it either suffers the full consequence (when it operates within the "band" region) or the partial consequence (when it operates outside). The latter condition creates an incentive problem relative to traditional ratemaking with regulatory lag and fixed prices between rate cases.

On net, the utility benefits and its customers immediately pay for the infrastructure costs without benefiting from the lower operating costs (at least until new rates reflect the lower costs). Such an outcome would violate any common meaning of “fairness” and seriously calls into question the merits of using a single-function tracker without readjusting rates for the effect on a utility’s other functional areas.³⁸ This dynamic suggests that commissions implementing trackers should require their utilities to file rate cases on predetermined intervals.

B. No cost trackers

Under the traditional approach to ratemaking, a utility cannot adjust its rates outside a rate case. No matter what happens to a utility’s costs or revenues between rate cases, rates remain fixed. Let us assume that a utility’s costs and revenues are volatile and difficult to predict. The utility’s rate of return can then deviate substantially (on the upside or downside) from the authorized level.

It is one thing to prohibit trackers for costs that are substantial, volatile and unpredictable, and generally beyond the control of a utility; it is another to reject trackers for costs that lack one or more of these features. *Good regulatory policy rejects cost trackers that are not essential for protecting a utility from a dire financial situation.* The utility, in justifying a cost tracker, should present the regulator with credible information showing that a nontrivial probability exists that the cost item under review will rise sufficiently above the test-year level to place the utility in financial jeopardy.³⁹ This showing is more likely when the regulator uses a historical test year and the cost item recently has exhibited an upward trend or substantial volatility.⁴⁰

Another conceivable justification for a cost tracker is that it transmits better price signals to a utility’s customers. Prices would correspond closer to a utility’s actual costs and thus improve economic efficiency. For economic efficiency, customers should see costs reflected in their rates, such that they consume less when costs are higher. The validity of this argument for

³⁸ Such a non-uniform treatment of costs could also cause perverse incentives. A utility, for example, might overspend on infrastructure structures to receive the gains from lower operating or other costs that the utility retains for itself until the next rate case.

³⁹ The term “financial jeopardy” has different interpretations. This state, no matter how it is defined, has the potential to harm customers as well as the utility shareholders. It could cause the deferment of needed capital investments to maintain reliable service, lowering of the utility’s credit rating, and an increase in the utility’s cost of capital. The time period over which these effects would cause injury to utility shareholders generally would be more immediate than the injury to customers.

⁴⁰ A future test year might not improve matters much if the cost item is inherently difficult to predict with any forecast and therefore susceptible to large error.

a cost tracker also depends upon the magnitude and nature of the costs involved.⁴¹ This outcome assumes that a tracker involves a variable cost such as fuel or purchased gas costs. When a tracker relates to a fixed cost (e.g., infrastructure costs), the argument turns more to the “fairness” of a cost-recovery mechanism to the utility. Is a tracker justified because test-year cost calculations expose the utility to potentially high financial risk from unanticipated costs that fall primarily outside the control of a utility?

VI. Putting It All Together

Cost trackers have both positive and negative features that regulators must evaluate.⁴² In reaching a decision, the regulator needs to weigh these features to determine what is in the public interest based on how they shift risks, ensure cost recovery, and affect incentives. The main challenge for regulators is to evaluate whether the positives outweigh the negatives to justify a cost tracker.⁴³

A. The positive side of cost trackers

The primary benefit of cost trackers, as discussed earlier in this paper, is that they reduce the likelihood that a utility will encounter serious financial problems. If test-year costs fail to reflect accurate projections of a utility’s actual cost for future periods, then the utility’s earnings can deviate substantially from what a commission approved in the last rate case. Some cost items are difficult to project, as they exhibit high volatility and depend on different variables that by themselves are uncertain.

By reducing regulatory lag and the likelihood of prudence reviews, cost trackers can lower a utility’s risk and thus increase its access to capital. The utility could then have a higher credit rating that, in turn, could lower the cost of financing capital projects.⁴⁴

⁴¹ Distortive price signals can relate to the difference between the utility’s short-run marginal cost and the marginal price charge to customers in consuming more electricity or natural gas.

⁴² For a thorough and excellent discussion of the advantages and disadvantages of cost trackers, with a focus on fuel adjustment clauses, see Michael Schmidt, *Automatic Adjustment Clauses: Theory and Applications* (East Lansing, MI: Michigan State University Press, 1981).

⁴³ For an analysis of similar issues faced by regulators in evaluating different ratemaking mechanisms in general, see Ken Costello, *Decision-Making Strategies for Assessing Ratemaking Methods: The Case of Natural Gas*, NRRI 07-10, September 2007, at <http://nrri.org/pubs/gas/07-01.pdf>.

⁴⁴ This argument is similar to the one used to support including construction work in progress (CWIP) in rate base for electricity transmission.

Cost trackers also coincide with the regulatory objective of setting prices based on the actual cost of service. This condition transmits the right price signal to customers deciding how much of the utility's services to consume.⁴⁵

The development of infrastructure such as the smart grid or other new technology costs might warrant that commissions consider cost-recovery mechanisms such as a cost tracker to guarantee minimum cash flow for a utility. Investors might otherwise perceive excessive regulatory risks that preclude committing funding to a utility.⁴⁶ A cost tracker in this instance also might cut down on the frequency of future rate cases. Regulators in the future might want to explore less traditional ways for utilities to recover their costs for new technologies with inherently high operational and financial uncertainties.

As a final benefit, cost trackers can reduce regulatory and utility costs by reducing the number of future rate cases. Rate cases absorb substantial staff resources and time, diverting those scarce resources from other commission activities. Yet it is doubtful that many of the recently proposed trackers involving non-major cost items would have any effect on the timing of future rate cases. Another comment is that the costs associated with serious and continuing audits and the monitoring of costs recovered through a tracker could require substantial resources, either in the form of commission staff or outside consultants.

B. The negative side of cost trackers: the case for traditional ratemaking as a default policy or earnings sharing as a preferred alternative

Cost trackers can reduce utility efficiency, as described above. "Just and reasonable" rates require that customers do not pay for costs the utility could have avoided with efficient or prudent management. Regulation attempts to protect customers from excessive utility costs by scrutinizing a utility's costs in a rate case, conducting a retrospective review of costs, applying performance-based incentives, and instituting regulatory lag. Cost trackers diminish one or more of these regulatory activities. In some instances, they diminish all of them. The consequence is the increased likelihood that customers will pay for excessive utility costs.

⁴⁵ One issue that has emerged in states where trackers have become a major method for cost recovery relates to the allocation of those costs across customer classes. Cost allocation determines the actual prices that different customers pay for utility service.

⁴⁶ One alternative to reducing regulatory risk through trackers would be for a commission to articulate in a policy statement or other document that it would not apply 20-20 hindsight to determine the cost recovery of new investments. A commission can express, for example, that it will not subject specific utility decisions to prudence reviews. One method of doing so is providing pre-approval for projects before they enter service. For a more detailed discussion of pre-approval mechanisms, see Scott Hempling and Scott Strauss, *Pre-Approval Commitments: When And Under What Conditions Should Regulators Commit Ratepayer Dollars to Utility-Proposed Capital Projects?* NRRI 08-12, November 2008, at http://nrri.org/pubs/electricity/nrri_preapproval_commitments_08-12.pdf.

This paper recommends that regulators approve cost trackers only in special situations where the utility would have to show that alternate cost-recovery mechanisms could cause extreme financial problems. This showing requires utilities to provide a distribution of possible cost futures and an assessment of their likelihood. If a certain cost item has high volatility and unpredictability, represents a large component of the utility's revenue requirement and is recurring, and is generally beyond a utility's costs, it becomes a candidate for "tracker" recovery.

Even then, the regulator should consider the adverse incentive effects and how he or she can compensate for this problem.⁴⁷ Regulators should condition any approval of a cost tracker on the utility's filing information on its performance for those functional areas directly or indirectly affected by the tracker. For example, has the FAC caused a utility to spend less money on plant maintenance costs, jeopardizing reliability and inflating total utility costs because of higher avoidable fuel costs? These conditions can harm the utility's customers in the long run.

No other rationale merits departing from cost recovery through rate cases. This limited application of cost trackers provides the benefits of:

1. using the same cost-recovery mechanisms for all utility functions to prevent perverse incentives (perverse incentives can lead to a higher cost of service and utility rates);
2. balancing a utility's total costs and total revenues (without this balancing, it is conceivable that the utility could recover one cost item through a tracker and over-recover other costs set in the last rate case to result in the utility earning above its authorized rate of return); a rate case has the attractive feature of matching revenue with costs on an aggregate basis;
3. retaining sufficient regulatory lag to provide the utility with more motivation to control costs (regulatory lag is an important feature of traditional ratemaking in forcing the utility to shoulder the risk of higher costs between rate cases); and
4. scrutinizing a utility's costs and performance in different areas of operation (commissions review costs more rigorously in a rate case setting, decreasing the likelihood that customers will recover a utility's imprudent costs).⁴⁸

⁴⁷ The commission can monitor the utility's performance or include a performance-based incentive component in the tracker mechanism. *See* the NRRI study cited in footnote 8 for a description and analysis of incentive-based gas procurement mechanisms.

⁴⁸ In theory, a commission can expend the same resources and effort toward inspecting a utility's costs recovered through a tracker as it does for costs determined in a rate case. In practice, however, the author shares the widely held view that commissions and non-utility parties devote fewer resources to this task for costs recovered through a tracker. Confirmation of this view would require a systematic study that would compare, among other things, the resources expended by the commission and non-utility stakeholders per dollar recovered under trackers and in a rate case.

The earlier discussion points to the advantages of replacing cost trackers (excluding fuel and purchased gas cost trackers) with a single rate-of-return tracker in the form of an earnings-sharing mechanism. This alternative overcomes some of the problems with cost trackers, namely perverse incentives and weak incentives for cost control, the mismatching of a utility's *total* costs and revenues, and inadequate regulatory oversight of costs.⁴⁹ An earnings-sharing mechanism is also able to achieve the major objective of cost trackers, namely preventing utilities from suffering serious financial problems between rate cases.

A single rate-of-return tracker can also address the “fairness” issue of why a utility should not recover from customers a cost increase (e.g., property taxes) between rate cases that is completely beyond its control. This mechanism would, in effect, allow the utility to recover the increased costs, but only if it was already earning a “low” rate of return (i.e., a return below the “band” region discussed above). One major problem with cost trackers is that they allow a utility to increase its prices even if the utility is already earning a higher-than-authorized rate of return (or beyond the “zone of reasonableness” set in the last rate case). A commission would not allow this outcome under traditional regulation.

VII. Questions Regulators Should Ask

This paper discusses the major issues regulators face in evaluating cost trackers. Well-informed decisions require regulators to ask certain questions, for which this paper provides some introductory responses. The following is a list of the most pertinent questions:

1. Does a cost-tracker proposal meet the regulatory test of acceptability? What minimum threshold should a regulator set for consideration of a cost tracker?
2. What special circumstances exist to warrant cost recovery outside of a rate case?
3. What evidence does a utility present showing that the absence of a tracker for a particular cost could place it in financial jeopardy?
4. In addition to cost trackers, what other cost-recovery mechanisms can regulators rely on to allow a utility to recover substantial unexpected costs between rate cases? What are the public-interest effects of these mechanisms relative to cost trackers?
5. What advantages does a cost tracker offer? What are its disadvantages?

⁴⁹ Regulators can overcome some of these problems. They can, for example, require that a utility with cost trackers file a rate case no less often than every three years or however often frequency regulators consider appropriate. Regulators can also require prudence reviews of utility activities associated with trackers on a regular basis. I thank Michael McFadden for these insights.

6. How should regulators weigh the downsides of cost trackers relative to the upsides? How important are adverse incentive effects relative to the value of stabilizing a utility's rate of return?
7. How should a regulator account for the net-cost effects of a new investment (e.g., capital costs less savings in operating costs) for which the utility wants cost recovery through a tracker?
8. How would the accumulation of cost trackers for a utility motivate the utility to take risks and improve its overall cost performance?
9. If a cost tracker is justified, how can regulators structure it to mitigate potential problems such as weakened incentives for cost control?
10. What conditions should a regulator attach to the approval of a cost tracker?
 - a. Should it require the utility to report on its cost performance in functional areas directly and indirectly affected by the tracker?
 - b. Should the regulator also require that all costs recovered through trackers be subject to a thorough prudence review?
 - c. Should the regulator reduce the utility's return on equity to account for the lower risk resulting from the tracker?

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039919 (SW)
v.	:	R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority	:	R-2023-3039921 (WW)

VERIFICATION

I, Karl R. Pavlovic, hereby state that the facts set forth in my Direct Testimony, OCA Statement 2, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: August 9, 2023
*347169

Signature:


Karl R. Pavlovic

Consultant Address: PCMG and Associates, LLC.
22 Brookes Avenue
Gaithersburg, MD 20877

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY)	
COMMISSION)	
	)	DOCKET NOS. R-2023-3039920 (WATER)
v.	)	R-2023-3039921 (WASTEWATER)
	)	R-2023-3039919 (STORMWATER)
PITTSBURGH WATER AND SEWER)	
AUTHORITY)	

DIRECT TESTIMONY OF
JEROME D. MIERZWA

ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

AUGUST 9, 2023

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1 **I. INTRODUCTION**

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS
3 ADDRESS?

4 A. My name is Jerome D. Mierzwa. I am a Principal and Vice President of Exeter
5 Associates, Inc (“Exeter”). My business address is 10480 Little Patuxent Parkway,
6 Suite 300, Columbia, Maryland 21044. Exeter specializes in providing public utility-
7 related consulting services.

8 Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND
9 EXPERIENCE.

10 A. I graduated from Canisius College in Buffalo, New PWSA, in 1981 with a Bachelor of
11 Science Degree in Marketing. In 1985, I received a Master’s Degree in Business
12 Administration with a concentration in finance, also from Canisius College. In July
13 1986, I joined National Fuel Gas Distribution Corporation (“NFG Distribution”) as a
14 Management Trainee in the Research and Statistical Services Department (“RSS”).
15 I was promoted to Supervisor RSS in January 1987. While employed with NFG
16 Distribution, I conducted various financial and statistical analyses related to the
17 Company’s market research activity and state regulatory affairs. In April 1987, as part
18 of a corporate reorganization, I was transferred to National Fuel Gas Supply
19 Corporation’s (“NFG Supply”) rate department where my responsibilities included
20 utility cost of service and rate design analysis, expense and revenue requirement
21 forecasting and activities related to federal regulation. I was also responsible for
22 preparing NFG Supply’s Federal Energy Regulatory Commission (“FERC”) Purchase
23 Gas Adjustment (“PGA”) filings and developing interstate pipeline and spot market
24 supply gas price projections. These forecasts were utilized for internal planning

1 purposes as well as in NFG Distribution’s Section 1307(f) purchased gas cost
2 proceedings in Pennsylvania.

3 In April 1990, I accepted a position as a Utility Analyst with Exeter. In
4 December 1992, I was promoted to Senior Regulatory Analyst. Effective April 1, 1996,
5 I became a principal of Exeter. Since joining Exeter, I have specialized in utility class
6 cost of service and rate design analysis, evaluating the gas purchasing practices and
7 policies of natural gas utilities, sales and rate forecasting, performance-based incentive
8 regulation, revenue requirement analysis, the unbundling of utility services, and the
9 evaluation of customer choice natural gas transportation programs.

10 Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY
11 PROCEEDINGS ON UTILITY RATES?

12 A. Yes. I have provided testimony on more than 400 occasions in proceedings before
13 FERC, utility regulatory commissions in Arkansas, Connecticut, Delaware, Georgia,
14 Illinois, Indiana, Louisiana, Maine, Maryland, Massachusetts, Montana, Nevada, New
15 Hampshire, New Jersey, Ohio, Pennsylvania, Rhode Island, South Carolina, Texas,
16 Utah, and Virginia, as well as before the Pennsylvania Public Utility Commission
17 (“Commission”). My Curriculum Vitae is attached to my testimony as Exhibit JDM-1.

18 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

19 A. On May 9, 2023, the Pittsburgh Water and Sewer Authority (“PWSA”) filed an
20 application to increase rates for water, wastewater conveyance, and stormwater service
21 by \$146.1 million over a three year period (multi-year rate plan, or “MYRP”). The
22 \$146.1 million proposed increase is comprised of \$46.8 million (22.5%) for Fiscal Year
23 2024 (“FY 2024”), \$45.4 million (17.8%) for FY 2025, and \$53.9 million (17.9%) for
24 FY 2026.¹ The rate increases are proposed to be effective February 15, 2024, January

¹ PWSA St. No. 2, p. 4.

1 1, 2025, and January 1, 2026 respectively. Exeter was retained by the Pennsylvania
2 Office of Consumer Advocate (“OCA”) to review and analyze the water, wastewater
3 conveyance, and stormwater cost of service (“COS”) studies and the rate design
4 proposals included in PWSA’s application. My testimony addresses the PWSA’s COS
5 studies and rate design proposals.

6 Q. DOES THE OCA SUPPORT THE ADOPTION OF A MYRP FOR PWSA IN
7 THIS PROCEEDING?

8 A. No. As explained in greater detail by OCA witness Karl Pavlovic, a MYRP for PWSA
9 should not be adopted in this proceeding. As explained by Mr. Pavlovic in OCA
10 Statement 2, and as supported by several other OCA witnesses, PWSA’s MYRP is
11 deficient regarding the statutory and regulatory provisions governing a MYRP.
12 Therefore, with the exception of the elimination of the minimum usage allowances
13 currently included in PWSA’s water and wastewater conveyance customer charges
14 which is discussed later in my testimony, I only address cost allocation and rate design
15 for FY 2024.

16 Q. HAVE YOU PREPARED EXHIBITS TO ACCOMPANY YOUR
17 TESTIMONY?

18 A. Yes, I have. As just explained, my Curriculum Vitae is attached to my testimony as
19 Exhibit JDM-1. Also attached to my testimony are Exhibits JDM-2 through JDM-4.

20 Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS.

21 A. My findings and recommendations are as follows:

- 22 • The water cost of service study presented by PWSA utilizes the base-extra
23 capacity method set forth in the American Water Works Association’s
24 (“AWWA”) *Manual M1, Principals of Water Rates Fees, and Charges*
25 (“AWWA M1 Manual”) and is reasonable;
- 26 • The water service rates proposed by PWSA for the Wholesale class are
27 significantly less than the indicated cost of service. PWSA claims that the rates
28 for each of the Wholesale customers it serves is set by a contractual agreement,

1 and PWSA is unable to increase the rates of Wholesale customers beyond what
2 is allowed by the individual agreements. I recommend that PWSA issue a notice
3 of termination for each of the Wholesale agreements, and negotiate new
4 agreements that provide for movement toward cost of service rates;

- 5 • The water service gradualism adjustment PWSA has proposed for Industrial
6 customers of \$1,030,000 should be reduced by \$226,070;
- 7 • Because PWSA has not supported its revenue requirement requests for FY 2025
8 and FY 2026, it should be required to make a tariff filing which would become
9 effective January 1, 2025 to implement a revenue neutral removal of the
10 minimum usage allowances currently included in its water and wastewater
11 conveyance service customer charges;
- 12 • The monthly water service customer charges proposed by PWSA improperly
13 include indirect administrative support expenses and a readiness-to-serve
14 component. The administrative support expenses and the readiness-to-serve
15 component are not required to connect and maintain a customer's account and,
16 therefore, should be excluded from the calculation of customer charges. For FY
17 2024, exclusion of these costs would reduce the customer charge for a typical
18 Residential water customer with a 5/8-inch meter from \$32.43 to \$26.28;
- 19 • The wastewater conveyance cost of service study presented by PWSA utilizes
20 the functional cost allocation described in *Financing and Charges for*
21 *Wastewater Systems; Manual of Practice No. 27* published by the Water
22 Environmental Federation ("Manual of Practice No. 27) and is reasonable;
- 23 • PWSA's stormwater gradualism adjustment of \$9.5 million, or 24% of the total
24 stormwater revenue requirement, which provides for the recovery of a portion
25 of the stormwater revenue requirement from wastewater conveyance customers
26 appears reasonable. However, to the extent that the Commission authorizes a
27 total stormwater revenue requirement that is less than the revenue requirement
28 requested by PWSA, that reduction should first be applied to reduce the
29 stormwater gradualism adjustment assigned to wastewater conveyance service;
- 30 • As with water service, only the direct costs required to connect and maintain a
31 customer's account should be included in the calculation of wastewater
32 conveyance customer charges. PWSA has improperly included indirect
33 administrative support expenses and a readiness-to-serve component in its
34 proposed customer charges which should be eliminated. For FY 2024,
35 exclusion of these costs would reduce the customer charge for a typical
36 Residential wastewater customer with a 5/8-inch meter from \$7.42 to \$5.90;
37 and
- 38 • To the extent that the Commission authorizes an increase in stormwater
39 revenues which is less than that requested by PWSA, the rates proposed by
40 PWSA should be proportionately scaled back.

1 Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

2 A. The remainder of my testimony is divided into three additional sections. The second
3 section of my testimony describes and evaluates the PWSA's water COS study,
4 proposed revenue allocation, and rate design proposals. The next section of my
5 testimony addresses PWSA's wastewater conveyance COS study, proposed revenue
6 allocation, and rate design proposals. The final section of my testimony addresses
7 PWSA's stormwater rate design proposals.
8

9 **II. WATER SERVICE**

10 **A. Cost of Service Study**

11 Q. WHAT IS THE OBJECTIVE OF A COST OF SERVICE STUDY?

12 A. A cost of service study is conducted to assist a utility or commission in determining the
13 level of costs properly recoverable from each of the various classes of customers to
14 which the utility provides service. Allocation of recoverable costs to each class of
15 service is generally based on cost causation principles.

16 Q. WHAT ARE THE PRIMARY COST OF SERVICE STUDY
17 METHODOLOGIES UTILIZED FOR WATER UTILITIES?

18 A. The two most commonly used and widely recognized methods of allocating costs
19 to customer classes for water utilities are the base-extra capacity method and the
20 commodity-demand method. Both of these methods are set forth in the American Water
21 Works Association's ("AWWA") Manual M1, *Principles of Water Rates, Fees, and*
22 *Charges* ("AWWA Manual").

23 Q. WHAT METHODOLOGY HAS THE PWSA UTILIZED FOR ITS WATER
24 COST OF SERVICE STUDY?

25 A. PWSA has utilized the base-extra capacity method in preparing its water COS study.
26 Under the base-extra capacity method, investment and costs are first classified into four

1 primary functional cost categories: base or average capacity, extra capacity, customer,
2 and fire protection. Once investment and costs are classified to these functional
3 categories, they are allocated to the various customer classes. PWSA’s water COS
4 study is presented by Harold J. Smith of Raftelis Financial Consultants, Inc. PWSA’s
5 subsequently discussed wastewater conveyance COS study and stormwater cost
6 analysis are also presented by Mr. Smith. The water and wastewater conveyance COS
7 studies and stormwater cost analysis were prepared based on the PWSA’s fully
8 projected future test year (“FPFTY”) revenue requirement claim for FY 2024 in this
9 proceeding, exclusive of Distribution System Improvement Charge (“DSIC”) revenues.

10 Q. PLEASE DESCRIBE IN GREATER DETAIL THE FOUR PRIMARY
11 FUNCTIONAL COST CATEGORIES AND HOW THEY ARE
12 ALLOCATED TO THE VARIOUS CUSTOMER CLASSES UNDER THE
13 BASE-EXTRA CAPACITY METHOD.

14 A. **Base or Average Costs** are costs that tend to vary with the quantity of water used, plus
15 costs associated with supplying, treating, pumping, and distributing water to customers
16 under average load conditions. Base costs were allocated to customer class on the basis
17 of average daily usage in PWSA’s cost of service study.

18 **Extra Capacity Costs** are costs associated with meeting usage requirements in
19 excess of base or average usage. This includes operating and capital costs for additional
20 plant and system capacity beyond that required for average usage. Extra capacity costs
21 in the PWSA’s study have been subdivided into costs necessary to meet maximum day
22 extra demand and maximum hour extra demand. These extra capacity costs were
23 allocated to customer class on the basis of each class’s maximum day and maximum
24 hour usage in excess of average usage. Extra capacity costs related to fire protection
25 service are allocated directly to the fire protection classifications.

1 **Customer Costs** are costs associated with serving customers regardless of their
2 usage or demand characteristics. Customer costs include the operating costs related to
3 meters and services, meter reading costs, and billing and collection costs. Customer
4 costs were allocated on the basis of capital cost of meters and services and the number
5 of customer bills.

6 **Fire Protection Costs** are costs associated with providing the facilities to meet
7 the potential peak demand of fire protection service. In the PWSA's study, fire
8 protection costs have been subdivided into the costs associated with meeting Public
9 Fire Protection and Private Fire Protection demands. The extra capacity costs assigned
10 to fire protection were allocated to Public and Private Fire Protection on the basis of
11 the total relative demands of hydrants and fire service lines. In accordance with 66 Pa.
12 C.S. § 1328(b) of the Public Utility Code, public fire costs exceeding 25% of the public
13 fire cost of service were assigned to the other customer classes based on equivalent
14 meters.

15 Q. WHAT CUSTOMER CLASSES HAS THE PWSA IDENTIFIED IN ITS
16 WATER COST OF SERVICE STUDY?

17 A. The Company has separately identified the cost of serving ten customer classes in its
18 study:

- 19 • Residential
- 20 • Residential Customer Assistance Program ("CAP")
- 21 • Commercial
- 22 • Industrial
- 23 • Health or Education
- 24 • Municipal – Residential
- 25 • Municipal – Commercial
- 26 • Private Fire
- 27 • Public Fire
- 28 • Wholesale

1 Q. DO YOU GENERALLY FIND THE PWSA’S WATER COST OF SERVICE
2 STUDY TO BE REASONABLE?

3 A. Yes. I find the PWSA’s use of the base-extra capacity methodology to be reasonable.

4 **B. Water Revenue Allocation**

5 Q. EXHIBIT HJS-10W OF PWSA’S WATER COS STUDY PRESENTS BOTH
6 AN UNADJUSTED AND ADJUSTED COST OF SERVICE FOR EACH
7 CUSTOMER CLASS. PLEASE EXPLAIN THE DIFFERENCE.

8 A. The unadjusted cost of service reflects the direct results of the PWSA’s water COS
9 study. As indicated on Exhibit HJS-10W, PWSA subsequently adjusted the direct
10 results of its water COS study to reflect:

- 11 • A reallocation of public fire costs in excess of 25% of the indicated cost of
12 service pursuant to 66 § Pa 1328(b) of the Public Utility Code as previously
13 discussed;
- 14 • A reallocation of the revenue deficiency of the Wholesale customer class, which
15 is discussed later in my testimony;
- 16 • The addition of bad debt expense, which was not included in the COS study;
- 17 • The forgone revenue resulting from discounts given to participants in PWSA’s
18 Customer Assistance Program; and
- 19 • A reallocation of the revenue increase assigned to the Industrial class to provide
20 for gradualism, which is also discussed later in my testimony.

21 Q. PLEASE PROVIDE A COMPARISON OF THE UNADJUSTED COST OF
22 SERVICE FOR EACH CUSTOMER CLASS, INCLUSIVE OF BAD DEBT
23 EXPENSE, AND PRESENT AND PROPOSED FY 2024 RATES FOR
24 EACH CUSTOMER CLASS.

25 A. The unadjusted cost of service for each customer class indicated by PWSA’s water
26 COS study, inclusive of bad debt expense, and the revenues at present and proposed
27 FY 2024 rates are summarized in Table 1.

1

Table 1. Comparison of Present and Proposed FY 2024 Rates, and the Unadjusted Cost of Service

Class	Present Rates	Proposed Rates (1)	INCREASE		Unadjusted Cost of Service (2)	INDICATED INCREASE	
			Amount	Percent		Amount	Percent
Residential	\$51,476,654	\$58,174,270	\$6,697,616	13.0%	\$50,762,253	(\$714,401)	-1.4%
Residential-CAP	1,866,823	2,079,105	212,282	11.4%	\$3,553,693	1,686,870	90.4%
Commercial	47,167,815	57,058,794	9,890,979	21.0%	\$50,985,433	3,817,618	8.1%
Industrial	2,378,242	3,073,423	695,181	29.2%	\$3,762,953	1,384,711	58.2%
Health or Education	18,874,998	23,984,749	5,109,751	27.1%	\$21,669,964	2,794,966	14.8%
Municipal-Residential	36,096	40,317	4,221	11.7%	\$31,537	(4,559)	-12.6%
Municipal-Commercial	4,002,156	5,002,575	1,000,419	25.0%	\$4,386,334	384,178	9.6%
Private Fire System	723,982	975,033	251,051	34.7%	\$742,480	18,498	2.6%
Public Fire Protection	1,322,609	1,964,093	641,484	48.5%	\$7,855,146	6,532,537	493.9%
Wholesale	3,661,855	4,339,251	677,396	18.5%	\$12,906,162	9,244,307	252.4%
Total:	\$131,511,230	\$156,691,609	\$25,180,381	19.1%	\$156,655,955	\$25,144,726	19.1%

Note: (1) Exclusive of DSIC revenues

(2) Includes bad debt expense.

2

3 Q. ARE THERE ANY PARTICULAR AREAS OF CONCERN REVEALED
4 BY TABLE 1 WITH RESPECT TO THE INDICATED CLASS COST OF
5 SERVICE FOR EACH CUSTOMER CLASS AND THE PRESENT AND
6 PROPOSED FY 2024 RATES FOR EACH CUSTOMER CLASS?

7 A. Yes. The distribution of the revenue increase that PWSA is requesting in this
8 proceeding, or the difference between present and proposed FY 2024 rate revenues,
9 and the indicated cost of service for the Wholesale class is a significant concern. As
10 shown in Table 1, the proposed rate revenues for the Wholesale class are significantly
11 less than the indicated cost of service. As previously indicated, the difference between
12 Wholesale revenues at proposed FY2024 rates, and the indicated cost of service of the
13 Wholesale class, which exceeds \$9 million, has been allocated to the other customer
14 classes. PWSA claims that the rates for each Wholesale customer are set by a

1 contractual agreement, and PWSA is unable to increase the rates of Wholesale
2 customers beyond what is allowed by the individual agreements.

3 Q. WHAT IS YOUR RESPONSE TO PWSA'S CLAIM THAT IT CANNOT
4 INCREASE RATES TO WHOLESALE CUSTOMERS BEYOND WHAT IS
5 PROVIDED IN EACH CUSTOMER'S CONTRACTUAL AGREEMENT?

6 A. PWSA serves three Wholesale customers: Fox Chapel, Aspinwall, and Reserve
7 Township. I agree with PWSA that the rates for each Wholesale customer are currently
8 set by contractual agreement, and PWSA is unable to increase rates beyond what is
9 allowed by the individual agreements. PWSA's contractual agreements with Fox
10 Chapel, Aspinwall, and Reserve Township were filed with the Commission at Docket
11 No. U-2020-3020772 in conformance with the March 26, 2020 Compliance Plan Stage
12 1 Order at Docket Nos. M-2018-2640802, M-2018-2640803.² Under the agreement
13 with Aspinwall, PWSA is authorized to terminate the agreement with one year's notice,
14 and the agreements with Fox Chapel and Reserve Township may be terminated upon
15 five year's notice. Therefore, I recommend that PWSA provide notice of termination
16 for each agreement and negotiate alternative agreements that provide for movement
17 toward cost of service rates over the course of the contract. Renegotiation of the current
18 agreements is likely to result in additional revenues for PWSA. In addition to the
19 reasons presented by additional OCA witnesses, this is another reason the MYRP
20 should not be approved as these additional Wholesale revenues are currently unknown
21 and could not be reflected in PWSA's MYRP revenues.

² See <https://www.puc.pa.gov/pcdocs/1669573.pdf>

1 Q. DO YOU HAVE OTHER CONCERNS WITH RESPECT TO PWSA'S
2 PROPOSED REVENUE DISTRIBUTION?

3 A. Yes. To provide for gradualism, PWSA is limiting the increase to the Industrial class
4 to 1.5 times the system average increase, rather than increasing Industrial customer
5 class rates to be consistent with the results indicated by its water COS study. I agree
6 that gradualism should be a rate design consideration. While there is no hard and fast
7 rule as to what constitutes gradualism, it is my experience that an increase of 1.5 to 2.0
8 times the system average increase would be consistent with the concept of gradualism.
9 As shown on Exhibit HJS-10W, PWSA has reallocated \$1,030,000 of the Industrial
10 customer class cost of service to the other customer classes to provide for gradualism.
11 Based on the information presented on Exhibit HJS-15W, inclusive of DSIC revenues,
12 the increase proposed for the Industrial class, and the overall system increase compare
13 are presented in Table 2. The increase proposed by PWSA for the Industrial customer
14 class is 1.40 times the system average increase. I recommend that, to provide for
15 gradualism, the increase to the Industrial class be limited to 1.75 times the system
16 average increase. This would increase the revenues assigned to the Industrial class by
17 an additional \$226,070 at PWSA's requested revenue requirement for the FPPTY. I
18 recommend that the gradualism adjustment for the Industrial class reflected on Exhibit
19 HJS-10 be reduced by \$226,070, and revenue increase assigned to each customer class
20 to account for the Industrial gradualism adjustment being proportionately reduced. I
21 recommend that my proposed revenue allocation be proportionately scaled-back to
22 account for any difference between PWSA's requested revenue increase and the
23 increase authorized by the Commission in this proceeding.

Table 2. Comparison of Present and Proposed Rates for the Industrial Class and Overall System Increase

	Proposed Rates	Increase	Percent
<u>PWSA Proposed</u>			
Industrial	\$3,303,930	\$925,688	38.9%
Overall System	\$167,970,729	\$36,459,499	27.7%
<u>OCA Proposed</u>			
Industrial	\$3,530,000	\$1,151,758	48.4%
Difference		\$226,070	9.5%

1 Q. DO YOU HAVE ANY CONCERNS WITH RESPECT TO THE REVENUE
2 PROJECTIONS REFLECTED IN PWSA’S APPLICATION?

3 A. Yes. There are currently two City of Pittsburgh properties which are unmetered. In the
4 response to discovery request OCA-2-5, attached to my testimony as Exhibit JDM-2,
5 PWSA indicated that it is ordering the materials necessary to complete meter
6 installations for these properties. PWSA claims it does not have estimates of the actual
7 water usage for the unmetered properties. In its rebuttal testimony, PWSA should be
8 required to provide a timeline for metering the two properties. PWSA should also
9 identify and describe the services provided by each property, and identify the estimated
10 revenue impact of metering these properties. The revenues to be provided by these
11 properties may be substantial, and are not being reflected in PWSA’s MYRP revenue
12 requirement claim. If these revenues are substantial, failing to reflect these revenues in
13 PWSA’s revenue requirement claim is another reason the MYRP should not be
14 approved.

1 **C. Rate Design**

2 Q. IS PWSA PROPOSING ANY CHANGES TO ITS EXISTING RATE
3 STRUCTURE?

4 A. Yes. While PWSA is not proposing any changes to the existing rate structure for FY
5 2024, for FY 2025, PWSA is proposing to eliminate the minimum usage allowances
6 currently included in the fixed monthly customer charge.³ The minimum allowance
7 varies by meter size. For example, for the typical Residential customer served by a 5/8-
8 inch meter, the current minimum allowance is 1,000 gallons per month.

9 Q. DO YOU AGREE WITH PWSA'S PROPOSAL CONCERNING THE
10 ELIMINATION OF THE USAGE ALLOWANCE FROM THE FIXED
11 MONTHLY CUSTOMER CHARGE?

12 A. Only in part. I do agree that PWSA should eliminate the minimum allowance from its
13 fixed monthly customer charges, because it is inequitable and it disincentivizes
14 conservation efforts. However, I do not agree that PWSA's should be able to condition
15 the removal of the minimum usage allowances on approval of its MYRP and its
16 proposals for an Infrastructure Improvement Charge and a Customer Assistance
17 Charge, as its filing suggests.⁴

18 Q. WHAT IS YOUR RECOMMENDATION REGARDING ELIMINATION
19 OF PWSA'S MINIMUM ALLOWANCE?

20 A. The Commission should reject the notion that PWSA can only remove its minimum
21 usage allowances if the full suite of its rate requests and surcharges are granted. PWSA
22 is required to support each proposal on its merits, and it should not be permitted to
23 condition elimination of the minimum allowances on the approval of other proposals.
24 It is my understanding that in each of its rate case settlements since PWSA became a

³ PWSA St. No. 2, p. 50.

⁴ PWSA St. No. 2, pp. 49-50; PWSA St. No. 6, p. 26.

1 regulated public utility, PWSA has agreed to develop a plan to remove the minimum
2 allowances, and I recommend that it be required to make a tariff filing effective January
3 1, 2025 to implement removal of the minimum allowances in a revenue neutral manner.

4 Q. HOW DID PWSA DEVELOP ITS PROPOSED FIXED MONTHLY
5 CHARGES?

6 A. The development of the components of the proposed fixed monthly customer charges
7 for FY 2024 is presented on Exhibits HJS-8W and HJS-12W, page 6. The monthly
8 customer charge for each meter size consists of meter/services costs, billing costs, a
9 minimum allowance usage charge, a public fire charge, and a readiness-to-serve
10 component.

11 Q. DO YOU HAVE ANY CONCERNS WITH PWSA'S PROPOSED DESIGN
12 OF FIXED MONTHLY CUSTOMER CHARGES?

13 A. Yes. Only the direct costs required to connect and maintain a customer's account
14 should be included in the calculation of a customer charge. In addition, it is reasonable
15 to include 75% of the Public Fire cost of service through customer charges. As
16 indicated on Exhibit HJS-8W, PWSA has improperly included indirect administrative
17 support expenses in its calculation of customer charges. These costs are not direct costs
18 that are required to connect and maintain a customer's account and, therefore, should
19 not be recovered through customer charges. In addition, PWSA has included a
20 readiness-to-serve component in its proposed customer charges.⁵ While PWSA does
21 not define this component, page 97 of the AWWA M1 Manual describes it as "related
22 to charges that aim at capturing the costs of having a system in place to provide water
23 to the customer regardless of whether the customer consumes any water in a given

⁵ PWSA St. 7, p. 29

1 service period.”⁶ In PWSA’s water COS study, this readiness-to-serve component
2 reflects an additional allocation of debt service costs. There is no basis for this
3 allocation and no precedent in Pennsylvania for the inclusion of a readiness-to-serve
4 component in customer charges. As shown on Exhibit HJS-2W, the meters/services
5 component of PWSA’s proposed customer charges has already been assigned a portion
6 of debt service costs. It is inappropriate to include a readiness-to-serve charge in
7 PWSA’s fixed monthly customer charge, and this component should be eliminated.

8 Q. HAVE YOU REVISED PWSA’S CALCULATION OF CUSTOMER
9 CHARGES TO REMOVE THE INDIRECT ADMINISTRATIVE COSTS
10 AND THE READINESS-TO-SERVE COST COMPONENT WHICH PWSA
11 HAS IMPROPERLY INCLUDED IN IT MONTHLY CUSTOMER
12 CHARGE RATE CALCULATIONS?

13 A. Yes. A revised calculation of monthly customer charges for FY 2024 is presented in
14 Exhibit JDM-3. As shown on Exhibit JDM-3, for FY 2024, my revised calculation
15 reduces the monthly customer charge for a typical Residential water customer served
16 by a 5/8-inch meter to \$26.38 from the \$32.43 shown on HJS-12W, page 1. I note that
17 the \$26.38 charge is less than the existing charge of \$26.52 which became effective
18 January 1, 2023.⁷ To the extent the Commission authorizes an increase in this
19 proceeding which is less than PWSA’s requested increase for FY 2024, I recommend
20 that the customer charges I have proposed for FY 2024 be proportionately scaled back
21 to reflect the reduced revenue increase.

⁶ AWWA Manual M1, Principles of Water Rates, Fees, and Charges, Seventh Edition, 2017, American Water Works Association

⁷ Supplement No. 9, Tariff Water – Pa. P.U.C. No. 1, Second Revised Page No. 8.

1 **III. WASTEWATER CONVEYANCE SERVICE**

2 **A. Cost of Service Study**

3 Q. WHAT METHODOLOGY DID PWSA UTILIZE IN PREPARING ITS
4 WASTEWATER CONVEYANCE COST OF SERVICE STUDY?

5 A. PWSA used the functional cost allocation methodology described in *Financing and*
6 *Charges for Wastewater Systems; Manual of Practice No. 27* published by the Water
7 Environment Federation (“Manual of Practice No. 27”). This method allocates the cost
8 of providing wastewater service to customer classifications in proportion to each
9 classification’s use of the service provider’s facilities and services. Costs are assigned
10 to cost components using predominant operational purposes as cost-causative factors.
11 The functional cost allocation method is generally accepted as a sound method for
12 allocating the cost of wastewater service.

13 Q. PLEASE IDENTIFY THE CUSTOMER CLASSES INCLUDED IN
14 PWSA’S WASTEWATER CONVEYANCE STUDY.

15 A. With the exception of the fire protection service classes, the same customer classes
16 included in PWSA’s water COS study are included in PWSA’s wastewater conveyance
17 COS study.

18 Q. DO YOU GENERALLY FIND PWSA’S WASTEWATER CONVEYANCE
19 COST OF SERVICE STUDY TO BE REASONABLE?

20 A. Yes. I find PWSA’s wastewater conveyance cost of service study to be reasonable.

1 **B. Wastewater Revenue Allocation**

2 Q. LIKE THE WATER COS STUDY, PWSA ALSO PRESENTS
3 UNADJUSTED AND ADJUSTED WASTEWATER COSTS OF SERVICE
4 FOR EACH CUSTOMER CLASS. PLEASE IDENTIFY THE
5 ADJUSTMENTS MADE BY PWSA TO THE UNADJUSTED
6 WASTEWATER CONVEYANCE COST OF SERVICE STUDY.

7 A. As shown on Exhibit HJS-9WW, PWSA is proposing several adjustments to the
8 unadjusted cost of service for wastewater conveyance service. Similar to the water cost
9 of service adjustments, PWSA is proposing a bad debt expense adjustment, a
10 Wholesale customer revenue deficiency adjustment, a gradualism adjustment for the
11 Industrial class, and a Customer Assistance Program adjustment. PWSA is also
12 proposing a gradualism adjustment for stormwater service.

13 Q. IS THE WHOLESALE WASTEWATER REVENUE DEFICIENCY
14 ADJUSTMENT A CONCERN IN THIS PROCEEDING AS WAS THE
15 WATER WHOLESALE REVENUE DEFICIENCY ADJUSTMENT?

16 A. No. The amount of the adjustment is *de minimis* (\$4,465).

17 Q. WHAT ABOUT THE INDUSTRIAL GRADUALISM ADJUSTMENT?

18 A. No. That adjustment is also *de minimis* (\$3,000).

19 Q. PLEASE DESCRIBE THE STORMWATER GRADUALISM
20 ADJUSTMENT.

21 A. For FY 2024, PWSA is proposing to recover \$9.5 million of its stormwater revenue
22 requirement from wastewater conveyance customers.

1 Q. DID PWSA PROPOSE A STORMWATER GRADUALISM ADJUSTMENT
2 IN ITS MOST RECENT PRIOR RATE PROCEEDING AT DOCKET NOS.
3 R-20213024774 (WASTEWATER) AND R-2021-3024779
4 (STORMWATER)?

5 A. Yes. PWSA proposed a stormwater gradualism adjustment of \$12.4 million which
6 reflected 33.8% of total wastewater conveyance costs. The settlement approved in that
7 proceeding provided for a gradualism adjustment of \$10.6 million which reflected
8 30.5% of total wastewater conveyance costs.

9 Q. WHAT PERCENTAGE OF TOTAL WASTEWATER CONVEYANCE
10 COSTS DOES THE \$9.5 STORMWATER GRADUALISM ADJUSTMENT
11 REPRESENT IN THIS PROCEEDING?

12 A. For FY 2024, the \$9.5 million stormwater gradualism adjustment proposed by PWSA
13 in this proceeding represents 19% of total wastewater conveyance costs.

14 Q. HOW DO THE PROPOSED INCREASES IN WASTEWATER
15 CONVEYANCE AND STORM WATER RATES INITIALLY COMPARE
16 FOR FY 2024 IN THIS PROCEEDING?

17 A. Inclusive of the stormwater gradualism adjustment, the overall wastewater conveyance
18 rate increase proposed by PWSA in this proceeding for FY 2024 is 4%. The overall
19 stormwater rate increase proposed by PWSA for FY 2024 is 29%.

20 Q. IS IT YOUR RECOMMENDATION THAT THE STORMWATER
21 GRADUALISM PROPOSED BY PWSA BE APPROVED BY THE
22 COMMISSION?

23 A. Yes. The stormwater gradualism adjustment proposed by PWSA reflects a reduction to
24 both the total amount of the adjustment and on a percentage basis from that approve in
25 the settlement of PWSA's most recent prior proceeding. However, to the extent the

1 Commission authorizes a total stormwater revenue requirement that is less than the
2 revenue requirement requested by PWSA, I recommend that the reduction first be
3 applied to reduce the stormwater gradualism adjustment assigned to wastewater
4 conveyance customers, and only if there is an amount remaining should it then be
5 proportionately applied to reduce the stormwater revenue requirement not assigned to
6 wastewater customers. I also recommend that the class revenues and rates proposed by
7 PWSA for FY 2024 be proportionately scaled-back to reflect the final wastewater
8 conveyance revenue requirement for each fiscal year as determined by the Commission
9 in this proceeding.

10 **C. Rate Design**

11 Q. IS PWSA PROPOSING TO MAKE ANY CHANGES TO THE EXISTING
12 WASTEWATER CONVEYANCE RATE STRUCTURE?

13 A. No. PWSA is not proposing to make any changes to the wastewater conveyance rate
14 structure for the rates proposed for FY 2024. However, similar to what it proposed for
15 water service, PWSA is proposing to eliminate the minimum allowances included in
16 its monthly customer charges in FY 2025.

17 Q. SINCE THE OCA IS RECOMMENDING THAT PWSA'S MRYP FOR FY
18 2025 AND FY 2026 NOT BE APPROVED, ARE YOU RECOMMENDING
19 THAT PWSA BE REQUIRED TO FILE TO REFLECT ELIMINATION OF
20 THE MINIMUM USAGE ALLOWANCES CURRENTLY INCLUDED IN
21 ITS WASTEWATER CONVEYANCE MONTHLY CUSTOMER
22 CHARGES EFFECTIVE JANUARY 1, 2025 THROUGH A REVENUE
23 NEUTRAL FILING?

24 A. Yes. For the same reasons I am recommending that PWSA file to eliminate its water
25 service minimum allowances effective January 1, 2025, PWSA should be required to

1 file to eliminate its wastewater conveyance minimum allowances effective January 1,
2 2025 through a revenue neutral filing.

3 Q. ARE THE FIXED MONTHLY CUSTOMER CHARGES FOR
4 WASTEWATER CONVEYANCE SERVICE DEVELOPED USING THE
5 SAME APPROACH PWSA USED FOR THE WATER SERVICE FIXED
6 MONTHLY CUSTOMER CHARGES?

7 A. Generally, yes. However, there is no Public Fire cost of service under recovery
8 component. Similar to what is proposed for water service, PWSA is proposing to
9 include a readiness-to-serve component in the charge. The proposed customer charges
10 for FY 2024 are developed on Exhibits HJS-7WW and HJS-11WW, page 1.

11 Q. DO YOU HAVE ANY CONCERNS WITH PWSA'S PROPOSED DESIGN
12 OF THE FIXED MONTHLY CUSTOMER CHARGES FOR
13 WASTEWATER CONVEYANCE SERVICE?

14 A. As with the water service, only the direct costs required to connect and maintain a
15 customer's account should be included in the calculation of wastewater conveyance
16 customer charges. As indicated on Exhibit HJS-7WW, PWSA has improperly included
17 indirect administrative support expense in its calculation of customer charges. In
18 addition, as with water service, PWSA has included a readiness-to-serve component in
19 its proposed customer charges. For the same reasons previously discussed for water
20 service, it is inappropriate to include a readiness-to-serve component in the calculation
21 of wastewater conveyance customer charges.

1 Q. HAVE YOU REVISED PWSA’S CALCULATION OF WASTEWATER
2 CONVEYANCE CUSTOMER CHARGES TO REMOVE THE INDIRECT
3 ADMINISTRATIVE COSTS AND THE READINESS-TO-SERVE COST
4 COMPONENT WHICH PWSA HAS IMPROPERLY INCLUDED IN IT
5 MONTHLY CUSTOMER CHARGE RATE CALCULATIONS?

6 A. Yes. A revised calculation of monthly customer charges for FY 2024 is presented in
7 Exhibit JDM-4. As shown on Exhibit JDM-4, for FY 2024, my revised calculation
8 reduces the monthly customer charge for a typical Residential wastewater customer
9 served by a 5/8-inch meter to \$5.90 from the \$7.42 shown on HJS-11WW, page 1. To
10 the extent the Commission authorizes an increase in this proceeding which is less than
11 PWSA’s requested increase for FY 2024, I recommend that the customer charges I
12 have proposed for FY 2024 be proportionately scaled-back to reflect the reduced
13 revenue increase.

14 **IV. STORMWATER SERVICE**

15 Q. DID PWSA PERFORM A STORMWATER CLASS COST OF SERVICE
16 STUDY?

17 A. No. Stormwater rates for all customers are assessed based on equivalent Residential
18 units (“ERU”), and PWSA calculated stormwater rates based on ERU. PWSA
19 developed an analysis showing the cost of serving each ERU. PWSA’s rates for
20 stormwater service for Residential customers are based on a three-tier rate structure,
21 with rates that vary based on the impervious area of a customer’s property. All other
22 customers are assessed rates for stormwater service based on the ERU of the customer’s
23 property.

1 Q. DID PWSA ALSO PREPARE AN UNADJUSTED AND ADJUSTED
2 STORMWATER COST OF SERVICE AS IT DID FOR WATER AND
3 WASTEWATER CONVEYANCE SERVICE?

4 A. Yes, it did. As it did for water and wastewater conveyance service, as shown on Exhibit
5 HJS-5SW, PWSA made adjustments for bad debt expense and the Customer Assistance
6 Program. PWSA also adjusted the unadjusted cost of service by \$9.5 million to reflect
7 the stormwater costs to be recovered from wastewater customers, and the costs
8 associated with a stormwater credit program. Under this credit program, customers can
9 reduce their stormwater charges fee by taking specific actions to reduce their demand
10 for stormwater service.

11 Q. ARE YOU PROPOSING ANY ADJUSTMENTS TO PWSA'S
12 STORMWATER RATE DESIGN?

13 A. No. To the extent that the Commission authorizes an increase in stormwater revenues
14 for FY 2024 which is less than that requested by PWSA, the rates proposed by PWSA
15 should be proportionately scaled back.

16 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

17 A. Yes, it does; however, I reserve the right to update this testimony as may be necessary.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY)	
COMMISSION)	
	)	DOCKET NOS. R-2023-3039920 (WATER)
v.	)	R-2023-3039921 (WASTEWATER)
	)	R-2023-3039919 (STORMWATER)
THE PITTSBURGH WATER AND)	
SEWER AUTHORITY)	

EXHIBITS ACCOMPANYING THE
DIRECT TESTIMONY OF
JEROME D. MIERZWA

ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

AUGUST 9, 2023

EXHIBIT JDM-1

Curriculum Vitae

of

Jerome D. Mierzwa

JEROME D. MIERZWA

Mr. Mierzwa is a Principal of Exeter Associates, Inc., with over 35 years of public utility regulatory experience. At Exeter, Mr. Mierzwa has been involved in purchased gas cost allocation analysis and rate design analysis, conducting management audits and similar investigations of the natural gas supply and procurement policies and practices of local distribution companies (LDCs), and has provided assistance in proceedings before the Federal Energy Regulatory Commission (FERC). Mr. Mierzwa has participated in the planning of natural gas procurements for major federal installations located in various regions of the country. Mr. Mierzwa has been involved in evaluating performance-based incentive regulation for LDC purchased gas costs and the unbundling of LDC services. Mr. Mierzwa has also participated in developing utility class cost-of-service studies, has presented testimony sponsoring gas, water and wastewater utility cost-of-service studies, least-cost gas procurement and incentive regulation, in addition to presenting testimony addressing utility rate base and revenues.

Education

M.B.A. (Finance), 1985
Canisius College
Buffalo, New York

B.S. (Marketing), 1981
Canisius College
Buffalo, New York

Gas Rates Fundamental Course, 1987
University of Wisconsin
Madison, Wisconsin
Sponsored by the American Gas Association

Previous Employment

1986-1990 Rate Analyst
 National Fuel Gas Company
 Buffalo, New York

Previous Experience

Prior to joining Exeter in 1990, Mr. Mierzwa served as a rate analyst at National Fuel Gas Supply Corporation, an interstate pipeline. In that position, he was involved in preparing purchased gas adjustment filings and reviewing the rate filings of interstate pipeline suppliers. Mr. Mierzwa was also involved in preparing supplier rate, gas sales, and gas purchase price forecasts; examining the rate implications of storage activity; and analyzing rate of return, cash working capital, and potential merger and acquisition candidates.

Presentations

The NASUCA annual meetings in Reno, Nevada, November 1994 (presentation concerning spot market gas incentive procurement programs).

The NASUCA annual meetings in San Antonio, Texas, November 1991 (presentation

concerning the Federal Energy Regulatory Commission (FERC) Mega-NOPR proceeding which led to the adoption of FERC Order No. 636).

Expert Testimony

(*Recurring*) Northern Indiana Public Service Company (Indiana Utility Regulatory Commission). Presented testimony addressing gas procurement activity, reported costs, and the gas performance-based incentive mechanism on behalf of the Indiana Office of Utility Consumer Counselor.

<u>Cause No.</u>	<u>Date</u>	<u>Cause No.</u>	<u>Date</u>
43629-GCA-67	July 2023	43629-GCA-40	October 2016
43629-GCA-66	April 2023	43629-GCA-39	July 2016
43629-GCA-65	January 2023	43629-GCA-38	April 2016
43629-GCA-64	October 2022	43629-GCA-37	January 2016
43629-GCA-63	July 2022	43629-GCA-36	October 2015
43629-GCA-62	April 2022	43629-GCA-35	July 2015
43629-GCA-61	January 2022	43629-GCA-34	April 2015
43629-GCA-60	October 2021	43629-GCA-33	January 2015
43629-GCA-59	July 2021	43629-GCA-32	October 2014
43629-GCA-58	April 2021	43629-GCA-31	July 2014
43629-GCA-57	January 2021	43629-GCA-30	May 2014
43629-GCA-56	October 2020	43629-GCA-29	January 2014
43629-GCA-55	July 2020	43629-GCA-28	October 2013
43629-GCA-54	April 2020	43629-GCA-27	July 2013
43629-GCA-53	January 2020	43629-GCA-26	April 2013
43629-GCA-52	October 2019	43629-GCA-25	January 2013
43629-GCA-51	July 2019	43629-GCA-24	December 2012
43629-GCA-50	May 2019	43629-GCA-20	November 2011
43629-GCA-49	January 2019	43629-GCA-16	November 2010
43629-GCA-48	October 2018	43629-GCA-11	December 2009
43629-GCA-47	July 2018	43629-GCA-10	March 2009
43629-GCA-46	April 2018	43629-GCA-9	December 2007
43629-GCA-45	January 2018	43629-GCA-8	October 2006
43629-GCA-44	October 2017	43629-GCA-7	December 2005
43629-GCA-43	July 2017	43629-GCA-6	January 2005
43629-GCA-42	April 2017	43629-GCA-5	October 2004
43629-GCA-41	January 2017		

The Pittsburgh Water and Sewer Authority – Bureau of Water (Pennsylvania Public Utility Commission Docket Nos. R-2023-3039920, R-2023-3039921 and R-2023-3039919), August 2023. Presented testimony addressing water, wastewater and stormwater cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Washington Gas Light Company (Maryland Public Service Commission Case No. 9704), August 2023. Presented testimony addressing utility class cost of service and rate design on behalf of the Maryland Office of People’s Counsel.

Columbia Water Company – Bureau of Water (Pennsylvania Public Utility Commission Docket No. R-2023-3040258), August 2023. Presented testimony addressing water utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Maryland, Inc. (Maryland Public Service Commission Case No. 9701), July 2023. Presented testimony addressing class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Northern Utilities, Inc. d/b/a Unitil (Maine Public Utilities Commission Docket No. 2023-00051), July 2023. Presented testimony addressing class cost of service and rate design on behalf of the Maine Office of the Public Advocate.

Indiana-American Water Company, Inc. (Indiana Utility Regulatory Commission Cause No. 45870), July 2023. Presented testimony addressing water and wastewater utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Chattanooga Gas Company (Tennessee Public Utility Commission Docket No. 07-00224), July 2023. Authored report reviewing performance based ratemaking mechanism on behalf of the Utility Division of the Tennessee Public Utility Commission and Consumer Advocate Unit in the Financial Division of the Tennessee Attorney General's Office.

Fitchburg Gas and Electric Light Company d/b/a Unitil (Massachusetts Department of Public Utilities D.P.U. 23-25), June 2023. Presented testimony addressing gas procurement practices and policies on behalf of the Massachusetts Attorney General's Office.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2023-3038630), May 2023. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Water Department (Philadelphia Water Commissioner, Fiscal Years 2024-2025), April 2023. Presented testimony addressing the utility class cost of service and rate design on behalf of the Public Advocate.

Aqua America, Inc.; Aqua Pennsylvania, Inc.; Aqua Pennsylvania Wastewater, Inc.; Peoples Natural Gas Company, LLC; and Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2022-3037141, March 2023. Presented testimony addressing proposed merger application on behalf of the Pennsylvania Office of Consumer Advocate.

Boston Gas Company d/b/a National Grid (Massachusetts Department of Public Utilities D.P.U. 22-149), March 2023. Presented testimony addressing gas procurement practices and policies on behalf the Massachusetts Attorney General's Office.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 22-0737), March 2023. Presented testimony addressing gas procurement practices and policies on behalf of the Staff of the Delaware Service Commission and the Delaware Division of the Public Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 22-0726), February 2023. Presented testimony addressing gas procurement practices and policies on behalf of the Staff of the Delaware Service Commission and the Delaware Division of the Public Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2022-3035730), January 2023. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Aquarion Water Company of Connecticut (The Office of Consumer Counsel Docket No. 22-07-01), October 2022. Presented testimony addressing class cost of service and rate design on behalf of the Office of Consumer Counsel.

Narragansett Electric Company d/b/a Rhode Island Energy 2022 Gas Cost Recovery Filing (Public Utilities Commission of the State of Rhode Island Docket No. 22-20-NG), September 2022. Presented testimony addressing petition for gas cost recovery on behalf of the Rhode Island Division of Public Utilities and Carriers.

Leatherstocking Gas Company LLC (Pennsylvania Public Utility Commission Docket No. R-2022-3032764), September 2022. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

The York Water Company (Pennsylvania Public Utility Commission Docket Nos. R-2022-3031340 and -3032806), August 2022. Presented testimony addressing water and wastewater class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Pennsylvania American Water Company (Pennsylvania Public Utility Commission Docket Nos. R-2022-3031672 and -3031673), July 2022. Presented testimony addressing water and wastewater class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Maryland, Inc. (Maryland Public Service Commission Case No. 9680), July 2022. Presented testimony addressing class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2022-3032242), June 2022. Presented testimony addressing the allocation of purchased gas costs on behalf the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2022-3031211), June 2022. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2022-3031172), May 2022. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2022-3030661), April 2022. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2022-3030664), April 2022. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2022-303686), April 2022. Presented testimony addressing purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2021-3030218), April 2022. Presented testimony addressing class cost of service and rate design on behalf the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC and Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket Nos. A-2022-3029831 and -3020833), March 2022. Presented testimony addressing proposed merger application on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2022-3030235), March 2022. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Eversource Gas of Massachusetts (Massachusetts Department of Public Utilities D.P.U. 21-118), March 2022. Presented testimony addressing storage-related Asset Management Agreements on behalf of the Massachusetts Attorney General's Office.

East Chicago Sanitary District Industrial Group (Indiana Utility Regulatory Commission Cause No. 45632), March 2022. Presented testimony addressing water utility cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 21-0677), January 2022. Presented testimony addressing gas procurement practices and policies on behalf of the Staff of the Delaware Service Commission and the Delaware Division of the Public Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 21-0672), January 2022. Presented testimony addressing gas procurement practices and policies on behalf of the Staff of the Delaware Service Commission and the Delaware Division of the Public Advocate.

City of Lancaster – Bureau of Water (Pennsylvania Public Utility Commission Docket No. R-2021-3026682), December 2021. Presented testimony addressing water utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Maryland Water Service, Inc. (Maryland Public Service Commission Case No. 9671), December 2021. Presented testimony addressing water utility class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Narragansett Electric Company d/b/a National Grid 2021 Gas Cost Recovery Filing (Public Utilities Commission of the State of Rhode Island Docket No. 5180), September 2021. Presented testimony addressing petition for gas cost recovery on behalf of the Rhode Island Division of Public Utilities and Carriers.

The Borough of Hanover Municipal Waterworks (Pennsylvania Public Utility Commission Docket No. R-2021-3026116), September 2021. Presented testimony addressing water utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Maryland, Inc. (Maryland Public Service Commission Case No. 9664), July 2021. Presented testimony addressing allocated cost of service and rate design on behalf of the Maryland Office of People's Counsel.

City of Bloomington (Indiana Utility Regulatory Commission Cause No. 45533), July 2021. Presented testimony addressing water utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Community Utilities of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket Nos. R-2021-3025206 and -3025207), July 2021. Presented testimony addressing water and wastewater utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2021-3024296), June 2021. Presented testimony addressing the utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Bangor Natural Gas Company (Maine Public Utilities Commission Docket No. 2021-00024), June 2021. Presented testimony addressing utility class cost of service and rate design on behalf of the Maine Office of the Public Advocate.

Fitchburg Gas and Electric Light Company d/b/a Unitil (Massachusetts Department of Public Utilities D.P.U. 21-10), May 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Massachusetts Attorney General's Office.

UGI Utilities, Inc. – Electric Division (Pennsylvania Public Utility Commission Docket No. R-2021-3023618), May 2021. Presented testimony addressing allocated class cost of service and rate design on behalf the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2021-3024349), May 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2021-3023967), April 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2021-3023965), April 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2021-3023670), April 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Water Department (Philadelphia Water Commissioner, Fiscal Years 2022-2023), March 2021. Presented testimony addressing the utility class cost of service and rate design on behalf of the Public Advocate.

Liberty Utilities (EnergyNorth Natural Gas) (New Hampshire Public Utilities Commission Docket No. DG-20-105), March 2021. Presented testimony addressing utility class cost of service and rate design on behalf of the New Hampshire Office of the Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2021-3023541), March 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Boston Gas Company d/b/a National Grid (Massachusetts Department of Public Utilities D.P.U. 20-132), February 2021. Presented testimony addressing gas procurement practices and policies on behalf the Massachusetts Attorney General's Office.

Potomac Electric Power Company (Maryland Public Service Commission Case No. 9655), February 2021. Presented testimony addressing electric utility class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 20-0573), February 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Liberty Utilities (New England Gas Company) d/b/a Liberty Utilities (Massachusetts Department of Public Utilities D.P.U. 20-92), February 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Massachusetts Attorney General's Office.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 20-0549), January 2021. Presented testimony addressing gas procurement practices and policies on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

NSTAR Gas Company d/b/a Eversource Energy (Massachusetts Department of Public Utilities D.P.U. 20-76), December 2020. Presented testimony addressing the utility design day planning standards on behalf of the Massachusetts Attorney General's Office.

City of Columbus (Indiana Utility Regulatory Commission Cause No. 45427), December 2020. Presented testimony addressing water utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Audubon Water Company (Pennsylvania Public Utility Commission Docket No. R-2020-3020919), November 2020. Presented testimony addressing water utility rate design and distribution system improvement charges on behalf of the Pennsylvania Office of Consumer Advocate.

City of Bethlehem (Pennsylvania Public Utility Commission Docket No. R-2020-3020256), November 2020. Presented testimony addressing utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate

Narragansett Electric Company d/b/a National Grid 2020 Gas Cost Recovery Filing (Public Utilities Commission of the State of Rhode Island Docket No. 5066), October 2020. Presented testimony addressing petition for gas cost recovery on behalf of the Rhode Island Division of Public Utilities and Carriers.

Baltimore Gas and Electric Company (Maryland Public Service Commission Case No. 9645), August 2020. Presented testimony addressing utility electric and gas class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Columbia Gas of Maryland, Inc. (Maryland Public Service Commission Case No. 9644), July 2020. Presented testimony addressing utility class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Pittsburgh Water and Sewer Authority (Pennsylvania Public Utility Commission Docket Nos. R-2020-3017951 and -3027970), July 2020. Presented testimony addressing distribution system improvement charges on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2020-3018835), July 2020. Presented testimony addressing utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2020-3017206), June 2020. Presented testimony addressing utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2020-3015162), May 2020. Presented testimony addressing utility class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2020-3017846), May 2020. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2020-3017850), May 2020. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Providence Water Supply Board (Rhode Island Public Utilities Commission Docket No. 4994), May 2020. Presented testimony addressing utility class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2019-3017934), April 2020. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

NSTAR Gas Company d/b/a Eversource Energy (Massachusetts Department of Public Utilities D.P.U. 19-120), March 2020. Presented testimony addressing a proposed gas demand response program on behalf of the Massachusetts Attorney General's Office.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2020-3015251), March 2020. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 19-0556), January 2020. Presented testimony addressing the proposed gas cost rate on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 19-0573), January 2020. Presented testimony addressing the proposed gas service rate on behalf of the State of Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Granite Water Company (South Carolina Public Service Commission Docket No. 2019-290-WS), January 2020. Presented testimony addressing cost allocation and rate design on behalf of the South Carolina Department of Consumer Affairs.

Pennsylvania Power Company (Pennsylvania Public Utility Commission Docket No. P-2019-3012628), November 2019. Presented testimony addressing an increase in distribution system improvement charge cap on behalf of the Pennsylvania Office of Consumer Advocate.

Newtown Artesian Water Company (Pennsylvania Public Utility Commission Docket No. R-2017-2624240), November 2019. Presented testimony addressing a proposed increase in the distribution system improvement charge cap on behalf of the Pennsylvania Office of Consumer Advocate.

Wellsboro Electric Company; Valley Energy, Inc.; and Citizens' Electric Company of Lewisburg, PA (Pennsylvania Public Utility Commission Docket Nos. R-2019-3008208, -3008209 and -3008212), October 2019. Presented testimony addressing electric allocated cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

National Grid (State of Rhode Island and Providence Plantations Public Utilities Commission Docket No. 4963), October 2019. Presented testimony addressing the petition for gas cost recovery on behalf of the Rhode Island Division of Public Utilities and Carriers.

Columbia Gas of Maryland, Inc. (Maryland Public Service Commission Case No. 9609), August 2019. Presented testimony addressing allocated cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Washington Gas Light Company (Maryland Public Service Commission Case No. 9605), July 2019. Presented testimony addressing utility class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Brown County Water Utility, Inc. (Indiana Utility Regulatory Commission Cause No. 45210), July 2019. Presented testimony addressing water utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

City of Newport (Rhode Island Public Utilities Commission Docket No. 4933), July 2019. Presented testimony addressing water utility class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2019-3009647), July 2019. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

PECO Energy Company (Pennsylvania Public Utility Commission Docket No. R-2019-3009624), July 2019. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2019-3009016), June 2019. Presented testimony addressing a proposed negotiated LNG service on behalf of the Pennsylvania Office of Consumer Advocate.

Morgan County Rural Water Corporation (Indiana Utility Regulatory Commission Cause No. 45198), June 2019. Presented testimony addressing water utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Peoples Natural Gas Company, LLC – Peoples and Equitable Divisions (Pennsylvania Public Utility Commission Docket Nos. R-2019-3007612 and -3007617), May 2019. Presented testimony addressing the allocation of purchased gas costs behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2019-3007613), May 2019. Presented testimony addressing gas procurement practices and the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2019-3008255), May 2019. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2019-3007636), April 2019. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2018-3006814), April 2019. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Aqua America, Inc.; Aqua Pennsylvania, Inc.; Aqua Pennsylvania Wastewater, Inc.; Peoples Natural Gas Company, LLC; and Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket Nos. A-2018-3006061, -3006062 and -3006063), April 2019. Presented testimony addressing proposed merger application on behalf of the Pennsylvania Office of Consumer Advocate.

Fitchburg Gas and Electric Light Company d/b/a Unitil (Massachusetts Department of Public Utilities D.P.U. 19-02), April 2019. Presented testimony addressing gas procurement practices and policies on behalf of the Massachusetts Attorney General's Office.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2019-3007636), April 2019. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 18-1056), February 2019. Presented testimony addressing the allocation of purchased gas costs on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

CenterPoint Energy Resources Corp. d/b/a CenterPoint Energy Arkansas (Arkansas Public Service Commission Docket No. 18-057-U), February 2019. Presented testimony addressing gas procurement practices and policies on behalf of the Arkansas Attorney General's Office.

City of Woonsocket – Water Division (Rhode Island Public Utilities Commission Docket No. 4879), January 2019. Presented testimony addressing water utility class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

CWA Authority, Inc. (Indiana Utility Regulatory Commission Cause No. 45151), January 2019. Presented testimony addressing water utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 18-1049), January 2019. Presented testimony addressing the GCR on behalf of the Staff of the Delaware Public Service Commission and Delaware Division of the Public Advocate.

Liberty Utilities (New England Gas Company) d/b/a Liberty Utilities (Massachusetts Department of Public Utilities D.P.U. No. 18-68), December 2018. Presented testimony addressing gas procurement practices and policies on behalf of the Massachusetts Attorney General's Office.

Indiana-American Water Company, Inc. (Indiana Utility Regulatory Commission Cause No. 45152), December 2018. Presented testimony addressing water and wastewater utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Maryland-American Water Company (Maryland Public Service Commission Case No. 9481), September 2018. Presented testimony addressing water utility class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

Town of Chandler (Indiana Utility Regulatory Commission Cause No. 45062), August 2018. Presented testimony addressing water utility class cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Washington Gas Light Company (Maryland Public Service Commission Case No. 9481), August 2018. Presented testimony addressing class cost of service and rate design on behalf of the Maryland Office of People's Counsel.

The York Water Company (Pennsylvania Public Utility Commission Docket No. R-2018-3000019), August 2018. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Suez Water Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2018-3000834), July 2018. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc.; UGI Central Penn Gas, Inc.; and UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket Nos. A-2018-3000381, -3000382 and -3000383), July 2018. Presented testimony to assist in evaluating the Companies' proposed merger on behalf of the Pennsylvania Office of Consumer Advocate.

Suez Water Rhode Island, Inc. (Rhode Island Public Utilities Commission Docket No. 4800), June 2018. Presented testimony addressing class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2018-3001632), June 2018. Presented testimony addressing the Company's gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. (Pennsylvania Public Utility Commission Docket No. R-2018-3001633), June 2018. Presented testimony addressing the Company's gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2018-3001631), June 2018. Presented testimony addressing the Company's gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Gas Company, LLC – Peoples and Equitable Divisions (Pennsylvania Public Utility Commission Docket Nos. R-2018-2645278 and -3000236), May 2018. Presented testimony addressing the Company’s gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2018-2645296), May 2018. Presented testimony addressing the Company’s gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Water Department (Philadelphia Water Commissioner, Fiscal Years 2019-2021 Rates), April 2018. Presented testimony addressing water, wastewater and stormwater cost allocation and rate design on behalf of the Public Advocate.

UGI Utilities, Inc. – Electric Division (Pennsylvania Public Utility Commission Docket No. R-2017-2640058), April 2018. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2018-2641577), March 2018. Presented testimony addressing off-system sales on behalf of the Pennsylvania Office of Consumer Advocate.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 17-1021), February 2018. Presented testimony addressing the reasonableness of the Company’s gas procurement practices and policies on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Bay State Gas Company d/b/a Columbia Gas of Massachusetts (Massachusetts Department of Public Utilities D.P.U. 17-166), January 2018. Presented testimony addressing Asset Management Agreement pricing structure on behalf of the Massachusetts Attorney General’s Office.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 17-1013), January 2018. Presented testimony addressing the reasonableness of the Company’s gas procurement practices and policies on behalf of the Staff of the Delaware Public Service Commission and Delaware Division of the Public Advocate.

CenterPoint Energy Arkansas Gas (Arkansas Public Service Commission Docket No. 17-050-U), December 2017. Presented testimony addressing Asset Management Agreements on behalf of the Arkansas Attorney General’s Office.

Newtown Artesian Water Company (Pennsylvania Public Utility Commission Docket No. R-2017-2624240), November 2017. Presented testimony addressing Distribution System Improvement Charges on behalf of the Pennsylvania Office of Consumer Advocate.

Questar Gas Company (Utah Public Service Commission Docket No. 17-057-09), August 2017. Presented testimony addressing transportation balancing charges on behalf of the Utah Office of Consumer Services.

Northern Utilities, Inc. (Maine Public Utilities Commission Docket No. 2017-00065), August 2017. Presented testimony addressing class cost of service and rate design on behalf of the Maine Office of the Public Advocate.

Fitchburg Gas and Electric Light Company d/b/a Unitil (Massachusetts Department of Public Utilities D.P.U. 17-12), June 2017. Presented testimony addressing Asset Management Agreement pricing structure on behalf of the Massachusetts Attorney General's Office.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2017-2586783), May 2017. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC – Peoples and Equitable Divisions (Pennsylvania Public Utility Commission Docket Nos. R-2017-2586310 and -2586318), May 2017. Presented testimony addressing retainage on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples TWP, LLC (Pennsylvania Public Utility Commission Docket No. R-2017-2586317), May 2017. Presented testimony addressing retainage on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples TWP, LLC (Pennsylvania Public Utility Commission Docket No. R-2017-2587526), April 2017. Presented testimony addressing least cost gas procurement practices on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2017-2582461), March 2017. Presented testimony addressing rate design on behalf of the Pennsylvania Office of Consumer Advocate.

CWA Authority, Inc. (Indiana Utility Regulatory Commission Cause No. 44685-S1), March 2017. Presented testimony addressing cost allocation and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Entergy Gulf States Louisiana, LLC (Louisiana Public Service Commission Docket No. U-34298), March 2017. Presented testimony addressing the appropriate rate recovery method for the expenses associated with the dry cask storage of spent nuclear fuel and the refund/ratemaking treatment for the damage awards received on behalf of the Staff of the Louisiana Public Service Commission.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 16-0908), February 2017. Presented testimony addressing the reasonableness of the Company's gas procurement practices and policies on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 16-0889), January 2017. Presented testimony addressing the reasonableness of the Company's gas procurement practices and policies on behalf of the Staff of the Delaware Public Service Commission.

Citizens' Electric Company of Lewisburg, PA and Wellsboro Electric Company (Pennsylvania Public Utility Commission Docket Nos. R-2016-2531550 and -2531551), December 2016. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Duquesne Light Company (Pennsylvania Public Utility Commission Docket No. P-2016-2540046), November 2016. Presented testimony addressing the design of the Company's Distribution System Improvement Charge on behalf of the Pennsylvania Office of Consumer Advocate.

James Black Water Service Company (Pennsylvania Public Utility Commission Docket No. R-2013-2395443), November 2016. Presented testimony addressing the evaluation of the application to begin to offer, render, furnish and supply water service in Jefferson Township, Pennsylvania on behalf of the Pennsylvania Office of Consumer Advocate.

Providence Water Supply Board (Rhode Island Public Utilities Commission Docket No. 4618), October 2016. Presented testimony addressing class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

Entergy Gulf States Louisiana, LLC (Louisiana Public Service Commission Docket No. U-32245), September 2016. Presented testimony addressing the fuel adjustment clause of Entergy Louisiana, LLC on behalf of the Staff of the Louisiana Public Service Commission.

Kent County Water Authority (Rhode Island Public Utilities Commission Docket No. 4611), September 2016. Presented testimony addressing class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 15-1734), August 2016. Presented testimony addressing the cost of service study and rate design on behalf of the Staff of the Delaware Public Service Commission.

Community Utilities of Pennsylvania, Inc. – Water Division (Pennsylvania Public Utility Commission Docket No. R-2016-2538660), July 2016. Presented testimony addressing rate design on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. P-2016-2537594), July 2016. Presented testimony addressing the filing for a waiver of the statutory Distribution System Improvement Charge cap of five percent of billed revenues on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. P-2016-2537609), July 2016. Presented testimony addressing the filing for a waiver of the statutory Distribution System Improvement Charge cap of five percent on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2016-2529660), June 2016. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

National Grid (Massachusetts Department of Public Utilities D.P.U. 16-05), June 2016. Presented testimony addressing the petition for approval of two, 20-year gas transportation service agreements to support electric generation on behalf of the Massachusetts Attorney General's Office.

Eversource Energy (Massachusetts Department of Public Utilities D.P.U. 15-181), June 2016. Presented testimony addressing the petition for approval of two, 20-year gas transportation service agreements to support electric generation on behalf of the Massachusetts Attorney General's Office.

UGI Utilities, Inc. (Pennsylvania Public Utility Commission Docket No. R-2016-2543309), June 2016. Presented testimony addressing the acquisition of peaking services on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2016-2543314), June 2016. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2016-2543311), June 2016. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC – Peoples and Equitable Divisions (Pennsylvania Public Utility Commission Docket Nos. R-2016-2528562 and -2529260), May 2016. Presented testimony addressing the discounting of retainage charges on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. P-2016-2521993), April 2016. Presented testimony addressing the filing for a waiver of the statutory Distribution System Improvement Charge cap of five percent of billed revenues on behalf of the Pennsylvania Office of Consumer Advocate.

City of Newport (Rhode Island Public Utilities Commission Docket No. 4595), April 2016. Presented testimony addressing class cost of service on behalf of the Rhode Island Division of Public Utilities and Carriers.

Community Utilities of Indiana, Inc. (Indiana Utility Regulatory Commission Cause No. 44644), April 2016. Presented testimony addressing cost allocation and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Peoples TWP, LLC (Pennsylvania Public Utility Commission Docket No. R-2016-2528557), March 2016. Presented testimony addressing retainage charges on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2016-2521819), March 2016. Presented testimony addressing the acquisition of interstate pipeline firm transportation capacity on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Water Department (Philadelphia Water Commissioner, Fiscal Years 2017-2018 Rates), March 2016. Presented testimony addressing water, wastewater, and stormwater cost allocation and rate design on behalf of the Public Advocate.

CWA Authority, Inc. (Indiana Utility Regulatory Commission Cause No. 44685), January 2016. Presented testimony addressing cost allocation and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 15-1362), January 2016. Presented testimony addressing lost and unaccounted-for gas, and the allocation of upstream interstate pipeline capacity on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 15-1355), January 2016. Presented testimony addressing interstate pipeline capacity and gas supply contracting practices on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Duke Energy Ohio, Inc. (Public Utilities Commission of Ohio Case No. 15-218-GA-GCR), December 2015. Authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

Citizens Water (Indiana Utility Regulatory Commission Cause No. 44644), October 2015. Presented testimony addressing water cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2015-2480950), July 2015. Presented testimony addressing interstate pipeline capacity contracting and the evaluation of alternative design day capacity resources on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2015-2480934), July 2015. Presented testimony addressing design day forecasting and the recovery of LNG costs on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2015-2480937), July 2015. Presented testimony addressing capacity contracting and LNG cost recovery on behalf of the Pennsylvania Office of Consumer Advocate.

Questar Gas Company (Utah Public Service Commission Docket No. M-057-31), July 2015. Presented testimony addressing transportation balancing charges on behalf of the Utah Office of Consumer Services.

Pawtucket Water Supply Board (Rhode Island Public Utilities Commission Docket No. 4550), June 2015. Presented testimony addressing water class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

Columbia Gas of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-2015-2468056), June 2015. Presented testimony addressing cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission), May 2015. Co-authored an Assessment Report of the Potential Benefits of Electric Service Aggregation for Delmarva Power & Light Company's Residential and Small Commercial Customers on behalf of the Delaware Public Service Commission.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2015-2465656), April 2015. Presented testimony addressing the interstate pipeline capacity and cash-out imbalance reconciliation procedures on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC and Peoples Natural Gas Company, LLC – Equitable Division (Pennsylvania Public Utility Commission Docket Nos. R-2015-2465172 and -2465181), April 2015. Presented testimony addressing the allocation of interstate pipeline capacity charges and balancing charges, storage accounting, and design day on behalf of the Pennsylvania Office of Consumer Advocate.

Vectren Energy of Indiana (Indiana Utility Regulatory Commission Cause No. 37394-GCA-124S1), March 2015. Presented testimony addressing administration of the Company's gas cost incentive mechanism on behalf of the Indiana Office of Utility Consumer Counselor.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2015-2461373), March 2015. Presented testimony addressing balancing charges, off-system sales, and interstate pipeline capacity on behalf of the Pennsylvania Office of Consumer Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 14-0295F), January 2015. Presented testimony addressing interstate pipeline capacity and gas supply contracting practices on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 14-0299), January 2015. Presented testimony addressing lost and unaccounted-for gas, and the allocation of upstream interstate pipeline capacity on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 13-383), December 2014. Presented testimony addressing lost and unaccounted-for gas, and the allocation of excess upstream interstate pipeline capacity costs and balancing charges on behalf of the Staff of the Delaware Public Service Commission and the Delaware Division of the Public Advocate.

Duke Energy Ohio, Inc. (Public Utilities Commission of Ohio Case No. 14-841-EL-SSO), September 2014. Presented testimony addressing proposed Distribution Capital Investment Rider and Distribution Storm Rider on behalf of the Office of the Ohio Consumers Counsel.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2014-2420276), July 2014. Presented testimony addressing the contracting for interstate pipeline capacity and the reconciliation of gas costs and revenues on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2014-2420273), July 2014. Presented testimony addressing affiliated pipeline charges on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2014-2420279), July 2014. Presented testimony to addressing affiliated pipeline charges on behalf of the Pennsylvania Office of Consumer Advocate.

Chattanooga Gas Company (Tennessee Regulatory Authority Docket No. 07-00224), July 2014. Prepared a report reviewing the Company's performance-based ratemaking mechanism on behalf of the Tennessee Regulatory Authority and Consumer Advocate and Protection Division of the Tennessee Attorney General's Office.

Indiana American Water Company, Inc. (Indiana Utility Regulatory Commission Cause No. 44450), May 2014. Presented testimony addressing cost allocation and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Indiana American Water Company (Indiana Utility Regulatory Commission Cause No. 44450), May 2014. Presented testimony addressing water cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2014-2403935), May 2014. Presented testimony addressing standby charges, balancing charges, and the price-to-compare on behalf of the Pennsylvania Office of Consumer Advocate.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 13-351F), May 2014. Presented testimony addressing lost and unaccounted-for gas, and the allocation of upstream interstate pipeline capacity on behalf of the Staff of the Delaware Public Service Commission.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2014-2404355), April 2014. Presented testimony addressing the crediting of interstate pipeline capacity release revenues, gas supply put contracts, and the treatment of daily imbalance surcharges and cash-outs on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2014-2403939), April 2014. Presented testimony addressing the allocation of interstate pipeline capacity charges and balancing charges on behalf of the Pennsylvania Office of Consumer Advocate.

Atmos Energy Corporation (Louisiana Public Service Commission Docket No. U-32987), April 2014. Presented testimony addressing modifications to the Company's Rate Stabilization Clause on behalf of the Staff of the Louisiana Public Service Commission.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2014-2399610), March 2014. Presented testimony addressing design day forecasting and the allocation of capacity costs on behalf of the Pennsylvania Office of Consumer Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 13-349F), February 2014. Presented testimony addressing interstate pipeline capacity and gas supply contracting practices on behalf of the Staff of the Delaware Public Service Commission.

City of Michigan City (Indiana Utility Regulatory Commission Cause No. 44538), January 2014. Presented testimony addressing water cost allocation and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Nicor Gas Company (Illinois Commerce Commission Docket No. 03-0703), November 2013. Presented testimony addressing the reconciliation of purchase gas costs on behalf of the Citizens Utility Board.

The York Water Company (Pennsylvania Public Utility Commission Docket No. R-2012-2336379), September 2013. Presented testimony addressing water cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Providence Water Supply Board (Rhode Island Public Utilities Commission Docket No. 4406), August 2013. Presented testimony addressing water class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

CWA Authority, Inc. (Indiana Utility Regulatory Commission Cause No. 44305), August 2013. Presented testimony addressing wastewater cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

Washington Gas Light Company (Maryland Public Service Commission Case No. 9322), July 2013. Presented testimony addressing cost of service, rate design and other tariff changes on behalf of the Maryland Office of People's Counsel.

Citizens Water (Indiana Utility Regulatory Commission Cause No. 44306), July 2013. Presented testimony addressing water cost of service and rate design on behalf of the Indiana Office of Utility Consumer Counselor.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2013-2361764), July 2013. Presented testimony addressing the contracting for interstate pipeline capacity and the reconciliation of gas costs and revenues on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2013-2361771), July 2013. Presented testimony addressing the contracting for interstate pipeline capacity and the reconciliation of gas costs and revenues on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2013-2361763), July 2013. Presented testimony addressing the reconciliation of gas costs and revenues on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples TWP, LLC (Pennsylvania Public Utility Commission Docket No. R-2013-2355886), July 2013. Presented testimony addressing gas cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2013-2350914), May 2013. Presented testimony addressing retainage charges on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2013-2346376), April 2013. Presented testimony addressing interstate pipeline capacity and gas contracting practices on behalf of the Pennsylvania Office of Consumer Advocate.

Delmarva Power & Light Company (Delaware Public Service Commission Docket No. 12-419F), March 2013. Presented testimony addressing interstate pipeline capacity and gas supply contracting practices on behalf of the Staff of the Delaware Public Service Commission.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2013-2341534), March 2013. Presented testimony addressing design day forecasting and the allocation of capacity costs on behalf of the Pennsylvania Office of Consumer Advocate.

Chesapeake Utilities Corporation (Delaware Public Service Commission Docket No. 12-450F), March 2013. Presented testimony addressing lost-and-unaccounted-for gas, and the allocation of upstream interstate pipeline capacity on behalf of the Staff of the Delaware Public Service Commission.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2012-2333993), February 2013. Presented testimony addressing tariff filing to establish a Gas Procurement Charge and a Merchant Function Charge on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2012-2333983), February 2013. Presented testimony addressing tariff filing to establish a Gas Procurement Charge and a Merchant Function Charge on behalf of the Pennsylvania Office of Consumer Advocate.

PECO Energy Company (Pennsylvania Public Utility Commission Docket No. R-2012-2328614), January 2013. Presented testimony addressing tariff filing to establish a Gas Procurement Charge on behalf of the Pennsylvania Office of Consumer Advocate.

City of Newport (Rhode Island Public Utilities Commission Docket No. 4355), December 2012. Presented testimony addressing water cost of service on behalf of Rhode Island Division of Public Utilities and Carriers.

Duke Energy Ohio, Inc. (Public Utilities Commission of Ohio Case No. 12-218-GA-GCR), November 2012. Authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2012-2314224); UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2012-2314235); and UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2012-2314247), October 2012. Presented testimony addressing Gas Procurement Charges on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2012-2302221), July 2012. Presented testimony addressing design peak day forecasting and the sharing of capacity release revenues on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2012-2302220), July 2012. Presented testimony addressing design peak day forecasting and the assignment of interstate pipeline capacity on behalf of the Pennsylvania Office of Consumer Advocate.

City of Woonsocket – Water Division (Rhode Island Public Utilities Commission Docket No. 4320), June 2012. Presented testimony addressing water cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

PECO Energy Company (Pennsylvania Public Utility Commission Docket No. R-2012-2302784), June 2012. Presented testimony addressing the procurement of long-term fixed-price gas supplies on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2012-2285985), May 2012. Presented testimony addressing cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2012-2287044), May 2012. Presented testimony addressing the crediting of asset management agreement fees and the allocation of capacity costs on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2012-2292082), May 2012. Presented testimony addressing retainage charges on behalf of the Pennsylvania Office of Consumer Advocate.

Cleco Power LLC (Louisiana Public Service Commission Docket No. U-30955), April 2012. Co-authored report auditing the reasonableness of the fuel costs of Cleco on behalf of the Staff of the Louisiana Public Service Commission.

Philadelphia Gas Works (Pennsylvania Public Utility Commission Docket No. R-2012-2286447), April 2012. Presented testimony addressing interstate pipeline capacity and gas supply contracting practices on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-2011-2273539), March 2012. Presented testimony addressing the reconciliation of gas costs and revenues on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2012-2281465), March 2012. Presented testimony addressing design day forecasting and the allocation of capacity costs and pipeline penalties on behalf of the Pennsylvania Office of Consumer Advocate.

United Water Rhode Island, Inc. (Rhode Island Public Utilities Commission Docket No. 4255), September 2011. Presented testimony addressing cost allocation and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

Northern Utilities, Inc. (Maine Public Utilities Commission Docket No. 2011-00092), August 2011. Presented testimony addressing cost allocation and rate design on behalf of the Maine Office of the Public Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2011-2238949), July 2011. Presented testimony addressing winter season planning criteria and capacity RFP process on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2011-2238943), July 2011. Presented testimony addressing design peak day forecasting, winter season planning criteria, and capacity RFP process on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2011-2238953), July 2011. Presented testimony addressing design peak day forecasting, winter season planning criteria, and capacity RFP process on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2011-2223563), May 2011. Presented testimony addressing retainage issues on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2011-2228694), May 2011. Presented testimony addressing retainage and lost-and-unaccounted-for gas issues on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2010-2214415), April 2011. Presented testimony addressing base rate cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. A-2010-221389), February 2011. Presented testimony addressing the transfer of facilities to an affiliate on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2010-2201702), January 2011. Presented testimony addressing base rate cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Ohio, Inc. (Public Utilities Commission of Ohio Case No. 10-221-GA-GCR), November 2010. Authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

North Shore Gas Company/The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket Nos. 07-0576 and -0577), October 2010. Presented testimony addressing the reasonableness and allocation of purchased gas costs on behalf of the Citizens Utility Board.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-2010-2167797), August 2010. Presented testimony addressing base rate cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Central Penn Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2010-2172922), July 2010. Presented testimony addressing the assignment of capacity on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2010-2172928), July 2010. Presented testimony addressing supplier reservation charges and capacity assignment on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2010-2172933), July 2010. Presented testimony addressing supplier reservation charges and capacity assignment on behalf of the Pennsylvania Office of Consumer Advocate.

PECO Energy Company – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2010-2161592), June 2010. Presented testimony addressing base rate cost allocation and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2010-2155613), May 2010. Presented testimony addressing design peak day forecasting, balancing charges, and off-system sales on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2010-2155608), May 2010. Presented testimony addressing retainage and design peak day forecasting issues on behalf of the Pennsylvania Office of Consumer Advocate.

Northern Natural Gas Company (Federal Energy Regulatory Commission Docket No. RP10-148), May 2010. Presented testimony addressing rate discounts on behalf of the Northern Municipal Distributors Group and Midwest Region Gas Task Force Association.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-2009-2145441), March 2010. Presented testimony addressing capacity release revenues and retainage on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2010-2150861), March 2010. Presented testimony addressing design day forecasting and transportation service balancing charges on behalf of the Pennsylvania Office of Consumer Advocate.

City of Newport (Rhode Island Public Utilities Commission Docket No. 4128), January 2010. Presented testimony sponsoring a water cost of service study on behalf of the Rhode Island Division of Public Utilities and Carriers.

Philadelphia Water Department (Philadelphia Water Commissioner, Fiscal Years 2009-2012 Rates), July 2008. Presented testimony addressing water and wastewater class cost of service and rate design on behalf of the Public Advocate.

Pawtucket Water Supply Board (Rhode Island Public Utilities Commission Docket No. 3945), July 2008. Presented testimony addressing class cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

North Shore Gas Company/The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket Nos. 06-0751, 06-0752, 07-0311 and 07-0312), July 2008. Presented testimony addressing park and loan activities and out-of-period gas cost adjustments on behalf of the Citizens Utility Board and the City of Chicago.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-2008-2039284), July 2008. Presented testimony addressing the acquisition of incremental capacity on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-2008-2039417), July 2008. Presented testimony addressing capacity release and off-system sales revenue sharing and the acquisition of incremental capacity on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-2008-2021160), May 2008. Presented testimony addressing exchange transactions on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-2008-2013026), March 2008. Presented testimony addressing the disposition of capacity release revenues on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-2008-2012502), March 2008. Presented testimony addressing design day forecasting and transportation service balancing charges on behalf of the Pennsylvania Office of Consumer Advocate.

Aqua Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-00072711), February 2008. Presented testimony addressing cost of service, rate design and purchased water rider on behalf of the Pennsylvania Office of Consumer Advocate.

Dominion East Ohio Gas Company (Public Utilities Commission of Ohio Case No. 07-219-GA-GCR), November 2007. Authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

Providence Water Supply Board (Rhode Island Public Utilities Commission Docket No. 3832), July 2007. Presented testimony addressing cost of service and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

North Shore Gas Company/The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket Nos. 07-0241 and -0242), July 2007. Presented testimony addressing the allocation of on-system storage on behalf of the Citizens Utility Board and City of Chicago.

UGI Penn Natural Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-00072334), July 2007. Presented testimony addressing gas procurement practices and policies on behalf of Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00072335), July 2007. Presented testimony addressing gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00072109), May 2007. Presented testimony addressing gas procurement practices and policies and fuel retention charge discounting on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-00072111), May 2007. Presented testimony addressing the allocation of purchased gas costs and gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00072043), March 2007. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

North Shore Gas Company/The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket Nos. 05-0748 and -0749), January 2007. Presented testimony addressing gas cost issues on behalf of the Citizens Utility Board and the City of Chicago.

Equitable Resources Inc./Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. A-122250F500), September 2006. Presented testimony addressing gas cost issues on behalf of the Pennsylvania Office of Consumer Advocate.

PPL Gas Utilities Corporation (Pennsylvania Public Utility Commission Docket No. R-00061519), July 2006. Presented testimony addressing gas procurement practices on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00061502), July 2006. Presented testimony addressing gas procurement practices on behalf of the Pennsylvania Office of Consumer Advocate.

Atmos Energy Corporation (Louisiana Public Service Commission Docket No. U-27703), May 2006. Authored report on audit of gas purchasing practices and cost allocation on behalf of the Staff of the Louisiana Public Service Commission.

Equitable Gas Company (Pennsylvania Public Utility Commission Docket No. R-00061295), May 2006. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00061301), May 2006. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Cincinnati Gas & Electric Company (Public Utilities Commission of Ohio Case No. 05-218-GA-GCR), April 2006. Authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00061246), March 2006. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-00051134), Inc. 2006. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Indiana Gas Company, Southern Indiana Gas & Electric Company, and Citizens Gas & Coke Utility (Indiana Utility Regulatory Commission Cause No. 42973), February 2006. Presented testimony addressing cost allocation on behalf of the Indiana Office of Utility Consumer Counselor.

Southwest Gas Corporation (Public Utilities Commission of Nevada Docket No. 05-5015), September 2005. Presented testimony addressing purchased gas cost recovery rates on behalf of the Nevada Office of Consumer Advocate.

Northern Utilities, Inc. (Maine Public Utilities Commission Docket No. 2005-00087), July 2005. Presented testimony addressing cost allocation and the assignment of interstate pipeline capacity on behalf of the Maine Office of the Public Advocate.

PPL Gas Utilities Corporation (Pennsylvania Public Utility Commission Docket No. R-00050540), July 2005. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00050539), July 2005. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

PECO Energy Company and Public Service Electric and Gas Company (Pennsylvania Public Utility Commission Docket No. A-110550F0160), June 2005. Presented testimony addressing issues related to the post-merger structure of the gas procurement function on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company (Pennsylvania Public Utility Commission Docket No. R-00050272), May 2005. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00050267), May 2005. Presented testimony addressing cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Pennsylvania (Pennsylvania Public Utility Commission Docket No. R-00049783), May 2005. Presented testimony addressing fixed-price sales services on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00050216), March 2005. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-00040059), March 2005. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Heartland Gas Pipeline, LLC and Citizens Gas & Coke Utility (Indiana Utility Regulatory Commission Cause Nos. 42729 and 42730), March 2005. Presented testimony addressing the petition of Heartland for a certificate of public convenience and necessity to construct an intrastate pipeline, and the petition of Citizens for approval of a storage service agreement on behalf of the Indiana Office of Utility Consumer Counselor.

Nicor Gas Company (Illinois Commerce Commission Docket No. 04-0779), February 2005. Presented testimony and addressing storage inventory carrying charges on behalf on the Citizens Utility Board and the Cook County State's Attorney's Office.

Citizens Gas & Coke Utility (Indiana Utility Regulatory Commission Cause No. 37399-GCA84-S1), February 2005. Presented testimony addressing gas exchange transactions on behalf of the Indiana Office of Utility Consumer Counselor.

Northern Natural Gas Company (Federal Energy Regulatory Commission Docket No. RP04-155-000), November 2004. Presented testimony addressing billing determinant to be used for rate design on behalf of the Northern Municipal Distributors Group and Midwest Region Gas Task Force Association.

Southwest Gas Corporation (Public Utilities Commission of Nevada Docket No. 04-6001), September 2004. Presented testimony addressing gas procurement practices on behalf of the Nevada Office of Consumer Advocate.

East Ohio Gas Company (Public Utilities Commission of Ohio Case No. 03-219-GA-GCR), August 2004. Co-authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

PFG, Inc. and North Penn Gas Company (Pennsylvania Public Utility Commission Docket No. R-00049424), July 2004. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00049422), July 2004. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket No. 01-0707), July 2003. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Citizens Utility Board.

Columbia Gas of Ohio, Inc. (Public Utilities Commission of Ohio Case No. 02-221-GA-GCR), July 2003. Co-authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00038411), July 2003. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company (Pennsylvania Public Utility Commission Docket No. R-00038166), May 2003. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00038170), May 2003. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00038101), April 2003. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-00027888), March 2003. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Cincinnati Gas & Electric Company (Public Utilities Commission of Ohio Case No. 01-218-GA-GCR), July 2002. Co-authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00027388), July 2002. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company (Pennsylvania Public Utility Commission Docket No. R-00027135), May 2002. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00027134), May 2002. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Northern Illinois Gas Company (Illinois Commerce Commission Docket No. 02-0067), April 2002. Presented testimony addressing performance-based gas cost incentive program on behalf of the Citizens Utility Board and Cook County State's Attorney's Office.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00016789), April 2002. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-00016898), March 2002. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket No. 01-0470), September 2001. Presented testimony addressing gas supply, unbundling, and restructuring customer choice issues on behalf of the Citizens Utility Board, Cook County State's Attorney's Office and the People of the State of Illinois.

Northern Shore Gas Company (Illinois Commerce Commission Docket No. 01-0469), September 2001. Presented testimony addressing gas supply, unbundling, and restructuring customer choice issues on behalf of the Citizens Utility Board, Cook County State's Attorney's Office and the People of the State of Illinois.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00016376), July 2001. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Dayton Power & Light Company (Public Utilities Commission of Ohio Case No. 00-220-GA-GCR), May 2001. Co-authored report on audit of gas purchasing practices and policies on behalf of the Public Utilities Commission of Ohio.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-00016132), May 2001. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00016115), May 2001. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00005832), April 2001. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Nicor Gas Company (Illinois Commerce Commission Docket Nos. 00-0620 and -0621), December 2000. Presented testimony addressing customer choice on behalf of the Citizens Utility Board.

Providence Water Supply Board (Rhode Island Public Utilities Commission Docket No. 3163), October 2000. Presented testimony addressing cost allocation and rate design on behalf of the Rhode Island Division of Public Utilities and Carriers.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00005281), July 2000. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

PECO Energy Company (Pennsylvania Public Utility Commission Docket No. R-00005285), July 2000. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R--00005067), May 2000. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00994898), April 2000. Presented testimony addressing gas procurement practices and cost allocation on behalf of the Pennsylvania Office of Consumer Advocate.

T.W. Phillips Gas & Oil Company (Pennsylvania Public Utility Commission Docket No. R-00994790), April 2000. Presented testimony addressing gas supply, unbundling, and rate design restructuring issues on behalf of the Pennsylvania Office of Consumer Advocate.

Cincinnati Gas & Electric Company (Public Utilities Commission of Ohio Case No. 99-218-GA-GCR), January 2000. Co-authored report on audit of management and performance of gas purchasing practices on behalf of the Public Utilities Commission of Ohio.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00994786), December 1999. Presented testimony addressing gas supply, unbundling and rate design restructuring issues on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00994785), December 1999. Presented testimony addressing gas supply, unbundling, and rate design restructuring issues on behalf of the Pennsylvania Office of Consumer Advocate.

Entergy Gulf States, Inc. (Public Utility Commission of Texas Docket No. 2111), December 1999. Presented testimony addressing the recovery of purchased power and purchased gas costs on behalf of certain Cities served by Entergy Gulf States, Inc.

City of Newport – Water Division (Rhode Island Public Utilities Commission Docket No. 2985), December 1999. Presented testimony addressing cost allocation and rate design issues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-00994784), October 1999. Presented testimony addressing the unbundling of gas utility services on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00994782), September 1999. Presented testimony addressing the unbundling of gas utility services on behalf of the Pennsylvania Office of Consumer Advocate.

Carnegie Natural Gas Company (Pennsylvania Public Utility Commission Docket No. C-00970942), September 1999. Presented testimony addressing the design of sales and transportation rates on behalf of the Pennsylvania Office of Consumer Advocate.

New Jersey Natural Gas Company (New Jersey Board of Utilities Docket No. G099030122), July 1999. Presented testimony addressing the unbundling of gas utility services on behalf of the New Jersey Ratepayer Advocate.

Elizabethtown Gas Company, New Jersey Natural Gas Company, Public Service Electric & Gas Company and South Jersey Gas Company (New Jersey Board of Public Utilities Docket Nos. GX99030121 – G099030125), July 1999. Presented testimony addressing the assignment of capacity by gas utilities to third-party suppliers and the recovery of stranded costs resulting from the unbundling of gas utility services on behalf of the New Jersey Ratepayer Advocate.

Nicor Gas Company (Illinois Commerce Commission Docket No. 99-0127), May 1999. Presented testimony addressing performance-based rates for purchased gas costs on behalf of the Citizens Utility Board.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00994600), May 1999. Presented testimony addressing the contracting for interstate pipeline capacity and the obligation to serve on behalf of the Pennsylvania Office of Consumer Advocate.

Delmarva Power and Light Company (Delaware Public Service Commission Docket No. 98-524), March 1999. Presented testimony addressing the customer choice pilot program on behalf of the Delaware Division of the Public Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00984497), March 1999. Presented testimony addressing the allocation of purchased gas costs, gas price projections, and the appropriate level of capacity entitlements on behalf of the Pennsylvania Office of Consumer Advocate.

North Shore Gas Company/The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket Nos. 98-0819 and -0820), February 1999. Presented testimony addressing proposals to adopt fixed gas cost charges on behalf of the Citizens Utility Board.

Columbia Gas of Ohio, Inc. (Public Utilities Commission of Ohio Case No. 98-223-GA-GCR), January 1999. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio.

Northern Natural Gas Company (Federal Energy Regulatory Commission Docket No. RP98-203-000), October 1998. Presented testimony addressing delivery point imbalance tolerance levels on behalf of the Northern Municipal Distributors Group and the Midwest Region Gas Task Force Association.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00984352), July 1998. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

East Ohio Gas Company (Public Utilities Commission of Ohio Case No. 97-219-GA-GCR), May 1998. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-00984279), May 1998. Presented testimony addressing the allocation of purchased gas costs and gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Pawtucket Water Supply Board (Rhode Island Public Utilities Commission Docket No. 2674), April 1998. Presented testimony addressing class cost of service on behalf of the Rhode Island Division of Public Utilities and Carriers.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00974167), March 1998. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Ohio, Inc. (Public Utilities Commission of Ohio Case No. 98-222-GA-GCR), March 1998. Co-authored report on the residential and small commercial pilot transportation program on behalf of the Public Utilities Commission of Ohio.

East Ohio Gas Company (Public Utilities Commission of Ohio Case No. 97-219-GA-GCR), March 1998. Co-authored report on the residential and small commercial pilot transportation program on behalf of the Public Utilities Commission of Ohio.

Southern Union Gas Company (City of El Paso, Texas) Inquiry into Southern Union Gas Company's Purchased Gas Adjustment Clause, March 1998. Presented testimony addressing the reasonableness of the Company's gas procurement practices and policies on behalf of the City of El Paso, Texas.

Sierra Pacific Power Company, Water Department (Public Utilities Commission of Nevada Docket No. 97-9020), January 1998. Presented testimony addressing class cost of service and rate design on behalf of the Nevada Office of Consumer Advocate.

Consumers Pennsylvania Water Company, Shenango Valley Division (Pennsylvania Public Utility Commission Docket No. R-00973972), September 1997. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

Commonwealth Gas Services, Inc. (Virginia State Corporation Commission Case No. PUE970455), August 1997. Presented testimony addressing the retail unbundling pilot program on behalf of the Division of Consumer Counsel, Office of the Attorney General.

Pennsylvania American Water Company (Pennsylvania Public Utility Commission Docket No. R-00973944), July 1997. Presented testimony addressing class cost of service and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00974012), July 1997. Presented testimony addressing the allocation of purchased gas costs, and the computation of off-system sales margins and margin sharing procedures on behalf of the Pennsylvania Office of Consumer Advocate.

Kent County Water Authority (Rhode Island Public Utilities Commission Docket No. 2555), June 1997. Presented testimony addressing class cost of service on behalf of the Rhode Island Division of Public Utilities and Carriers.

Southwest Gas Corporation (Public Utilities Commission of Nevada Docket No. 97-2005), June 1997. Presented testimony addressing the allocation of purchased gas costs and gas procurement practices and policies on behalf of the Nevada Office of Consumer Advocate.

Equitable Gas Company, LLC (Pennsylvania Public Utility Commission Docket No. R-00973895), May 1997. Presented testimony addressing the allocation of purchased gas costs and gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00963779), March 1997. Presented testimony addressing the allocation of purchased gas costs and gas procurement practices and policies on behalf of the Pennsylvania Office of Consumer Advocate.

Northern Illinois Gas Company (Illinois Commerce Commission Docket No. 96-0386), November 1996. Presented testimony addressing performance-based rate programs for purchased gas costs on behalf of the Citizens Utility Board.

West Ohio Gas Company (Public Utilities Commission of Ohio Case No. 96-221-GA-GCR), November 1996. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio.

Dayton Power & Light Company (Public Utilities Commission of Ohio Case No. 96-220-GA-GCR), September 1996. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio.

North Penn Gas Company and PFG Gas, Inc. (Pennsylvania Public Utility Commission Docket No. R-00963636), July 1996. Presented testimony addressing the recovery of excess interstate pipeline capacity costs on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00963563), May 1996. Presented testimony addressing the allocation and the projection of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00953487), March 1996. Presented testimony addressing incentive rate mechanisms, the allocation of purchased gas costs, and unauthorized service on behalf of the Pennsylvania Office of Consumer Advocate.

North Shore Gas Company/The Peoples Gas Light and Coke Company (Illinois Commerce Commission Docket Nos. 95-0490 and -0491), January 1996. Presented testimony addressing performance-based rate programs for purchased gas costs on behalf of the Citizens Utility Board.

Tennessee Gas Pipeline Company (Federal Energy Regulatory Commission Docket No. RP95-112-000), September 1995. Presented testimony addressing rate design determinants and revenues associated with long-term firm, short-term firm and interruptible services on behalf of the Pennsylvania Office of Consumer Advocate.

Eastern and Pike Natural Gas Companies (Public Utilities Commission of Ohio Case Nos. 95-215-GA-GCR and 95-216-GA-GCR), September 1995. Co-authored report on audit of management and performance of gas procurement activity on behalf of the Public Utilities Commission of Ohio.

United Cities Gas Company (Georgia Public Service Commission Docket No. 5651-U), August 1995. Presented testimony addressing the allocation of purchased gas costs on behalf of the Georgia Consumers' Utility Counsel.

Atlanta Gas Light Company (Georgia Public Service Commission Docket No. 5650-U), August 1995. Presented testimony addressing the purchased gas adjustment mechanism and gas procurement practices and policies on behalf of the Georgia Consumers' Utility Counsel.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00953299), June 1995. Presented testimony addressing storage working capital requirements, heating degree days to be utilized for weather normalization purposes, and sponsored a class cost of service study on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00953318), May 1995. Presented testimony addressing the acquisition of capacity resources, transportation balancing charges, performance-based incentive programs and lost-and-unaccounted-for and company-use gas on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00953297), May 1995. Presented testimony addressing the allocation of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

NorAm Gas Transmission Company (Federal Energy Regulatory Commission Docket No. RP94-343-000), March 1995. Presented testimony addressing rate design billing determinants and the treatment of revenues associated with short-term firm, interruptible and other services on behalf of the Staff of the Arkansas and Louisiana Public Service Commissions.

Trans Louisiana Gas Company (Louisiana Public Service Commission Docket No. U-19997), November 1994. Presented testimony addressing the results of a Commission-ordered investigation into the purchased gas adjustment clause on behalf of the Staff of the Louisiana Public Service Commission.

National Gas & Oil Corporation (Public Utilities Commission of Ohio Case No. 94-221-GA-GCR), October 1994. Co-authored report on audit of management and performance of gas procurement activity on behalf of the Public Utilities Commission of Ohio.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00943064), July 1994. Presented testimony addressing the allocation of purchased gas costs and incentive rate mechanisms on behalf of the Pennsylvania Office of Consumer Advocate.

Citizens Gas & Coke Utility (Indiana Utility Regulatory Commission Cause No. 37399-GCA41), May 1994. Presented testimony addressing the allocation and recovery of FERC Order No. 636 transition costs on behalf of the Indiana Office of Utility Consumer Counselor.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00943028), April 1994. Presented testimony addressing the allocation of purchased gas costs, FERC Order No. 636 transition costs, take-or-pay costs, incentive rate mechanisms and the projection of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00932885), April 1994. Presented testimony addressing the allocation of purchased gas costs, FERC Order No. 636 transition costs, incentive rate mechanisms, and the projection of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00932927), March 1994. Presented testimony addressing transportation service balancing requirement modifications and service enhancements in response to FERC Order No. 636 on behalf of the Pennsylvania Office of Consumer Advocate.

Ohio Gas Company (Public Utilities Commission of Ohio Case No. 93-14-GA-GCR), October 1993. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio.

Sierra Pacific Power Company, Gas Operations (Public Utilities Commission of Nevada Docket No. 93-4087), September 1993. Presented testimony addressing the allocation of purchased gas costs to electric and gas operations on behalf of the Nevada Office of Consumer Advocate.

UGI Utilities, Inc. – Gas Division (Pennsylvania Public Utility Commission Docket No. R-00932674), July 1993. Presented testimony addressing the allocation of purchased gas costs, FERC Order No. 636 transition costs, and least-cost gas procurement on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Supply Corporation (Federal Energy Regulatory Commission Docket No. RP93-73-000), July 1993. Presented testimony addressing test year throughput and rate design on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00932548), July 1993. Presented testimony addressing test year revenues and FERC Order No. 636 transition costs on behalf of the Pennsylvania Office of Consumer Advocate.

Dauphin Consolidated Water Supply Company and General Waterworks of Pennsylvania, Inc. (Pennsylvania Public Utility Commission Docket No. R-00932604), June 1993. Presented testimony addressing test year net operating income on behalf of the Pennsylvania Office of Consumer Advocate.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket No. R-00932598), May 1993. Presented testimony addressing the allocation of purchased gas costs, FERC Order No. 636 transition costs, and least-cost gas procurement on behalf of the Pennsylvania Office of Consumer Advocate.

Philadelphia Suburban Water Company (Pennsylvania Public Utility Commission Docket No. R-00922476), March 1993. Presented testimony addressing test year revenues and expenses on behalf of the Pennsylvania Office of Consumer Advocate.

National Fuel Gas Distribution Corporation (Pennsylvania Public Utility Commission Docket No. R-00922499), March 1993. Presented testimony addressing the allocation of purchased gas costs, FERC Order No. 636 transition costs, and the projection of purchased gas costs on behalf of the Pennsylvania Office of Consumer Advocate.

Columbia Gas of Ohio, Inc. (Public Utilities Commission of Ohio Case No. 92-18-GA-GCR), January 1993. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio.

Dallas, Harvey's Lake, Noxen and Shavertown Water Companies (Pennsylvania Public Utility Commission Docket Nos. R-922326, R-922327, R-922328 and R-922329), September 1992. Presented testimony addressing rate base and net operating income issues on behalf of the Pennsylvania Office of Consumer Advocate.

Providence Water Supply Board (Rhode Island Public Utilities Commission Docket No. 2048), August 1992. Presented testimony sponsoring a class cost of service study, cash working capital, and revenues on behalf of the Rhode Island Division of Public Utilities and Carriers.

Peoples Natural Gas Company (Pennsylvania Public Utility Commission Docket Nos. R-00922180 and R-00922206), May 1992. Presented testimony sponsoring a revised forecast of purchased gas costs and least-cost gas procurement on behalf of the Pennsylvania Office of Consumer Advocate.

Equitable Gas Company, LLC and Jefferson Gas Company (Pennsylvania Public Utility Commission Docket No. R-00912164), April 1992. Presented testimony sponsoring a revised forecast of test year sales and revenues on behalf of the Pennsylvania Office of Consumer Advocate.

Louisiana Gas Service Company (Louisiana Public Service Commission Docket No. U-19237), December 1991. Presented testimony addressing rate base including cash working capital, cost allocation and rate design on behalf of the Staff of the Louisiana Public Service Commission.

Cincinnati Gas & Electric Company (Public Utilities Commission of Ohio Case No. 91-16-GA-GCR), October 1991. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio. (Findings and recommendations were stipulated to without cross-examination.)

City of Great Falls Water Utility (Montana Public Service Commission Docket No. 90.10.67), March 1991. Presented a cost of service study on behalf of the U.S. Air Force.

City of Great Falls Wastewater Utility (Montana Public Service Commission Docket No. 90.10.66), March 1991. Presented a cost of service study on behalf of the U.S. Air Force.

Columbia Gas of Ohio, Inc. (Public Utilities Commission of Ohio Case No. 90-17-GA-GCR), November 1990. Co-authored report on audit of management and performance of gas purchasing on behalf of the Public Utilities Commission of Ohio. (Findings and recommendations were stipulated to without cross-examination.)

EXHIBIT JDM-2

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set II**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-II-5 With respect to unmetered City of Pittsburgh properties:

- a. Please provide the most recent schedule (by year) for metering unmetered City properties; and
- b. Please provide the estimated annual water usage (by year) for the unmetered City properties.

Response:

- a. Currently there are 2 properties owned by the city which still require a meter. The PWSA is ordering the materials to complete these but lead time for materials is a standing issue.
- b. PWSA does not have an estimate for the annual water usage for the unmetered properties.

Response Provided by: William J. Pickering, Chief Executive Officer
Jennifer Presutti, Chief Operating Officer and Chief Financial Officer
The Pittsburgh Water and Sewer Authority

Dated: June 9, 2023

EXHIBIT JDM-3

Pittsburgh Water and Sewer Authority
FPFY 2024 COS & Rate Design Model
 Minimum Charge Calculation

Exhibit JDM-3

COS Rate Build-Up - Test Year: 2024									
Water	Min. Usage Proposed	Meters/Services	Billing	Usage	Total COS Rates	Adjustments			Proposed Rates
						Public Fire	R.T.S.	CAP-BDP	
Minimum Charge									
5/8"	1	\$ 5.64	1.96	14.53	\$ 22.12	\$ 4.26	\$ -	\$ -	26.38
3/4"	2	8.45	1.96	29.05	39.46	6.38	-	-	45.85
1"	5	14.09	1.96	72.63	88.68	10.64	-	-	99.32
1 1/2"	10	28.18	1.96	145.26	175.40	21.28	-	-	196.68
2"	17	45.09	1.96	246.94	293.99	34.05	-	-	328.04
3"	40	90.18	1.96	581.04	673.17	68.10	-	-	741.27
4"	70	140.91	1.96	1,016.81	1,159.68	106.40	-	-	1,266.08
6"	175	281.81	1.96	2,542.04	2,825.81	212.80	-	-	3,038.61
8"	325	450.90	1.96	4,720.93	5,173.78	340.48	-	-	5,514.26
10" & Above	548	648.17	1.96	7,960.21	8,610.33	489.44	-	-	9,099.77
Unmetered	1	5.64	1.96	14.53	22.12	4.26	-	-	26.38
<u>Residential - CAP</u>									
5/8"	1	\$ 5.64	1.96	14.53	\$ 22.12	\$ 4.26	\$ -	\$ (26.38)	\$ -
3/4"	2	8.45	1.96	29.05	39.46	6.38	-	(45.85)	-
1"	5	14.09	1.96	72.63	88.68	10.64	-	(99.32)	-
Unmetered	1	5.64	1.96	14.53	22.12	4.26	-	(26.38)	-
<u>Monthly Fire Protection</u>									
<u>Public</u>					<i>Total</i>				
Per Hydrant		\$ -	-	\$ 87.17	\$ 87.17	\$ (65.38)	\$ -	\$ -	\$ 21.79
<u>Private</u>									
1" or Less		\$ 14.09	1.96	\$ 0.78	\$ 16.83	\$	\$ -	\$ -	\$ 16.83
1 1/2"-3"		45.09	1.96	4.85	51.89		-	-	51.89
4"		140.91	1.96	30.01	172.87		-	-	172.87
6" or Greater		281.81	1.96	87.17	370.94		-	-	370.94

EXHIBIT JDM-4

Pittsburgh Water and Sewer Authority
FPFY 2024 COS & Rate Design Model
 Minimum Charge Calculation

Exhibit JDM-4

Min. Usage
Existing

Wastewater Conveyance

Minimum Charge

5/8"	1
3/4"	2
1"	5
1 1/2"	10
2"	17
3"	40
4"	70
6"	175
8"	325
10" & Above	548
Unmetered	1

Residential - CAP

5/8"	1
3/4"	2
1"	5
Unmetered	1

COS Rate Build-Up - Test Year: 2024									
Meter	Billing	Usage	Total COS Rates	Adjustments		Proposed Rates			
				R. T. S	CAP-BDP				
\$	0.88	\$	3.06	\$	5.90	\$	-	\$	5.90
	1.32	1.96	6.11	9.39	9.39	-	-	-	9.39
	2.20	1.96	15.28	19.44	19.44	-	-	-	19.44
	4.39	1.96	30.55	36.91	36.91	-	-	-	36.91
	7.03	1.96	51.94	60.93	60.93	-	-	-	60.93
	14.06	1.96	122.21	138.24	138.24	-	-	-	138.24
	21.97	1.96	213.87	237.80	237.80	-	-	-	237.80
	43.94	1.96	534.68	580.58	580.58	-	-	-	580.58
	70.31	1.96	992.97	1,065.24	1,065.24	-	-	-	1,065.24
	101.07	1.96	1,674.30	1,777.33	1,777.33	-	-	-	1,777.33
	0.88	1.96	3.06	5.90	5.90	-	-	-	5.90
\$	0.88	\$	3.06	\$	5.90	\$	(5.90)	\$	-
	1.32	1.96	6.11	9.39	9.39	-	-	-	9.39
	2.20	1.96	15.28	19.44	19.44	-	-	-	19.44
	0.88	1.96	3.06	5.90	5.90	-	-	-	5.90


BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Jerome D. Mierzwa, hereby state that the facts set forth in my Direct Testimony, OCA Statement 3, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: August 9, 2023
*349812

Signature: 
Jerome D. Mierzwa

Consultant Address: Exeter Associates, Inc.
10480 Little Patuxent Parkway
Suite 300
Columbia, MD 21044-3575

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket No. R-2023-3039920 (water)
	:	
v.	:	Docket No. R-2023-3039921 (wastewater)
	:	
Pittsburgh Water and Sewer Authority	:	Docket No. R-2023-3039919 (stormwater)
	:	

Direct Testimony of Roger Colton

on behalf of

Pennsylvania Office of Consumer Advocate

OCA Statement 4

August 9, 2023



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1 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

2 A. My name is Roger D. Colton. My business address is 34 Warwick Road, Belmont, MA.

3 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?**

4 A. I am owner of the firm of Fisher Sheehan & Colton, Public Finance and General
5 Economics of Belmont, Massachusetts. In that capacity, I provide technical assistance to
6 a variety of federal, state and municipal agencies, consumer organizations and public
7 utilities on rate and customer service issues involving water/sewer, natural gas and
8 electric utilities.

9 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

10 A. I am testifying on behalf of the Office of Consumer Advocate.

11 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.**

12 A. I work primarily on low-income utility issues. This involves regulatory work on rate and
13 customer service issues, as well as research into low-income usage, payment patterns,
14 and affordability programs. At present, I am working on various projects in the states of
15 New Hampshire, Connecticut, Maryland, Pennsylvania, Ohio, Michigan, Wisconsin and
16 Illinois. My clients include state agencies (e.g., Pennsylvania Office of Consumer
17 Advocate, Maryland Office of People's Counsel, Connecticut Office of Consumers
18 Counsel), federal agencies (e.g., the U.S. Department of Health and Human Services),
19 community-based organizations (e.g., Cleveland Legal Aid Society, Legal Action of
20 Chicago, Sierra Club), and private utilities (e.g., Toledo Water). In addition to state-
21 specific and utility-specific work, I engage in national work throughout the United States.
22 For example, in 2020, I represented a coalition of major national consumer organizations

1 to comment on the Environmental Protection Agency’s proposed framework by which to
2 judge community financial capability. I recently completed a project with the Natural
3 Resources Defense Council to develop a tool by which to assess the financial impact of
4 differing types of low-income bill assistance. In 2020, I completed a study of water
5 affordability in twelve U.S. cities for the London-based newspaper, The Guardian. In
6 2021, I authored a Water Affordability Plan for the City of Toledo (OH) under contract
7 with the City. I continue to be of counsel to the National Coalition for Legislation on
8 Affordable Water (NCLA-Water). A brief description of my professional background is
9 provided in Exhibit RDC-1.

10 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.**

11 A. After receiving my undergraduate degree in 1975 (Iowa State University), I obtained
12 further training in both law and economics. I received my law degree in 1981 (University
13 of Florida). I received my Master’s Degree (Regulatory Economics) from the MacGregor
14 School in 1993.

15 **Q. HAVE YOU EVER PUBLISHED ON PUBLIC UTILITY REGULATORY ISSUES?**

16 A. Yes. I have published three books and more than 80 articles in scholarly and trade
17 journals, primarily on low-income utility and housing issues. I have published an equal
18 number of technical reports for various clients on energy, water, telecommunications and
19 other associated low-income utility issues. A summary of my publications is included in
20 Exhibit RDC-1.

1 **Q. HAVE YOU EVER TESTIFIED BEFORE THIS OR OTHER UTILITY**
2 **COMMISSIONS?**

3 A. Yes. I have testified before the Pennsylvania Public Utility Commission (“PUC” or
4 “Commission”) on numerous occasions regarding utility issues affecting low-income
5 customers and customer service. My testimony has specifically included testimony in
6 various proceedings involving low-income issues relating to Pennsylvania American
7 Water Company (PAWC), Pittsburgh Water and Sewer Authority (PWSA), and Aqua PA.
8 In addition to this PUC testimony, I have testified on issues related to customer service
9 and low-income bill affordability for the City of Philadelphia’s Public Advocate in each
10 rate case involving the Philadelphia Water Department since 1990. I have also testified in
11 regulatory proceedings in 43 states and various Canadian provinces on a wide range of
12 utility issues. A list of the jurisdictions in which I have testified is listed in Exhibit RDC-
13 1.

14 **Q. PLEASE EXPLAIN THE PURPOSE OF YOUR DIRECT TESTIMONY.**

15 A. The purpose of my Direct Testimony is to review the reasonableness of the design and
16 proposed implementation of the low-income bill payment assistance programs offered by
17 the Pittsburgh Water and Sewer Authority (PWSA). More specifically, I will examine the
18 reasonableness of PWSA’s proposed policies and design elements regarding:

- 19 ➤ The enrollment of customers into PWSA’s Bill Discount Program (BDP);
20 ➤ The design and structure of PWSA’s BDP;
21 ➤ The design and structure of PWD’s Arrearage Forgiveness Program (AFP);
22 ➤ The rate recovery of BDP/AFP costs; and

1 ➤ Certain customer service issues that disproportionately adversely affect low-
 2 income customers.

3 I finally review the consistency of my testimony with the testimony provided at the
 4 Public Input Hearings.

5 **Q. PLEASE SUMMARIZE THE RECOMMENDATIONS YOU MAKE FOR PWSA.**

6 A. Based on the data and discussion presented throughout my Direct Testimony, I
 7 recommend:

8 ➤ That PWSA be directed to engage in geo-targeted outreach. Such outreach
 9 should include outbound phone calling, outbound e-mails, and outbound
 10 mailings specifically directed toward geographic areas identified as having
 11 high concentrations of PWSA’s lowest income customers. In addition to this
 12 geo-targeted outbound outreach, PWSA should be directed to identify specific
 13 customers in these geo-targeted areas that exhibit payment difficulties that
 14 could reasonably be associated with an inability-to-pay.

15 ➤ That PWSA be directed to adopt a performance-based incentive program for
 16 community-based organizations to identify the lowest income customers and
 17 to facilitate the enrollment of such customers in the (BDP).

18 ➤ That PWSA be directed to contact the City of Pittsburgh to negotiate
 19 mechanisms through which it can cross-enroll customers through other
 20 municipal offices serving the City of Pittsburgh.

21 ➤ That PWSA be directed to submit to its Low Income Affordability Advisory
 22 Committee (LIAAC) the question of how enhanced technology could increase
 23 the enrollment and retention of low-income customers in BDP.

24 ➤ That PWSA’s proposal to expand the BDP maximum income eligibility to
 25 200% FPL be approved.

26 ➤ PWSA be directed to submit to its LIAAC the question of how to encourage
 27 low-income tenants to transfer service into their own name.

28 ➤ That PWSA be directed to adopt a modest increase in the monthly bills credits
 29 proposed by PWSA to achieve PWSA’s own-stated objective of “minimizing
 30 31 32 33 34

1 customer impacts as PWSA transitions away from rate structures that include
2 minimum allowances.”

- 3
- 4 ➤ That PWSA be directed to incorporate a new income tier into its BDP, with
5 this tier incorporating customers with income greater than 50% FPL and at or
6 below 100% FPL. I recommend further that a discount of 30% (rather than
7 the Tier 1 discount of 50%) be provided to this income tier.
- 8
- 9 ➤ That the volumetric discount for customers with annual income at or below
10 50% FPL be increased from 50% to 60%.
- 11
- 12 ➤ That PWSA be directed to automatically enroll any customer who newly
13 enrolls in the BDP into the Arrearage Forgiveness Program (AFP) as well. In
14 addition, I recommend that the PUC direct PWSA to retroactively enroll
15 customers who have previously enrolled in BDP, and who currently have
16 arrears, into AFP. Such enrollment of existing BDP participants with arrears
17 would subject the BDP participant arrears to the rules of the AFP for all
18 arrears on the account at the time of AFP enrollment.
- 19
- 20 ➤ That the PUC adopt the same policy for PWSA that it has adopted for the
21 arrearage forgiveness programs for the state’s natural gas and electricity
22 distribution companies. PWSA should *begin* by providing arrearage
23 forgiveness credits for each payment made in-full and on-time. *In addition*,
24 PWSA should provide retroactive credits for payments that fully pay a bill,
25 even if those payments are made after the bill payment “due date.”
- 26
- 27 ➤ That PWSA be directed to modify its AFP so that it reflects the policies that
28 the PUC has adopted with respect to arrearage forgiveness for Pennsylvania’s
29 electricity and natural gas distribution utilities. Rather than providing a flat
30 monthly \$30 credit, PWSA should structure its program so that it would
31 completely forgive an AFP participant’s pre-existing arrears over a 24-month
32 period at the rate of 1/24th of the pre-existing arrears for each full payment
33 received.
- 34
- 35 ➤ That Mr. Barca’s “benefit-cost analysis” presented in PWSA Exhibit EB-9 be
36 found to be fatally flawed and deemed an insufficient basis to determine the
37 costs and benefits of moving to alternative arrearage forgiveness procedures
38 as I have recommended in my testimony.
- 39

- That PWSA be directed to place a collection hold on all accounts for which bills and/or disconnection notices are returned Undeliverable as Addressed. Moreover, that PWSA be directed to adopt a procedure which would create an exception if multiple pieces of mail are returned as undeliverable within a certain time period for a customer service representative to follow up with the customer to update their contact information; enable reports on undeliverable mail; generate an email (if an email address is attached to the account), phone call or text to advise of undelivered mail and encourage the customer to log in online to verify and update their information or if they do not have an online account, ask that they contact the Customer Service Center. And, finally, that this same procedure be applied to notices regarding requirements to maintain participation in PWSA’s BDP and/or AFP (e.g., the need to periodically recertify).

Part 1. The Foundation for Offering Bill Assistance to PWSA Low-Income Customers.

Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section of my testimony, I consider the basis for offering low-income assistance to PWSA’s low-income customers. In Pennsylvania, the offer of low-income assistance is not an end unto itself, but rather a means to an end. That policy has been long-established for Pennsylvania’s natural gas and electric industries. Pennsylvania’s natural gas and electric distribution utilities operate what are known as “universal service programs.” The PUC’s Bureau of Consumer Services (BCS) explains “universal service programs” by noting that in the Electricity Generation Customer Choice and competition Act and the Natural Gas Choice and Competition Act:

the General Assembly wanted to ensure that electric and natural gas service remain universally available to all customers in the state. Consequently, both Acts contain provisions relating to universal electric and gas service, and require the Commission to maintain, at a minimum, the protections, policies and services that assist low-income customers with affording electric and gas service. The Acts also require the Commission to ensure that universal

1 service and energy conservation policies are appropriately funded and
2 available in each electric and natural gas distribution territory.¹

3 BCS goes on to explain the objective of universal service programs.

4 Universal Service is a collective name applied to the policies, protections and
5 services that help low-income customers maintain electric and natural gas
6 service and includes payment assistance programs, termination of service
7 protections, energy reduction programs and consumer education. The
8 Commission has made the Bureau of Consumer Services (BCS) responsible
9 for monitoring and evaluating public utilities' universal service programs.
10 The goal in monitoring these programs is to ensure they increase the
11 effectiveness of EDC and NGDC collections while protecting the public's
12 health and safety.²

13 While PWSA does not operate pursuant to the same statutory directive, that policy should
14 also be brought forward to Pennsylvania's water and wastewater utilities such as PWSA
15 as well. Based on this discussion, the question posed throughout my testimony below is
16 whether modifications to PWSA's BDP and AFP are needed in order to: (1) assist low-
17 income customers with affording service; (2) help low-income customers maintain
18 service; and (3) increase the effectiveness of PWSA collections. I conclude that such
19 modifications are needed in order to achieve these objectives.

20 **Q. PLEASE EXPLAIN WHY PAYING PARTICULAR ATTENTION TO THE**
21 **AFFORDABILITY OF PWSA SERVICE IS IMPORTANT IN THIS RATE**
22 **PROCEEDING.**

23 A. While Pennsylvania statutes do not impose the same universal service obligations on
24 PWSA that they impose on the state's energy utilities, low-income customers are the

¹ BCS (December 2022). Universal Service Programs and Collections Performance, 2021, at 1 (internal citations omitted). Available at: <https://www.puc.pa.gov/filing-resources/reports/universal-service-programs-and-collections-performance-reports/>

² Id., at 2 (internal citations omitted).

1 households who are financially least capable of responding to the harms arising from the
2 unaffordability of water service. This is important given that water service in today’s
3 world is an essential human need. Water is needed not only for drinking, but also for
4 cooking and sewer needs. A 2022 White Paper by the U.S. Water Alliance states that “for
5 every community in our country, the availability of safe drinking water and wastewater
6 services is a precondition for public health and prosperity.”³ Water is vital to maintaining
7 hygiene and health. The lack of water has particularly negative impacts on children, the
8 elderly, women, and persons suffering from an illness or chronic health concern. As one
9 recent study noted:

10 Dehydration can create threatening chemical imbalances for elderly people.
11 Women who are menstruating need water to properly cleanse themselves, and
12 mothers who are nursing need water to maintain their milk supply and their
13 health. Some people with chronic illness need clean water in order to run and
14 wash personal medical equipment.⁴

15 A recent study published in the American Journal of Preventative Medicine concluded
16 that “Water shutoffs pose a real threat to human health because the lack of adequate
17 sanitation can cause diseases to spread and allow people to become sick.”⁵ A 2010 report
18 for the Water Research Foundation (the research arm of the American Water Works

³ Hara, Willette and Simonson (2022). Making Water a Public Good: The Bigger Picture of Water Affordability, at 1, US Water Alliance. Available at <https://uswateralliance.org/sites/uswateralliance.org/files/Making%20Water%20a%20Public%20Good.pdf>

⁴ Jones and Moulton (2016). The Invisible Crisis: Water Unaffordability in the United States, at 11, Unitarian Universalist Service Committee, Cambridge: MA, available at <https://www.uusc.org/the-invisible-crisis/>; see also, Bipartisan Policy Center (September 2017). Safeguarding Water Affordability, at 7. Available at <https://bipartisanpolicy.org/report/safeguarding-water-affordability/>

⁵ Zhang et al (2021). Water Shutoff Moratoria Lowered COVID-19 Infection and Death Across U.S. States, 2021 American Journal of Preventative Medicine. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8433038/>

1 Association, AWWA) concluded that “A final consideration of importance to water
 2 utilities is the relationship of payment problems to health issues. . . Potential impacts
 3 relate to many of the same public health endpoints targeted by Safe Drinking Water Act
 4 standards such as effects on children and the unborn.”⁶

5 The fundamental need for affordable water is recognized not only by laws relating to the
 6 protection of children, but also by laws relating to the habitability of homes. In 21 states,
 7 a parent’s inability to provide running water in the home can be considered “child
 8 neglect.”⁷ The lack of running water and sanitation is generally considered by public
 9 health inspectors to make a home uninhabitable.⁸

10 **Q. WHAT IS THE FIRST STEP IN REVIEWING THE DESIGN AND OPERATION**
 11 **OF PWSA’S LOW-INCOME PROGRAMS?**

12 A. The first step in reviewing the design and operation of PWSA’s low-income programs
 13 involves assessing the extent of PWSA’s low-income population. As a large urban area,
 14 PWSA’s service territory (the City of Pittsburgh) not surprisingly has a high percentage
 15 of low-income customers. PWSA estimates that it serves 25,793 customers with annual
 16 household income at or below 150% FPL. (OCA-III-13).⁹ Overall, PWSA’s estimate is

⁶ Cromwell, et al. (2010). Best Practices in Customer Payment Assistance Programs, at xxii, Water Research Foundation: Washington D.C. Available at <https://www.waterrf.org/research/projects/best-practices-customer-payment-assistance-programs>

⁷ Id., at 34.

⁸ Id., at 32 – 33.

⁹ This estimate provided by PWSA in OCA-III-13 is contrary to the response PWSA provided to Pittsburgh United, wherein it stated that “PWSA continues to operate under the assumption that there are approximately 20,000 customers eligible for its assistance programs per the Household Affordability Analysis released in December 2019.” (United I-7).

1 that 26% of its customer base is “low-income.” (25,793 low-income / 96,887 residential
2 customers = 0.255).¹⁰ This estimate is based on a reasonable methodology, which
3 multiplies the number of customers in each PWSA Census Tract times the percentage of
4 population that the Census Bureau’s 2021 American Community Survey (ACS) reports as
5 having income in that FPL tier.

6 Using the same methodology, PWSA estimates that it serves 34,198 customers with
7 income at or below 200% FPL. (OCA-III-13). For the reasons I discuss in more detail
8 below, I recommend approval of PWSA’s proposal to expand the maximum income
9 eligibility for its BDP and AFP to 200% FPL. .

10 **Q. DOES CONSIDERING SYSTEMWIDE POVERTY DATA PROVIDE ADEQUATE**
11 **INSIGHT INTO THE EXTENT OF POVERTY IN THE PWSA SERVICE**
12 **TERRITORY?**

13 A. No. As PWSA did in its 2019 affordability study, in order to obtain a more complete
14 insight into the problems of low-income customers in the PWSA service territory, it is
15 necessary to examine those instances of concentrated poverty as well. In 2019, PWSA
16 ranked 21 Census Tracts that had a high number of estimated “potential bill discount
17 customers.”¹¹ I examined those same Census Tracts using the 2021 Census data provided
18 by PWSA. These same 21 Census Tracts continued to have both a high *percentage* of
19 PWSA customers with income at or below 150% FPL and a high *number* (with the
20 exception of Census Tract 1304) of estimated customers with income at or below 150%

¹⁰ Id.

¹¹ Exh. JAQ-5, Raftelis 2019, at Table 8, page 24.

1 FPL. While the 21 Census Tracts represent 13% of PWSA's total number of Census
2 Tracts (n=157), they represent more than 28% of PWSA's estimated number of customers
3 with income at or below 150% FPL. Overall, of PWSA's 157 Census Tracts, 21 had
4 more than 50% of their respective populations living with income at or below 150%
5 FPL.¹²

6 **Q. HAVE YOU FOUND ANY TREND IN THE NUMBER OF LOW-INCOME**
7 **CUSTOMERS SERVED BY PWSA?**

8 A. Yes. There has been a sharp increase in the number of low-income customers served by
9 PWSA. In the low-income affordability analysis submitted to the PUC in its 2019 rate
10 case at Docket Nos. R-2018-3002645 (w) and R-2018-3002647 (ww) -, based on 2017
11 ACS data, PWSA estimated that it served 20,190 low-income customers.¹³ In the four
12 years between that estimate and the estimate presented in this rate case, in other words,
13 PWSA's estimate of the number of low-income customers has increased by 22% ($25,793$
14 $- 20,196 = 5,603 / 20,196 = 0.22$). PWSA did not previously submit an estimate of the
15 number of customers it serves with income below 200% FPL. Accordingly, I have no
16 basis upon which to ground any observation about the extent of the increase, if any in that
17 figure since 2017.

¹² 16 of those 21 Census Tracts overlapped with the 21 Census Tracts which PWSA had identified as areas with high numbers of potential BDP participants in 2019.

¹³Exh. JAQ-5, supra, at 23.

1 **Q. DO YOU FIND ANY RELATIONSHIP BETWEEN LOW-INCOME STATUS ON A**
2 **GEOGRAPHIC BASIS AND PAYMENT DIFFICULTIES?**

3 A. Yes. PWSA reports its collection data on a zip code basis rather than on a Census Tract
4 basis, so the comparison between PWSA's poverty data and collection data is not exact.
5 Nonetheless, it is possible to examine PWSA zip code data and to draw conclusions.
6 PWSA provided collection data for the zip codes which comprise its service territory.
7 (OCA-III-56, OCA-III-57). I examined data for the 14 zip codes served by PWSA that
8 had a penetration of customers with income at or below 150% FPL that was higher than
9 the average for the PWSA service territory as a whole. Those 14 low-income zip codes,
10 standing alone, had:

- 11 ➤ 58% of the number of PWSA accounts in arrears;
- 12 ➤ 72% of the dollars of arrears;
- 13 ➤ 65% of the PWSA nonpayment disconnections;
- 14 ➤ An average arrears 75% higher than the average arrears for the non-low-
15 income zip codes (\$521 for low-income zip code; \$298 for non-low-income
16 zip codes);
- 17 ➤ A rate of disconnections (i.e., disconnections per 100 accounts in arrears) 36%
18 higher than the rate of disconnections per 100 accounts in arrears for the non-
19 low-income zip codes;
- 20 ➤ A reconnection rate (reconnection after a nonpayment disconnection) for the
21 low-income zip codes 15% lower than the reconnection rate for the non-low-
22 income zip codes.

1 (OCA-III-57). I conclude that the low-income status of PWSA residential customers, and
2 payment difficulties experienced by low-income customers, are frequently closely related
3 in the PWSA service territory.

4 For purposes of my discussion below, the significance of this conclusion is that
5 developing an appropriately designed, targeted, and funded low-income assistance
6 program such as the Bill Discount Program (BDP) and/or Arrearage Forgiveness Program
7 (AFP) not only addresses the social problems faced by PWSA's low-income customers,
8 but also addresses the business problems faced by PWSA when it finds that it cannot
9 collect in a complete, regular, and timely fashion the bills which it renders to customers
10 who cannot afford to pay them.

11 **Part 2. Enrollment in PWSA's Bill Discount Program.**

12 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
13 **TESTIMONY.**

14 A. In this section of my testimony, I examine the adequacy of PWSA's efforts to enroll low-
15 income customers in its BDP. The efforts to enroll low-income customers in BDP
16 include not merely the actual enrollment, but include, also, the actions taken to identify
17 low-income customers who would benefit from enrollment. PWSA has available to it
18 specific actions available to it, that it does not take, that would improve the identification
19 and enrollment of low-income customers in the BDP.

1 **A. The Extent to which the BDP Adequately Serves its Lowest-Income Population.**

2 **Q. DOES PWSA ADEQUATELY SERVE ITS LOWEST INCOME CUSTOMER**
3 **POPULATION?**

4 A. No. PWSA estimates that it serves 8,260 customers in its service territory with income at
5 or below 50% FPL. (OCA-III-13). It further estimates that it serves 25,793 customers
6 with income at or below 150% FPL. (OCA-III-13). Accordingly, according to PWSA's
7 own estimates, nearly one-third of its low-income customers (32%) in fact live with
8 income in the lowest income bracket. Those customers are not served proportionately by
9 the Company's BDP. The Table below shows the percentage of BDP participants by FPL
10 range. Since May 2021, the percentage of BDP participants comprised of customers with
11 income at or below 50% FPL has only slightly exceeded 20%. Since September 2022,
12 the participation of customers in the lowest FPL tier (0% to 50% FPL) has remained
13 steady at 23%.

14 PWSA's failure to reach its lowest income population presents a substantive failure to
15 adequately pursue bill affordability within its service territory. By definition, PWSA
16 customers in the lowest FPL tier will have the highest bill burdens (i.e., bills as a
17 percentage of income). As these high burdens are experienced, customers in this lowest
18 FPL tier will experience the highest rate of unpaid bills, as well as the highest rate of both
19 disconnect notices and actual nonpayment disconnections. Moreover, customers in this
20 lowest FPL tier will make the greatest personal (and family) sacrifices in response to their
21 inability to pay. The research documenting these impacts has primarily, but not
22 exclusively, been performed in the energy industry.

Table 1. Number and Percent of BDP Participants by FPL Tier (OCA-III-1(a))			
Month	Number of BDP participants 50.1-150%	Number of BDP participants 0-50%	Pct BDP 0-50% FPL (Col. 2 / (Col 1 + Col 2))
May-2021	2,810	682	20%
June 2021	2,912	703	19%
Jul-2021	2,953	722	20%
Aug-2021	3,034	750	20%
Sep-2021	3,111	771	20%
Oct-2021	3,183	801	20%
Nov-2021	3,220	830	20%
Dec-2021	3,271	861	21%
Jan-2022	3,356	900	21%
Feb-2022	3,413	918	21%
Mar-2022	3,467	947	21%
Apr-2022	3,576	1,000	22%
May-2022	3,639	1,051	22%
Jun-2022	3,781	1,097	22%
Jul-2022	4,248	1,218	22%
Aug-2022	3,220	1,257	28%
Sep-2022	4,491	1,362	23%
Oct-2022	4,653	1,428	23%
Nov-2022	4,548	1,337	23%
Dec-2022	4,691	1,390	23%
Jan-2023	4,885	1,444	23%
Feb-2023	4,846	1,426	23%
Mar-2023	5,253	1,564	23%
Apr-2023	4,856	1,441	23%
May-2023	5,006	1,491	23%

- 1 The National Energy Assistance Directors Association (“NEADA”), for example,
- 2 periodically conducts a Congressionally-funded survey of low-income households who

1 receive benefits through LIHEAP. The most recent NEADA survey was published in
2 December 2018.¹⁴ NEADA provides three results that are important from the perspective
3 of how inability-to-pay and low-income status fit together. It is not merely the presence
4 of the sacrifices which low-income households make which is important for PWSA. It is
5 the extent to which the sacrifices expand in the lowest FPL tier which is important here.

6 First, not only do a significant number of low-income households skip paying, or pay less
7 than, their full home energy bill due to not having enough money for their energy bill, but
8 the percentage reporting to take such actions increases as incomes decline. Table 2
9 presents data which shows that one-in-nine LIHEAP recipients either skipped paying
10 their home energy bills every month, or paid less than their full bill. Nearly three times
11 as many LIHEAP recipients with income *less than* 50% of Poverty, and 1.5 times as
12 many recipients with income between 51 and 100% of Poverty, did so than did LIHEAP
13 recipients with income *greater than* 150% of Poverty. Fewer than half of LIHEAP
14 recipients said that they “never” skipped paying a bill, or paid less than their full bill.
15 While roughly three-in-five (57%) recipients with income *greater than* 150% of Poverty
16 reported never missing a payment, or paying less than their full payment, only two-in-
17 five (40%) recipients with income below 50% of Poverty reported never skipping a
18 payment.

¹⁴ NEADA (December 2018). 2018 National Energy Assistance Survey, Final Report, available at <http://www.appriseinc.org/resource-library/selected-reports/energy-survey-research-and-policy-analysis/>.

	Total	Poverty Level			
		0 - 50%	51 – 100%	101 – 150%	>150%
Almost every month	11%	17%	9%	11%	6%
Some Months	21%	34%	17%	20%	15%
1 or 2 Months	17%	8%	24%	12%	20%
Never / No	49%	40%	47%	56%	57%
Don't Know/Refused	2%	2%	3%	1%	2%

1 Second, one impact of skipping payments, or making less than full payments, is that
 2 LIHEAP recipients also report having received shutoff notices. The data is set forth in
 3 Table 3. Fewer than half reported having “never” received a shutoff notice, while nearly
 4 one-third report having received a shutoff notice either “almost every month” (11%) or
 5 “some months” (21%). Again, there is a noticeable difference between households at the
 6 lowest income levels and households at the highest income level. While more than one-
 7 quarter (27%) of LIHEAP recipients with income less than 50% of Poverty report having
 8 received a disconnect notice either “almost every month” (10%) or “some months”
 9 (17%), only 4% of households with income *greater than* 150% of Poverty reported
 10 receiving disconnect notices that frequently (0% almost every month; 4% some months).
 11 More than four-fifths (84%) of LIHEAP recipients with income greater than 150% of
 12 Poverty report never having received a shutoff notice, while only one-half (50%) of
 13 LIHEAP recipients with income less than 50% of Poverty did so.

Table 3. Received Notice or Threat to Disconnect or Discontinue Electricity or Home Heating Fuel Due to Not Having Enough Money for the Energy Bill During the Past Year
2018 NEA Survey Final Report (at 26 – 27)

	Total	Poverty Level			
		0 - 50%	51 – 100%	101 – 150%	>150%
Almost every month	4%	10%	3%	4%	0%
Some Months	13%	17%	15%	9%	4%
1 or 2 Months	17%	20%	18%	15%	12%
Never / No	64%	50%	62%	70%	84%
Don't Know/Refused	2%	4%	2%	2%	0%

1 Third, the NEADA survey of LIHEAP recipients reports that nearly one-in-six (15%)
 2 recipients experienced either an electricity shutoff or a natural gas shutoff due to
 3 nonpayment during the past year. When utility fuels are examined individually, the
 4 NEADA data shows that 13% of all LIHEAP recipients had their electricity disconnected
 5 for nonpayment, and 7% of LIHEAP recipients had their natural gas service disconnected
 6 for nonpayment. The data is presented in Table 4. The lowest income recipients had
 7 service disconnected far more frequently than did higher income recipients—five times
 8 more frequently for electricity (24% vs. 5%), and nearly six times more frequently for
 9 natural gas (12% vs. 2%).

	Total	Poverty Level			
		0 - 50%	51 – 100%	101 – 150%	>150%
Electricity	13%	24%	12%	9%	5%
Gas	7%	12%	6%	8%	2%
Electricity or Gas	15%	26%	14%	13%	7%

1 Based on the data and discussion above, two conclusions have been convincingly
 2 established. First, substantial numbers of low-income households either skip payments or
 3 make less than their full utility bill in any given month because they lack the household
 4 resources to make such payments. Second, as a result of these actions, utilities respond by
 5 engaging in collection activity that frequently leads to the threatened or actual
 6 disconnection of service. The failure to pay, and the utility collection activity which
 7 results from that failure to pay, is clearly related to low-income status. Problems are
 8 more prevalent in the lowest income tier of poverty (0 – 50%).

9 While the discussion above refers to data developed in the energy industry, those same
 10 results would appertain in the water industry as well. A recent statewide study of water
 11 affordability in the State of Michigan, for example, reported:

12 During interviews, we heard stories of people juggling and often skipping or
 13 making risky trade-offs of key expenses such as medicines, electricity, water,
 14 and taxes in order to provide for their families when their income is limited.
 15 Associated late payment penalties with most of these expenses only make the
 16 problem worse. When individuals prioritize the water bill, it is often at the
 17 expense of necessary medication or healthy food choices. Over time, the
 18 mental health impact from the stress and shame of struggling to support a
 19 family accumulates and impacts capacity to work and support the household.
 20 The impact of making hard decisions every month becomes a severe mental

1 health challenge that requires resolution beyond merely examining the
 2 household budget.¹⁵

3 These are the same results that have been reported above with respect to home energy.

4 **Q. HAS THE COMMISSION PREVIOUSLY EXPRESSED ANY PARTICULAR**
 5 **CONCERN ABOUT PROVIDING ADEQUATE OUTREACH TO THE**
 6 **POPULATION OF UTILITY CUSTOMERS WITH INCOME BELOW 50% FPL?**

7 A. Yes. The PUC has expressed its concern with respect to outreach for the low-income
 8 Customer Assistance Programs (CAPs) for electric and natural gas utilities. According to
 9 the Commission, utilities should take particular efforts to engage in adequate outreach to
 10 enroll their lowest income customers into their bill discount programs. In its Final Order
 11 adopting the Revised CAP Policy Statement in 2019 (for energy utilities), the PUC stated
 12 quite explicitly that:

13 While utilities have flexibility as to the contents of their plans, the plans
 14 should reflect focused consumer education and outreach efforts, tailored to
 15 the demographics of their individual service territories, spanning the duration
 16 of the universal service plan period. *In particular, these plans should identify*
 17 *efforts to educate and enroll eligible and interested customers at or below*
 18 *50% of the FPIG.*¹⁶

19 While the CAP Policy Statement addresses electric and natural gas utilities, there is no
 20 reason to believe the Commission would have less concern for these extreme poverty
 21 customers in the water and wastewater industries.

22

¹⁵ Read et al. (2021). Water Service Affordability in Michigan: A Statewide Assessment, Water Center, University of Michigan. Available at <https://graham.umich.edu/media/files/MI-statewide-water-affordability-assessment-report.pdf>

¹⁶ Final Order, at 79, Docket No. M-2019-3012599 (emphasis added).

B. Recommended Steps to Address Lagging Enrollment.**Q. WHAT DO YOU RECOMMEND?**

A. PWSA should be commended for the extent to which it uses its Low-Income Assistance Advisory Committee (LIAAC). (PWSA St. 6, at 35 – 36). According to PWSA witness Mechling, since March 2019, PWSA has held 18 meetings of its LIAAC. (PWSA St. 6, at 35). One impact of that collaboration has been to increase *total* BDP enrollment by more than 20%. (Id., at 36). Despite this overall success, however, enrollment by PWSA’s lowest income customers continues to lag. Fewer than one-in-four of all BDP participants have income at or below 50% FPL, even though one-in-three of all PWSA customers with income at or below 150% FPL in fact have income below 50% FPL.

PWSA should be directed to engage in the following specific outreach strategies directed toward its lowest income customers. First, PWSA should be directed to engage in geo-targeted outreach. Such outreach should include outbound phone calling, outbound e-mails, and outbound mailings specifically directed toward geographic areas identified as having high concentrations of PWSA’s lowest income customers. In addition to this geo-targeted outbound outreach, PWSA should be directed to identify specific customers in these geo-targeted areas that exhibit payment difficulties that could reasonably be associated with an inability-to-pay. These payment difficulties might include large arrearages, older arrearages, nonpayment disconnections, and deferred payment arrangements that result in defaults. This geo-targeted outbound outreach should include individualized messaging rather than generic messaging through platforms such as media and social-media.

1 Second, PWSA should be directed to adopt a performance-based incentive program for
2 community-based organizations to identify the lowest income customers and to facilitate
3 the enrollment of such customers in the BDP. In Connecticut, for example, the state’s
4 electric utilities pay Community Action Agencies (CAA) for each low-income customer
5 the CAA identifies and enrolls in one of the state’s low-income programs. PWSA should
6 take advantage of the grassroots connections which community organizations have with
7 their respective constituencies. One of the fundamental lessons learned through outreach
8 for Affordable Care Act (ACA) enrollment was that the most effective outreach was that
9 which involved grassroots “trusted messengers” taking steps to reach their constituencies
10 where they “live, work, play and pray.” As I discuss in more detail below, the benefits of
11 grassroots outreach was discussed numerous times in the Public Input Hearings.

12 Third, while PWSA has spoken of its efforts to cross-enroll customers through the
13 corresponding CAPs operated by the natural gas and electric utilities serving the PWSA
14 service territory, PWSA has lagged in its efforts to cross-enroll customers through other
15 municipal offices serving the City of Pittsburgh. In this regard, lessons can be learned
16 from other municipal water utilities in Pennsylvania. For example, PWSA might take
17 actions akin to the Philadelphia Water Department’s use of data from the Philadelphia
18 Department of Revenue (DOR). DOR administers Philadelphia’s Owner-Occupied
19 Payment Arrangement (OOPA) program for past-due property tax bills. In administering
20 OOPA, DOR collects both household income and household size in order to administer
21 the OOPA “tiers.”¹⁷ In 2020, DOR reported that it entered into OOPA agreements with

¹⁷ 2020 Annual Report on Owner-Occupied Payment Agreement (OOPA), at 4, available at <https://www.phila.gov/media/20210806140957/Owner-Occupied-Payment-Agreement-report-OOPA-2020.pdf>

1 8,260 “Tier 4” households (income at or below 30% of the Area Median Income) and
2 1,736 “Tier 5” households (income at or below 15% of Area Median Income. These two
3 OOPA tiers would income-qualify customers for a program with maximum income
4 eligibility at or below 150% FPL. The City of Pittsburgh has similar programs. For
5 example, the City reports that it operates a Senior Citizen Tax Relief program. This
6 program is directed toward qualified senior citizen homeowners and provides a flat 30%
7 discount on the real estate tax on their primary residence. In addition to being age-
8 qualified, a homeowner must have gross household income of less than \$30,000 per year.
9 Determining whether Pittsburgh has additional programs *identical* to those that are found
10 in Philadelphia is not the point here. The point is that as a publicly-owned water
11 authority, PWSA can, and should, take advantage of its association with municipal
12 government. I recommend that PWSA work with the City of Pittsburgh to identify and
13 utilize those municipal programs that would assist PWSA in identifying its lowest income
14 customers and enrolling those customers in its BDP.

15 Fourth, PWSA should be directed to submit to its LIAAC the question of how enhanced
16 technology could increase the enrollment and retention of low-income customers in BDP.
17 For example, PWSA reports that it “does not currently offer a text-based process for
18 customer assistance program applications or recertifications.” (OCA-III-24). The use of a
19 “text-based process” for the enrollment process, including the submission of documents,
20 has been found to address barriers to enrollment in the Medicaid program. Barriers that
21 are addressed include, but are not necessarily limited to:

- Clients that do not provide required verification documents with their
application must then send them through the mail. Frequently, applications

1 are thus denied because documents are never submitted or are lost.
2 Underlying issues include clients who don't know what documents are
3 required, clients who cannot electronically submit documents (or must have
4 access to a scanner to do so), and agencies that have a backlog in processing
5 mailed applications.

- 6 ➤ Agencies that have a low rate of completion at renewal because clients fail to
7 complete the renewal form properly or fail to submit the form, the result being
8 that their benefits are terminated (and they must reapply to have benefits
9 reinstated).

10 A recent publication by the Center on Budget and Policy Priorities (CBPP) identified
11 technological tools that help to address these challenges. I have attached this publication,
12 “Improving Customer Service in Health and Human Services through Technology,” to
13 this testimony as Exhibit RDC-2. According to the CBPP publication:

14 Improving client-facing processes – systems that applicants and recipients
15 use directly for actions like applying, submitting documents, or getting
16 information about their case – allow clients to better obtain information
17 and receive benefits more quickly. They also help agencies get the
18 information they need to conduct eligibility determinations and improve
19 performance and outcomes.

20 (Improving Customer Service, Exhibit RDC-2, at 1). The publication “outlines common
21 challenges agencies face while administering these benefits and gives examples of how
22 the technologies profiled. . .can streamline processes.” CBPP notes that “the technologies
23 discussed here are not theoretical; rather they are applicable to real-world issues clients
24 and agencies face each day.” (Id.). It provides best practices in using web-based tools,
25 mobile-based technology, and call center tools. (Id.)

26 Existing application portals could perhaps be enhanced. For example, PWSA reports that
27 customers may enroll in BDP, including the submission of documents (unlike its text-
28 based communications), through a PWSA on-line portal. (OCA-III-26). Indeed, through

1 May 2023, 308 of PWSA's 1,265 BDP enrollments and recertifications in 2023 used the
2 on-line portal. (OCA-III-27). One recent technology enhancement to web-based tools
3 that would enhance this ability even further includes providing opportunities for
4 customers to partially complete a form, and then "saving" it, thus allowing the user to
5 complete the form, including the submission of documents, at a later date. Another
6 enhancement is to provide pre-completed forms to users needed to re-certify (or re-enroll)
7 with the need of the customer simply to change that information which is no longer
8 correct.

9 For each of the actions recommended above, PWSA should maintain detailed outcomes
10 records that it should present for review by its LIAAC. The outreach reporting should
11 include data not merely on what PWSA is *doing* with respect to these two recommended
12 outreach strategies, but what PWSA has *achieved* in improving the identification of
13 PWSA's lowest income customers and the enrollment of such customers in BDP and AFP.
14 For example, while PWSA states that customers may use e-mail to enroll in BDP (OCA-
15 III-25), in 2022, of its 2,482 BDP enrollments and recertifications, only nine (9) occurred
16 through e-mail. (OCA-III-27). In 2023, PWSA stopped tracking BDP enrollments
17 received through e-mail. (OCA-III-27).

1 **Part 3. The Design of PWSA’s Bill Discount Program.**

2 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
3 **TESTIMONY.**

4 A. In this section of my testimony, I will examine the design and operation of PWSA’s Bill
5 Discount Program to determine whether it is reasonably serving the function of providing
6 affordable service to low-income PWSA customers. I first consider PWSA’s
7 recommendation to expand its low-income discount to customers with income greater
8 than 150% FPL but at or below 200% FPL. I next examine whether BDP might improve
9 the extent to which the BDP serves low-income tenants. I finally examine PWSA’s
10 recommended expansion of BDP credits to offset the impact of PWSA’s proposed
11 elimination of its minimum charge.

12 **A. Expanding BDP Eligibility to 200% of FPL.**

13 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
14 **TESTIMONY.**

15 A. In this section of my testimony, I review the reasonableness of PWSA’s proposal to
16 expand the maximum income eligibility for its BDP from 150% FPL to 200% FPL.
17 (PWSA St. 6, at 37). PWSA does not propose to create an additional tier for customers at
18 150% to 200% FPL. Instead, it proposes simply to expand its second tier to cover the
19 entire population between 50% FPL and 200% FPL. I recommend that the expansion of
20 income eligibility be approved.¹⁸

¹⁸ I explain elsewhere my recommendation for a new BDP Tier to service customers with income at more than 50% FPL but at or below 100% FPL.

1 My discussion above focuses the affordability discussion exclusively on the *level* of
2 income (e.g., whether someone has an annual income between 50% and 100% of FPL or
3 between 100% and 150% of Poverty). This focus on the level of income is driven by my
4 focus above on water/wastewater burdens (i.e., bills as a percentage of income) as the
5 means by which to measure affordability.

6 One attribute of the income of households considered to be “low-income,” however, is
7 not merely the *level* of income, but is also what is known as the *fragility* of income.

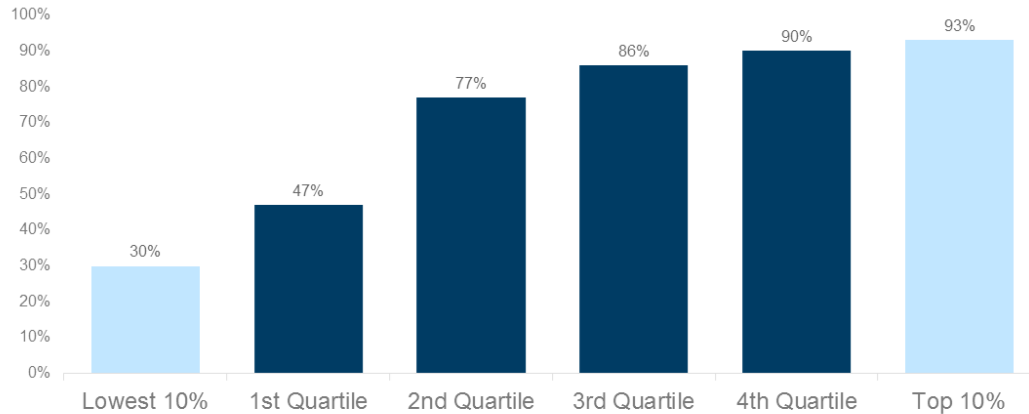
8 Low-income workers can have their ability to pay utility bills threatened due to
9 unavoidable disruptions in their economic lives. A personal illness requiring time off or
10 the illness of a child requiring time off generally represents a permanent loss of income.

11 The jobs of low-wage workers simply do not provide the paid leave required to respond
12 to such circumstances.¹⁹ The Chart below, for example, shows the percentage of workers
13 with paid sick leave by wage level as reported by the U.S. Census Bureau.

¹⁹ Claxton and Levitt, Paid Sick Leave is Much Less Common for Lower-Wage Workers in Private Industry, Kaiser Family Foundation (Mar. 2020), <https://www.kff.org/coronavirus-covid-19/issue-brief/paid-sick-leave-is-much-less-common-for-lower-wage-workers-in-private-industry/>.

Figure 1

Share of Private Industry Workers with Paid Sick Leave, by Wage Level, 2019



Source: Bureau of Labor Statistics. Employee Benefits in the United States, March 2019.
<https://www.bls.gov/nchs/ebs/benefits/2019/ownership/private/table31a.pdf>



1

2

The vulnerabilities faced by low wage workers to economic disruptions due to the lack of

3

paid leave have been well-documented.²⁰ The difference is particularly evident for

4

women. The Kaiser Family Foundation reports that “across the board, low-income

5

women and those with part-time employment are less likely to be offered any of these

6

benefits compared to their higher income and full-time counterparts.”²¹ The KFF data is

²⁰ *Id.* (“Among the 25% of private industry occupations with the lowest wages (\$13.25 per hour or less) 47% have access to paid sick leave; for the 10% of private industry occupations with the lowest wages (\$10.48 per hour or less), the percentage with access to paid sick leave falls to 30%. Workers in higher-wage occupations are much more likely to have access to this benefit. For example, 77% of private industry workers with occupations in the second wage quartile (\$13.25 to \$19.00 per hour) have access to paid sick leave, with the percentage rising up to 90% of private industry workers with occupations in the top wage quartile.”) See also Usha Ranji, et al., *Coronavirus Puts A Spotlight On Paid Leave Policies*, Kaiser Family Foundation (Dec. 14, 2020), <https://www.kff.org/coronavirus-covid-19/issue-brief/coronavirus-puts-a-spotlight-on-paid-leave-policies/>; Chantel Boyens, et al., *Access to Paid Leave is Lowest Among Workers With the Greatest Needs*, Urban Inst. (July 2022), <https://www.urban.org/sites/default/files/2022-07/Access%20to%20Paid%20Leave%20Is%20Lowest%20among%20Workers%20with%20the%20Greatest%20Needs.pdf>.

²¹ Usha Ranji, et al., *Difficulty Tradeoffs: Key Findings on Workplace Benefits and Family Health Care Responsibilities from the 2020 KFF Women’s Health Survey*, Kaiser Family Foundation (Apr. 21, 2021),

1 set forth in the Table below. KFF reports that “low-income mothers who must miss work
 2 when their child is sick are far more likely to lose pay (75%) compared to higher income
 3 mothers (33%).”

Table 5. Working Women who are low-income or in part-time jobs are less likely to be offered employer benefits such as paid sick leave and parental leave				
	Paid Vacation	Paid Sick Leave	Paid Parental Leave	Paid Family and Medical Leave
Income				
<200% FPL	51%	46%	27%	28%
=>200% FPL	74%	73%	48%	45%
Work Status				
Part-time	37%	35%	20%	19%
Full-time	78%	75%	50%	48%

4 It is not, however, simply the lack of paid leave that presents situations leading to a
 5 potential inability to pay utility bills at a particular time. It is the lack of flexible work
 6 arrangements as well. One study reports that:

7 many lower-wage workers are caring for multiple children, generally in
 8 homes where both parents are working or in single parent homes. Many also
 9 are providing care to elderly relatives or other family members with
 10 significant health conditions. Yet others have acute or chronic medical
 11 conditions themselves that often require medical treatment or time away from
 12 work. Thus, like higher-wage workers, many lower-wage workers need
 13 flexible scheduling, alternative start and end times, compressed workweeks,
 14 and the ability to work some hours at home (providing the job can be done at
 15 home).”²²

<https://www.kff.org/womens-health-policy/issue-brief/difficult-tradeoffs-key-findings-on-workplace-benefits-and-family-health-care-responsibilities-from-the-2020-kff-womens-health-survey/>.

²² Anna Danziger and Shelley Waters Boots, Urban Inst., Georgetown University Law Center, *Lower-Wage Workers and Flexible Work Arrangements*, at 3 (2008). Available at <https://scholarship.law.georgetown.edu/legal/5/>

1 Nonetheless, “lower wage and lower-income workers have fewer options and less access
2 to flexible work arrangements than higher-wage and higher-income workers.”²³

3 The point where the vulnerability to these income disruptions may routinely occur can be
4 set at what is known as the Self-Sufficiency Standard, or, the “income working families
5 need to meet their basic necessities without public or private assistance.”²⁴ In
6 Pennsylvania, the Self-Sufficiency Standard generally falls between 200% and 300% of
7 FPL.²⁵ While households at this income range may not always require a discount to
8 reduce their bills to an affordable burden as a percentage of income, a minimum level of
9 assistance *is* appropriate to reflect the affordability needs of these households as reflected
10 in their income fragility.

11 **Q. HAVE YOU HAD AN OPPORTUNITY TO EXAMINE THE DIFFICULTY**
12 **WHICH HOUSEHOLDS HAVE IN PAYING THEIR BILLS?**

13 A. Yes. The U.S. Census Bureau continues to undertake its “PULSE Survey” on a periodic
14 basis. While it does not report data for the City of Pittsburgh in particular, it does report
15 data for the State of Pennsylvania. As of the date of this testimony, the most recent
16 PULSE Survey data is for the period June 28 through July 10, 2023.²⁶ The PULSE
17 Survey results for Pennsylvania show that a substantial number of Pennsylvania residents
18 continue to report difficulties in paying their “usual household expenses” within “the last

²³ *Id.*

²⁴ Center for Women’s Welfare, Univ. of Washington, “Overview”, <https://selfsufficiencystandard.org/the-standard/overview/>.

²⁵ Center for Women’s Welfare, Univ. of Washington, “Pennsylvania”, <https://selfsufficiencystandard.org/Pennsylvania/>.

²⁶ <https://www.census.gov/data/tables/2023/demo/hhp/hhp59.html>

1 seven days.” The data shows that even for households with income of up to \$50,000,
 2 45% report having had either a “somewhat difficult” or a “very difficult” time in paying
 3 for their usual household expenses in the last seven days (as of early July 2023).

4 The Pennsylvania PULSE Survey results report that it was not until incomes exceeded
 5 \$50,000 did the percentage of households reporting that they found it “not at all difficult”
 6 to pay for their usual household expenses exceed the percentage of households reporting
 7 that they found it “very difficult” to do so. It was not until annual income exceeded
 8 \$75,000 that the percentage of households reporting that it was “not at all difficult” to pay
 9 for their usual household expenses was three or more times higher than the percentage
 10 reporting that they found it “very difficult.”

U.S. Census PULSE Survey (June 28 – July 10, 2023) (Pennsylvania) Difficulty paying for usual household expenses in the last 7 days				
Household Income	Not at all difficult	A little difficult	Somewhat difficult	Very difficult
Less than \$25,000	9%	19%	26%	46%
\$25,000 - \$34,999	23%	26%	15%	36%
\$35,000 - \$49,999	18%	37%	23%	22%
\$50,000 - \$74,999	26%	31%	23%	20%
\$75,000 - \$99,999	32%	32%	26%	10%
\$100,000 - \$149,999	40%	34%	12%	15%
\$150,000 - \$199,999	66%	23%	5%	5%
\$200,000 and above	78%	17%	3%	2%

11 This PULSE Survey data supports the need to provide additional assistance to households
 12 with income up to 200% FPL. In 2023, 200% of FPL was: (1) \$29,160 for a 1-person

1 household; (2) \$37,440 for a 2-person household; and (3) \$49,720 for a 3-person
2 household. In Pittsburgh, 89% of all households have three or fewer persons.²⁷

3 **Q. WHAT DO YOU CONCLUDE?**

4 A. Based on the data and discussion above, I find that it is reasonable and appropriate to
5 expand the BDP maximum income eligibility to 200% FPL.

6 **Q. PLEASE EXPLAIN WHY YOU APPROVE OF EXPANDING THE DEFINITION**
7 **OF “LOW-INCOME” TO 200% FPL WHEN THE PUC HAS PREVIOUSLY**
8 **DEFINED “LOW-INCOME” AT A LOWER FPL RANGE?**

9 A. The Commission need not change or expand its definition of “low-income” in order to
10 approve PWSA’s proposal to expand its BDP to customers with income up to 200% FPL.
11 Notwithstanding the definition of “low-income” set forth in its regulations, the
12 Commission has allowed expanded services to somewhat higher incomes in other
13 circumstances. The question for the Commission is whether PWSA has customers who,
14 in the absence of assistance, will be at risk despite having income moderately in excess of
15 the definition of “low-income.” I explain in detail why PWSA is correct in identifying
16 customers with income in the range of 150% to 200% FPL who will be at risk and thus
17 need assistance. The Commission need not create a label for those customers in order to
18 conclude, as I have, that it is reasonable for PWSA to extend its BDP to customers falling
19 in this somewhat expanded income range.

²⁷ American Community Survey, Table B08202. In 2021, out of a total of 136,747 households, 57,752 had one-person; 47,320 had 2-persons; 16,035 had three-persons; and 15,590 had four or more persons.

1 **B. The Extent to which BDP Adequately Serves Tenants.**

2 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
3 **TESTIMONY.**

4 A. In this section of my testimony, I examine the extent to which PWSA has adequately
5 extended its low-income BDP to low-income tenants in its service territory. As I discuss
6 in more detail below, PWSA’s BDP underserves its tenant population. While 67% of all
7 Pittsburgh residents with income less than \$20,000 are tenants, 72% of all households
8 with annual income less than \$35,000 are. Despite the prevalence of tenant status
9 amongst the households in these low-income tiers, PWSA serves very few low-income
10 tenants as evidenced by its BDP. According to PWSA, as of May 2023, only 27% of its
11 BDP population were tenant customers. (OCA-III-8).

12 **Q. WHAT IS YOUR CONCERN ABOUT THE AFFORDABILITY OF WATER TO**
13 **NON-CUSTOMER TENANTS?**

14 A. Water costs contribute substantially to the overall rent burden of tenants in Pittsburgh. As
15 with utility costs, the affordability of overall rent burdens is measured by reference to
16 rents as a percentage of income. If households have a rent burden exceeding 30% of
17 income, they are considered to be over-burdened.²⁸ If they have a rent burden exceeding
18 50% of income, they are considered to be “severely” over-burdened.²⁹ For purposes of
19 calculating “rent burdens,” the “rent” is defined to include not merely the dollars paid to

²⁸ HUD User, Rental Burdens: Rethinking Affordability Measures, available at https://www.huduser.gov/portal/pdredge/pdr_edge_featd_article_092214.html

²⁹ Id.

1 the property owner,³⁰ but all other shelter costs as well. These include contract rents,
 2 insurance, and all utilities.³¹ Whether as a direct bill from PWSA or as a cost included in
 3 rent, water costs charged for the consumption of tenants will be reflected in the rent
 4 burdens which Pittsburgh tenants are forced to shoulder.

5 The U.S. Census Bureau’s American Community Survey (5-year data) reports data on
 6 rental burdens by income for the City of Pittsburgh.³² According to the ACS, Pittsburgh
 7 has:

- 8 ➤ 10,785 housing units occupied by tenants with income of \$10,000 or less. Of
 9 those, 66% have rent burdens of 30% or more, while 59% have rent burdens
 10 of 50% or more.
- 11 ➤ 11,151 housing units occupied by tenants with income of between \$10,000
 12 and \$20,000. Of those, 78% have rent burdens of 30% or more, while 57%
 13 have rent burdens of 50% or more.
- 14 ➤ 12,293 housing units occupied by tenants with income of between \$20,000
 15 and \$35,000. Of those, 72% have rent burdens of 30% or more, while 26%
 16 have burdens of 50% or more.

17 It is not until tenant income falls into the range of \$35,000 to \$50,000 that the percentage
 18 of “severely burdened” tenants falls substantially (to only 7% of the 8,552 tenants with
 19 income in this range).

20 BDP is not available to tenants that are not direct customers of PWSA. Property owners
 21 who do not live in the property served by PWSA do not qualify for PWSA’s BDP. In
 22 addition, a tenant “must be listed on the account or submit an Application for Service –

³⁰ The dollars paid to the property owner are known by a term-of-art, called “contract rents.”

³¹ Telephone and internet service are not considered to be “utilities.”

³² U.S. Census Bureau, American Community Survey (5-year data), Table B25074).

1 Tenants to meet one of the eligibility criteria.” (OCA-III-37). Even if a tenant is low-
 2 income, in other words, unless the PWSA service is in the tenant’s own name, the usage
 3 will be charged at standard residential rates. The PWSA bill will thus contribute to the
 4 overwhelming number of tenants “severely burdened” by their total shelter costs.

5 **Q. WHAT IS THE RELATIONSHIP BETWEEN INCOME AND TENANT STATUS**
 6 **IN PITTSBURGH?**

7 A. Tenant households in Pittsburgh are disproportionately low-income. In the City as a
 8 whole, while 32.2% of tenants have annual income less than \$20,000, only 12.0% of
 9 homeowners do. Looked at a different way, fully two-of-three households with income
 10 less than \$20,000 in Pittsburgh (66.8%) are tenants (22,563 of 33,752). Similarly, 71.6%
 11 of all households with annual income less than \$35,000 are tenants.

12 Despite the prevalence of tenant status amongst the households in these low-income tiers,
 13 PWSA serves very few low-income tenants as evidenced by its BDP. According to
 14 PWSA, as of May 2023, 4,644 of its BDP participants were homeowners, while only
 15 1,727 (27%) were tenants ($1,727 / (1,727 + 4,644) = 0.271$). (OCA-III-8).³³ The lack of
 16 tenant BDP participants is likely largely due to the fact that low-income households are

³³ PWSA does not seek to explain the discrepancy between the data provided in response to OCA-III-8 and the data provided in response to OCA-III-36. The data requested in OCA-III-8 was for a disaggregation of BDP participants by homeowner and tenant status for the most recent month. The data requested in OCA-III-36 was for a disaggregation of BDP participants by homeowner and tenant status by month for the most recent 24 months available. The most recent data provided in response to OCA-III-36 reports that there were 201 homeowners and 136 tenants in May 2023. Assuming that this is a reference to new BDP enrollees, not participants, which it appears to be, the sum of new enrollees for the 24 months of data provided indicates that there were 4,013 homeowner enrollees and 1,900 tenant enrollees. The similarity in numbers (4,013 vs. 4,644 homeowners; 1,727 vs. 1,900 tenants) leads me to conclude that the data provided in response to OCA-III-38 is what I concluded it was. While the data is similar, however, it is not identical.

1 tenants paying for water service through their rent rather than having a direct customer
2 relationship with PWSA.

3 **Q. DO YOU RECOMMEND THAT PWSA OFFER AN “AFFORDABILITY**
4 **PROGRAM” TO TENANTS WHO ARE NOT DIRECT CUSTOMERS OF PWSA?**

5 A. I do not recommend at this time that PWSA offer an affordability program to non-
6 customer tenants of PWSA. I do recommend, however, that PWSA submit to its Low-
7 Income Affordability Advisory Committee (LIAAC) the question of how to encourage
8 low-income tenants to move service into their own name.³⁴ By doing so, income-
9 qualified tenants will be able to receive the benefits of the discounts offered through
10 PWSA’s BDP, along with the forgiveness of all arrears currently existing on the account
11 for the premises occupied by the tenant. I recommend that PWSA submit regular reports
12 to its LIAAC on tenant participation in both BDP and AFP.

13 **C. Additional Credits to Offset Elimination of Minimum Charge.**

14 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
15 **TESTIMONY.**

16 A. In this section of my testimony, I review the reasonableness of the credits which PWSA
17 proposes to provide to BDP customers to offset the impacts of eliminating its rate
18 structure that includes a minimum allowance. PWSA states that “the bill credits were
19 derived by PWSA with the goal of minimizing customer impacts as PWSA transitions
20 away from rate structures that include minimum allowances.” (OCA-VIII-1). The

³⁴ My reference here is to individually-metered customers. In making this comment, I do not suggest that there is a need to determine a mechanism by which master-metered customers can become individually-metered or sub-metered for purposes of becoming direct customers of PWSA.

1 objective, PWSA said, is “to achieve continuity in impacts and avoid large spikes in bills
2 that could confuse or surprise customers.” (Id.) PWSA proposes to provide Tier 1
3 customers (at or below 50% FPL) a monthly water bill credit of \$10 in 2025 and \$12 in
4 2026, and to provide Tier 2 (above 50% FPL) customers a monthly water bill credit of
5 \$17 in 2025 and \$20 in 2026. The monthly Tier 1 wastewater credits proposed by PWSA
6 are \$3 in 2025 and \$4 in 2026, with the Tier 2 wastewater credits proposed to be \$5 in
7 2025 and \$6 in 2026. (PWSA St. 6, at 38).³⁵

8 **Q. DID PWSA ACHIEVE THE OBJECTIVE OF AVOIDING SPIKES IN BILLS?**

9 A. No. Even after applying the proposed bill credits, bills to PWSA Tier 1 BDP customers
10 will increase by 37.4% in 2025 (relative to 2023), and by 59.5% in 2026 (relative to
11 2023). After applying the proposed bill credits, bills to PWSA Tier 2 BDP customers will
12 increase by 37.8% in 2025 (relative to 2023) and by 63.5% in 2026 (relative to 2023).
13 (OCA-VIII-8). To the extent that PWSA asserts that its objective is “to achieve
14 continuity in impacts and avoid large spikes in bills,” the level of bill credits which it
15 proposes to provide to BDP participants fails to achieve that purpose. In fact, even after
16 applying PWSA’s proposed bill credits, its year-over-year percentage increase in bills for
17 both Tier 1 and Tier 2 BDP participants is nearly the same as its year-over-year increase
18 to residential customers as a whole. (OCA-VIII-8).

19 **Q. IS THE FAILURE TO ACHIEVE ITS OBJECTIVE EVEN GREATER THAN**
20 **THAT WHICH YOU IDENTIFY IMMEDIATELY ABOVE?**

³⁵ Throughout my testimony, any reference to 2025 rates as proposed by PWSA should not be construed as an endorsement, or acceptance, of PWSA’s proposed Multi-Year Rate Plan. Through other witnesses, OCA has opposed PWSA’s MYRP proposal.

1 A. Yes. In assessing the impacts of its proposed credits, PWSA assumes an average BDP
 2 consumption of 3,000 gallons per month. (OCA-VIII-8). As I discuss in more detail
 3 below, however, PWSA has previously acknowledged that this 3,000 gallon per month
 4 figure is the average usage for customers with income *exceeding* 150% FPL. According
 5 to PWSA, itself, the average consumption for customers with income *less* than 150% FPL
 6 is 4,000 gallons per month.³⁶ Moreover, PWSA does not increase the assumed water
 7 usage as household size increases. (OCA-VIII-5). The Table below shows the difference
 8 in bill increases given usage at 3,000 gallons per month versus usage at 4,000 gallons per
 9 month.

Table 6. BDP Bill Increases at 3,000 Gallons/Month vs. BDP Bill Increases at 4,000 Gallons/Month (by BDP Tier) (OCA-VIII-8)				
	2023	2024	2025	2026
BDP Customer				
Usage at 3 kgal	\$44.15	\$51.85	\$60.83	\$72.17
Usage at 4 kgal	\$65.62	\$77.01	\$88.38	\$104.84
BDP Customer –50% FPL				
Usage at 3 kgal	\$22.67	\$26.70	\$31.16	\$36.16
Usage at 4 kgal	\$33.41	\$39.27	\$45.59	\$53.24

10 As can be seen, actual bill increases given the average usage for customers with income
 11 at or below 150% FPL (4 kgal) are much higher than the bill increases used by PWSA (3
 12 kgal) to assess the impact of its proposed bill credits.

³⁶ PUC vs. PWSA, Docket No. R-2020-3017951 (water), Docket No. R-2020-3017970 (wastewater) (cons.), PWSA St. 8, at Table 3, page 11).

1 **Q. WHAT DO YOU RECOMMEND?**

2 A. I recommend a modest increase in the monthly bills credits proposed by PWSA to
3 achieve PWSA’s own-stated objective of “minimizing customer impacts as PWSA
4 transitions away from rate structures that include minimum allowances.” (OCA-VIII-8).
5 The monthly credits I recommend, compared to the monthly credits proposed by PWSA,
6 are set forth in the Table below.

Table 7. Monthly Credits to Minimize Transition Away from Minimum Allowance Rate Structure (PWSA Proposal vs. Recommended Modification)				
	PWSA Proposal		Proposed Modifications	
	2025	2026	2025	2026
W Bill Credit CAP	\$17.00	\$20.00	\$22.00	\$25.00
W Bill Credit CAP50	\$10.00	\$12.00	\$15.00	\$17.00
WW Bill Credit CAP	\$5.00	\$6.00	\$8.00	\$9.00
WW Bill Credit CAP50	\$3.00	\$4.00	\$6.00	\$7.00

7 The modifications which I recommend have both a policy basis and an empirical basis.
8 The policy basis is the same as that which was articulated by PWSA: “to achieve
9 continuity in impacts and avoid large spikes in bills.” (OCA-VIII-8). Adoption of the
10 recommended modifications helps to achieve this objective, while PWSA’s recommended
11 credits do not. The total percentage increase in PWSA bills for 2025 (the year in which
12 the transition away from a minimum allowance rate structure begins) and 2026,
13 compared to the present year, is presented below for residential customers as a whole, for
14 Tier 2 BDP customers (i.e., those with income above 50% FPL), and for Tier 1 BDP
15 customers (those with income at or below 50% FPL).

1

Table 8. Percentage Increase in Bills Relative to 2023 (Existing) Given PWSA Proposed Bill Credits and Recommended Modification to PWSA Bills Credits						
	PWSA Proposal			Proposed Modifications		
	2024	2025	2026	2024	2025	2026
Residential	19.6%	43.0%	69.1%	19.6%	43.0%	69.1%
BDP (Tier 2)	17.5%	37.8%	63.5%	17.5%	17.6%	43.2%
BDP (Tier 1)	17.7%	37.4%	59.5%	17.7%	(1.2%)	20.8%

2 The data clearly shows that while PWSA’s proposed bill credits do not achieve the
 3 objective which PWSA, itself, articulated for the credits, the recommended modifications
 4 to those credits do. The recommended modifications should be adopted.

D. Creating An Additional Income Tier in the BDP.

6 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
 7 **TESTIMONY.**

8 A. In this section of my testimony, I explain why PWSA should add a third tier to its BDP.
 9 That sub-divided tier should reflect two separate income ranges between 50% and 150%
 10 FPL. PWSA’s current BDP provides one discount to customers with annual income at or
 11 below 50% of FPL. The BDP then provides a separate (and lower) discount to customers
 12 with annual income above 50% FPL.³⁷ I recommend that PWSA adopt a three-tiered
 13 program using the following tiers: (1) Tier 1: at or below 50% FPL; (2) Tier 2: above
 14 50% FPL to 100% FPL; and (3) Tier 3: above 100% FPL.

³⁷ PWSA has recommended in this proceeding to expand its maximum income eligibility to 200% FPL. In a separate section of my testimony, I endorse this proposal. In speaking of Tier 3 incorporating households with annual income of 100% to 200% FPL here, I work under the assumption that that proposal is adopted. If that proposal is *not* adopted, my recommendation here would simply be to have Tier 3 limited to customers with income above 100% FPL up to 150% FPL.

1 **Q. PLEASE EXPLAIN WHY YOU RECOMMEND THAT HOUSEHOLDS WITH AN**
2 **ANNUAL INCOME EXCEEDING 50% FPL SHOULD BE DIVIDED INTO TWO**
3 **SEPARATE TIERS.**

4 A. There is a dramatic difference in the dollar amount of income between the “bottom” and
5 the “top” of the second income range now used by PWSA. The difference in that income
6 can be seen by looking at the income for customers at 50% FPL (2023) (to represent the
7 bottom of the second tier)³⁸ and for customers at 200% FPL (to represent the top of the
8 second tier). I compare those two incomes for households with one, two, and three
9 persons in the Table below.³⁹As can be seen, the difference in income between a PWSA
10 customer at 50% FPL and a PWSA customer at 200% FPL for a one-person household
11 would be nearly \$22,000, even though these two households would be in the same
12 discount tier for PWSA’s tiered discount program. Similarly, the difference in income
13 between a PWSA customer at 50% FPL and a PWSA customer at 200% FPL for a three-
14 person household would be more than \$37,000

³⁸ The bottom of the second tier would be an income greater than 50% FPL (e.g., 50.1% FPL). Accordingly, I use 50% FPL to represent this bottom breakpoint.

³⁹ As I discuss elsewhere, households with from one- and two-persons represent 77% of all Pittsburgh households. Households with one-, two- and three-persons represent 91% of all Pittsburgh households.

Poverty Level	1-person HH	2-person HH	3-person HH
50% FPL	\$7,250	\$9,860	\$12,430
150% FPL	\$21,750	\$29,580	\$37,290
200% FPL	\$29,000	\$39,440	\$49,720
Difference between 50% and 200%	\$21,750	\$29,580	\$37,290

1 These dollar differences in annual income substantially affect the affordability of bills to
 2 PWSA’s low-income customers. Using the existing discounts as proposed by PWSA, and
 3 assuming that usage does not increase as household size increases,⁴⁰ the bill burdens
 4 resulting from the rates as proposed by PWSA for 2025 and 2026⁴¹ are those set forth in
 5 the Table below. The Table shows that holding household size constant in 2025:

- 6 ➤ For a 1-person household, the PWSA 2025 burden ranges from 2.5% of
 7 income (at 200% FPL) up to 5.2% of income (at 50% FPL).
- 8 ➤ For a 2-person household, the PWSA 2025 burden ranges from 1.9% of
 9 income (at 200% FPL) up to 3.8% of income (at 50% FPL);
- 10 ➤ For a 3-person household, the PWSA 2025 burden ranges from 1.5% (at 200%
 11 FPL) up to 3.0% (at 50% FPL).

12 The Table shows that similar results occur in 2026. Despite these dramatic differences in
 13 burdens, under PWSA’s current proposal, all of these households would fall in the same
 14 discount tier for purposes of its BDP.

⁴⁰ While this assumption of a uniform usage for different household sizes is clearly in error, I use it here because it is the assumption that PWSA makes in calculating bill burdens at different rates. (PWSA St. 6, at 49; see also, OCA-VIII-5).

⁴¹ These are the bills used by PWSA to compare bill burdens in PWSA’s direct testimony. (PWSA St. 6, page 49).

1

Table 10. Bill Burdens with PWSA “Tier 2” at Discounts Proposed by PWSA							
FY 2025 (proposed rates)				FY 2026 (proposed rates)			
Annual Income				Annual Income			
FPL Range	1-person HH	2-person HH	3-person HH	FPL Range	1-person HH	2-person HH	3-person HH
50% FPL	\$7,250	\$9,860	\$12,430	50% FPL	\$7,250	\$9,860	\$12,430
150% FPL	\$21,750	\$29,580	\$37,290	150% FPL	\$21,750	\$29,580	\$37,290
200% FPL	\$29,000	\$39,440	\$49,720	200% FPL	\$29,000	\$39,440	\$49,720
PWSA Bill				PWSA Bill			
50% FPL	\$373.88	\$373.88	\$373.88	50% FPL	\$433.91	\$433.91	\$433.91
150% FPL	\$729.92	\$729.92	\$729.92	150% FPL	\$866.06	\$866.06	\$866.06
200% FPL	\$729.92	\$729.92	\$729.92	200% FPL	\$866.06	\$866.06	\$866.06
Bill as Percent of Income				Bill as Percent of Income			
50% FPL	5.2%	3.8%	3.0%	50% FPL	6.0%	4.4%	3.5%
150% FPL	3.4%	2.5%	2.0%	150% FPL	4.0%	2.9%	2.3%
200% FPL	2.5%	1.9%	1.5%	200% FPL	3.0%	2.2%	1.7%

2 **Q. PLEASE EXPLAIN YOUR RECOMMENDATION FOR A THIRD INCOME**
 3 **TIER.**

4 A. I recommend that PWSA introduce a new tier for customers with income greater than
 5 50% FPL but at or below 100% FPL. I recommend that this income tier should receive a
 6 volumetric discount in the same fashion as the income tier for customers with income at
 7 or below 50% FPL receives a volumetric discount. However, I recommend that this tier,

1 with somewhat higher incomes, have a somewhat lower volumetric discount. A discount
2 of 30% is appropriate.

3 A 30% discount for this new middle tier of low-income customers would result in
4 progress toward achieving an affordable bill. Similar to my discussion above, I calculate
5 the bill burden for the top of this income tier. Bills, along with bill discounts, are
6 calculated in the identical fashion by which PWSA calculated the bills in its discussion of
7 bill burdens. (see, OCA-VIII-2). The bill burdens resulting from this recommended
8 income tier and discount level are set forth in the Table below. As can be seen, while the
9 bill burdens remain somewhat high for this middle tier of PWSA's low-income
10 population, the inability to obtain precisely affordable bills is inherent in not having a
11 percentage of income program.⁴²

⁴² My agreement to the continuation of the PWSA Bill Discount Program in this proceeding should not be construed as an agreement that PWSA's BDP, even as I recommend that it be modified, adequately addresses the affordability needs of its low-income customers. I would reserve the right to address what modifications PWSA would need to make to its BDP to adequately address affordability, including the modification of the BDP to become a Percentage of Income Plan (PIP). My lack of a recommendation for PWSA to pursue a PIP in this proceeding should not be construed as an acknowledgement that a PIP is either, administratively or substantively, inadvisable.

1 **Q. WILL PWSA’S BDP, WITH A 50% VOLUMETRIC DISCOUNT FOR**
 2 **CUSTOMERS AT 0 TO 50% FPL, MAKE BILLS AFFORDABLE FOR THOSE**
 3 **CUSTOMERS?**

4 A. No. PWSA’s existing discount tiers fail to address the affordability needs of PWSA’s
 5 lowest income customers. Consider PWSA bill burdens as a percentage of income at
 6 differing household sizes in the PWSA service territory as set forth in the Table
 7 immediately below. Using the discounted BDP bill at the rates as proposed by PWSA in
 8 this proceeding, bill burdens can be calculated at the top of the income tier at or below
 9 50% FPL. As can be seen, even given the BDP bill with a 50% volumetric discount, bills
 10 remain unaffordable for households in this income tier. As PWSA’s bills continue to
 11 increase in 2026, as proposed in this proceeding, the burdens become ever more
 12 unaffordable. In FY 2025, the 50% volumetric discount results in a burden of 5.2% for a
 13 1-person household, expanding to 6.0% in FY2026. Even for a 2-person household, the
 14 existing 50% discount results in burdens approaching 4% in FY2025 and noticeably
 15 exceeding 4% in FY2026.⁴³

Table 12. PWSA Bill Burdens at for Households with Income at or Below 50% FPL Given Existing 50% Volumetric Discount							
		FY 2025			FY 2026		
HH Size	1	2 ⁴⁴	3	HH Size	1	2	3
Monthly Bill	\$31.16	\$31.16	\$31.16	Monthly Bill	\$36.16	\$36.16	\$36.16
Annual Bill	\$373.92	\$373.92	\$373.92	Annual Bill	\$433.92	\$433.92	\$433.92
Income	\$7,250	\$9,860	\$12,430	Income	\$7,250	\$9,860	\$12,430
Burden	5.2%	3.8%	3.0%	Burden	6.0%	4.4%	3.5%

⁴³ Again, as I discuss above, households with from one- and two-persons represent 77% of all Pittsburgh households. Households with one-, two- and three-persons represent 91% of all Pittsburgh households.

⁴⁴ The burdens included here for 2-person households are provided in PWSA’s response to OCA-VIII-4. Burdens for 1-person and 3-person households are calculated using the identical methodology.

1 Irrespective of whether the 50% volumetric discount is reasonably adequate at rates
2 approved in PWSA's last rate case, that level of discount has clearly become inadequate
3 (and unreasonable) as rates have escalated since that time. An adjustment now needs to
4 be made.

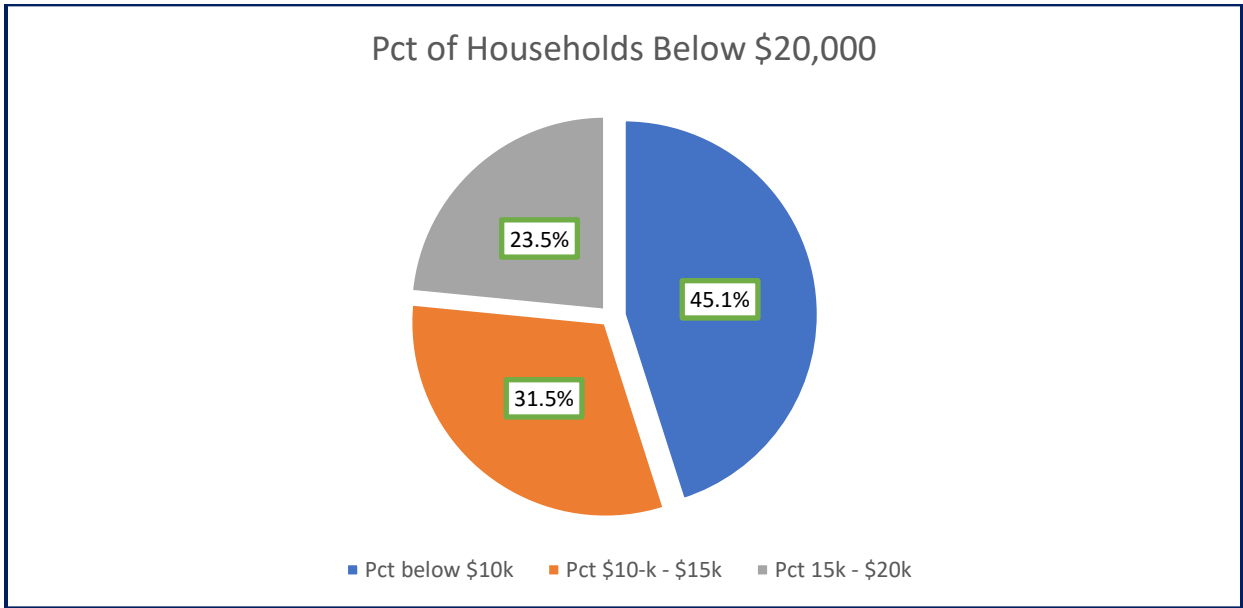
5 **Q. HAVE YOU EXAMINED THE REASONABLENESS OF THE 50%**
6 **VOLUMETRIC DISCOUNT FOR THIS LOWEST INCOME TIER IN ANY**
7 **OTHER WAY?**

8 A. Yes. I have examined households with income less than \$20,000 in the PWSA service
9 territory. In doing so, I use the income ranges reported by the Census Bureau (less than
10 \$10,000; \$10,000 - \$15,000; and \$15,000 - \$20,000). To calculate PWSA burdens, I use
11 the mid-point of each income range.⁴⁵ Continuing to use the FY2025 and FY2026 bills
12 (as PWSA used [PWSA St. 6, at 49]), I find that in FY2025, bill burdens for households
13 with income less than \$10,000 will be 7.5% of income, increasing to 8.7% of income in
14 FY2026. Bill Burdens for households at \$15,000 to \$20,000 will be 2.1% of income,
15 increasing to 2.5% in FY2026.

16 These burdens are significant because, as the Chart below demonstrates, the PWSA
17 service territory has substantial numbers of households living at the lowest ranges of
18 income within these income ranges. Of the more than 30,500 households with annual
19 income below \$20,000, by far the largest percentage of households in this population
20 (45.1%) have income below \$10,000. Combined, the population with income at or below

⁴⁵ Using these incomes, along with their mid-points, reasonably reflects 50% FPL for households with from one to three-persons. In 2023, 50% FPL was \$7,290 for a one-person household; \$9,860 for a two-person household; and \$12,430 for a three-person household.

1 \$15,000 represents more than three-quarters (76.6%) of the total population with income
 2 less than \$20,000. Even given the 50% volumetric discount provided by PWSA, in other
 3 words, PWSA bills remain unaffordable to a substantial segment of PWSA’s low-income
 4 population.



5

6 **Q. ARE THE UNAFFORDABLE BURDENS YOU IDENTIFY ABOVE**
 7 **ARTIFICIALLY LOW?**

8 A. Yes. As I indicate above, in making my calculations above, I accept all of the
 9 assumptions that PWSA incorporated into its calculations of low-income bills and
 10 burdens. One of those assumptions is that average low-income consumption is 3,000
 11 gallons (3 kgal) a month. (OCA-VIII-2, OCA-VIII-5). In its Direct Testimony filed in its
 12 2020 rate case, however, PWSA reported that the 3,000 gallon usage applied to

1 households with income *in excess of 150% FPL*. In contrast, PWSA said that the median
 2 usage for customers with income *at or below 150% FPL* was 4,000 gallons per month.⁴⁶

3 This difference in usage, as it affects the calculation of water burdens, is substantial.
 4 Using PWSA’s report of low-income median usage (4,000 gallons), even after applying
 5 the proposed PWSA discount, bills yield burdens that are considerably more problematic
 6 to low-income customers than using the lower consumption (3,000 gallons). At a usage
 7 of 4,000 gallons, PWSA’s discounted bill to customers at or below 50% FPL would be
 8 \$45.59 (not \$31.16) in FY2025. At a usage of 4,000 gallons, PWSA’s discounted bill to
 9 customers at or below 50% FPL would be \$53.24 (not \$36.16) in FY2026.

Table 13. Bill Burdens (given PWSA proposed rates and 50% volumetric discount (for 50% FPL tier) At Usage of 3,000 and 4,000 Gallons per Month				
	At \$5,000	At \$10,000	At \$15,000	At \$20,000
FY2025				
3,000 gallons	7.5%	3.7%	2.5%	1.9%
4,000 gallons	10.9%	5.5%	3.6%	2.7%
FY2026				
3,000 gallons	8.7%	4.3%	2.9%	2.2%
4,000 gallons	12.8%	6.4%	4.3%	3.2%

10 **Q. DO YOU RECOMMEND MODIFICATIONS TO THE BILL DISCOUNT**
 11 **PROPOSED BY PWSA IN THIS PROCEEDING?**

12 A. Yes. I recommend that the volumetric discount for customers with annual income at or
 13 below 50% FPL be increased from 50% to 60%. Doing so would, as demonstrated in the

⁴⁶ PUC vs. PWSA, Docket No. R-2020-3017951 (water), Docket No. R-2020-3017970 (wastewater) (cons.), PWSA St. 8, at Table 3, page 11); see also, OCA-III-59.

1 Table below, more closely align actual bill burdens for this lowest income tier with
2 affordable bill burdens than does the existing 50% volumetric discount.

Table 14. PWSA Bill Burdens at for Households with Income at or Below 50% FPL Given Recommended 60% Volumetric Discount							
FY 2025				FY 2026			
HH Size	1	2	3	HH Size	1	2	3
Monthly Bill	\$23.30	\$23.30	\$23.30	Monthly Bill	\$26.82	\$26.82	\$26.82
Annual Bill	\$279.60	\$279.60	\$279.60	Annual Bill	\$321.84	\$321.84	\$321.84
Income	\$7,250	\$9,860	\$12,430	Income	\$7,250	\$9,860	\$12,430
Burden	3.9%	2.8%	2.2%	Burden	4.4%	3.3%	2.6%

3 As can be seen, this modest increase in the Tier 1 discount results in a dramatic
4 improvement in the bill affordability to Tier 1 customers. This increased Tier 1 discount
5 should be adopted.

6 **Part 4. The Design and Operation of PWSA’s Arrearage Forgiveness Program.**

7 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
8 **TESTIMONY.**

9 A. In this section of my testimony, I review the design and operation of PWSA’s Arrearage
10 Forgiveness Program (AFP). I find that the AFP is not effectively operating to address
11 the pre-existing arrears of low-income customers. For this discussion, a “pre-existing
12 arrearage” is an arrearage that appears on the low-income customer’s bill at the time the
13 customer enrolls in the AFP. It is critical to provide a reasonable opportunity for PWSA’s
14 low-income customers to get out from under the burden of arrearages that they may have
15 accrued during the time in which their bills presented unaffordable burdens. It makes

1 little sense to seek to make future bills for current service more affordable if the low-
2 income BDP participants will simply face unaffordable *total* bills because of their
3 obligation to retire pre-existing arrears. Low-income customers do not make two
4 separate, independent, payments, one toward their bill for current service and another
5 toward their pre-existing arrears. Instead, there is one monthly asked-to-pay amount that
6 combines the obligation to pay for current service and for pre-existing arrears into one
7 amount. Nonpayment of that single asked-to-pay amount will result in PWSA placing the
8 customer into its collection process. (OCA-III-35).

9 **A. Automatic Enrollment of BDP Participants with Arrears into AFP.**

10 **Q. HAVE YOU HAD OCCASION TO REVIEW THE LEVEL OF ARREARAGES**
11 **FOR PWSA'S BDP ENROLLEES?**

12 A. Yes. I have examined the extent to which low-income customers are entering PWSA's
13 BDP with pre-existing arrears. I compare the total number of PWSA customers enrolling
14 in the BDP (OCA-III-47) to the number of low-income customers enrolling in BDP with
15 pre-existing arrears. As the data in the Table below shows, over the period May 2021
16 through May 2023, more than 71% of the customers who enrolled in BDP entered the
17 program with a pre-existing arrears. The average arrears of those having arrears was
18 \$1,226.⁴⁷ With some notable exceptions in a limited number of months, both the
19 percentage of new BDP enrollees with arrears and the average arrears (of those having

⁴⁷ PWSA provided the average arrears of new BDP enrollees. (OCA-III-47(c)). However, the average PWSA provided included those customers with \$0 in arrears in the calculation. A better metric is the average arrears of those having arrears.

1 arrears) have remained relatively constant over the 25 months of reported data (May 2021
2 through May 2023).

3 The data shows the importance of a low-income customer's access to arrearage
4 forgiveness in being able to obtain an affordable bill. Using the arrears reported for new
5 BDP enrollees as an illustration, let me assume that the average pre-existing arrears
6 would be retired in equal installments over a three-year period. With no downpayment,
7 the low-income customer would be required to pay \$409 each year simply toward retiring
8 that pre-existing arrears ($\$1,226 / 3 = \408.67). At 100% FPL, therefore, the payment
9 needed *exclusively to retire the arrears* would be: (1) 2.6% of income for a 1-person
10 household; (2) 2.1% of income for a 2-person household; or (3) 1.6% of income for a 3-
11 person household.⁴⁸ At 50% FPL, the maximum income level for PWSA's BDP Tier 1,
12 the burdens *simply to retire arrears* would be two times that level: (1) 5.2% of income for
13 a 1-person household; (2) 4.2% of income for a 2-person household; or 3.2% of income
14 for a 3-person household. Given that the reason for the prevalence and depth of the
15 arrears with which to begin is the unaffordability of bills, adding these arrearage
16 retirement installments is unreasonable.

⁴⁸ 2023 Federal Poverty Guidelines are: 1-person household: \$14,580; 2-person household: \$19,720; and 3-person household: \$24,860. Available at <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

Table 15. Bill Discount New Enrollees with Arrears (May 2021 – May 2023) (row shading simply to improve readability)						
	OCA-III- 47(a) BDP New Enrollees	OCA-III- 47(c) BDP New Enrollees with Arrears	OCA-III- 47(e) Avg Arrears	OCA-III-47(d) Total Arrears	Col. 4 / Col. 2 Avg Arrears of those with Arrears	Col. 2 / Col. 1 Pct with Arrears
	127	93	\$730.50	\$92,773.46	\$997.56	73.2%
Jun-21	63	47	\$1,110.47	\$69,959.68	\$1,488.50	74.6%
Jul-21	116	97	\$1,021.16	\$118,454.40	\$1,221.18	83.6%
Aug-21	149	118	\$1,290.83	\$192,333.13	\$1,629.94	79.2%
Sep-21	137	118	\$1,081.94	\$148,225.63	\$1,256.15	86.1%
Oct-21	163	113	\$642.47	\$104,722.03	\$926.74	69.3%
Nov-21	128	84	\$866.71	\$110,938.75	\$1,320.70	65.6%
Dec-21	110	82	\$807.69	\$88,845.58	\$1,083.48	74.5%
Jan-22	157	110	\$890.51	\$139,810.46	\$1,271.00	70.1%
Feb-22	135	84	\$658.73	\$88,928.75	\$1,058.68	62.2%
Mar-22	145	85	\$622.77	\$90,302.27	\$1,062.38	58.6%
Apr-22	81	59	\$885.84	\$71,752.94	\$1,216.15	72.8%
May-22	93	58	\$937.25	\$87,164.59	\$1,502.84	62.4%
Jun-22	88	64	\$565.90	\$49,798.89	\$778.11	72.7%
Jul-22	149	99	\$508.70	\$75,796.11	\$765.62	66.4%
Aug-22	94	79	\$916.55	\$86,155.27	\$1,090.57	84.0%
Sep-22	99	73	\$795.12	\$78,716.49	\$1,078.31	73.7%
Oct-22	102	80	\$807.82	\$82,397.46	\$1,029.97	78.4%
Nov-22	71	51	\$597.37	\$42,413.60	\$831.64	71.8%
Dec-22	186	147	\$1,058.94	\$196,962.53	\$1,339.88	79.0%
Jan-23	197	92	\$690.50	\$93,908.45	\$1,020.74	46.7%
Feb-23	112	82	\$791.83	\$88,684.88	\$1,081.52	73.2%
Mar-23	171	128	\$1,603.91	\$274,268.90	\$2,142.73	74.9%
Apr-23	258	190	\$1,101.93	\$284,297.54	\$1,496.30	73.6%
May-23	197	143	\$792.69	\$156,160.43	\$1,092.03	72.6%
Total	3,328	2,376	\$875.53	\$2,913,772.22	\$1,226.34	71.4%

1 **Q. HAVE YOU EXAMINED THE EXTENT TO WHICH THE ARREARAGE**
2 **FORGIVENESS AND BILL DISCOUNT PROGRAMS OVERLAP?**

3 A. Given the extent to which low-income PWSA customers newly enrolled in BDP between
4 May 2021 and May 2023 had pre-existing arrears, I examined the overlap between
5 participation in the BDP and AFP programs. The data is presented in the Table below.

6 The data shows the extent to which PWSA's AFP under-serves the low-income
7 population with arrearages. According to PWSA's data, in May 2023, while there were
8 6,497 low-income customers participating in BDP, there were only 1,956 low-income
9 customers who were participating in *both* the BDP *and* the AFP. Only 30% of BDP
10 participants, in other words, were also participating in the Arrearage Forgiveness
11 Program.

12

Table 16. Number of BDP Participants, and Number of Participants in BDP + AFP (May 2021 through May 2023) (shading simply to improve readability)							
Month	OCA-III- 1(a) Number of BDP participant s 0-50%	OCA-III- 1(a) Number of BDP participant s 50.1- 150%	Col.1 + Col. 2 Total BDP	OCA-III- 4(a) Total AFP+BDP (0-50%)	OCA-III- 4(a) ⁴⁹ Total AFP+BDP (50.9- 150%)	Col. 4 + Col. 5 Total AFP+BDP	Pct AFP+ BDP of Total BDP
May-21	682	2,810	3,492	90	262	352	10%
Jun-21	703	2,912	3,615	95	295	390	11%
Jul-21	722	2,953	3,675	110	347	457	12%
Aug-21	750	3,034	3,784	114	386	500	13%
Sep-21	771	3,111	3,882	133	411	544	14%
Oct-21	801	3,183	3,984	136	449	585	15%
Nov-21	830	3,220	4,050	138	469	607	15%
Dec-21	861	3,271	4,132	169	515	684	17%
Jan-22	900	3,356	4,256	152	459	611	14%
Feb-22	918	3,413	4,331	141	478	619	14%
Mar-22	947	3,467	4,414	157	472	629	14%
Apr-22	1,000	3,576	4,576	181	508	689	15%
May-22	1,051	3,639	4,690	198	545	743	16%
Jun-22	1,097	3,781	4,878	211	584	795	16%
Jul-22	1,218	4,248	5,466	179	531	710	13%
Aug-22	1,257	3,220	4,477	379	795	1,174	26%
Sep-22	1,362	4,491	5,853	400	1,084	1,484	25%
Oct-22	1,428	4,653	6,081	414	1,133	1,547	25%
Nov-22	1,337	4,548	5,885	417	1,174	1,591	27%
Dec-22	1,390	4,691	6,081	443	1,250	1,693	28%
Jan-23	1,444	4,885	6,329	450	1,317	1,767	28%
Feb-23	1,426	4,846	6,272	452	1,343	1,795	29%
Mar-23	1,564	5,253	6,817	468	1,400	1,868	27%
Apr-23	1,441	4,856	6,297	478	1,405	1,883	30%
May-23	1,491	5,006	6,497	500	1,456	1,956	30%

1 **Q. HAVE YOU EXAMINED THE NUMBER OF AFP PARTICIPANTS WHO HAVE**
2 **ACTUALLY RECEIVED ARREARAGE CREDITS PURSUANT TO THE PWSA**
3 **PROGRAM?**

4 A. Yes. I examined data that PWSA provided on the number of AFP participants who had
5 AFP credits successfully posted to their accounts over the period May 2022 through April
6 2023. (OCA-VIII-27). This data is consistent with the data provided by PWSA indicating
7 that it successfully posted arrearage forgiveness credits to 640 accounts in May 2023.
8 (OCA-III-54(c)).⁵⁰ As documented above, however, PWSA had 1,956 AFP participants
9 in May 2023. The Table below compares the number of AFP participants each month to
10 the number of AFP participants who received arrearage credits after making a full and
11 timely payment.

⁴⁹ PWSA did not explain the substantial difference between the number of customers it reports as being AFP participants by month (OCA-III-4) and the number of bills it issued to AFP participants by month (OCA-III-48(f)).

⁵⁰ While the PWSA response to OCA-III-54 was marked as “confidential,” by agreement with PWSA, only the personally identifiable information in the reports was considered “confidential.” This discussion does not reveal any personally identifiable information, but instead only provides compiled data.

Table 17. AFP Participants and AFP Credits Granted (Most Recent 12 months) (shading simply to improve readability)			
	AFP Participants	AFP Credits (OCA-VIII-27)	Ratio Credits to Participants (Col. 2 / Col. 1)
May-22	743	807	1.09
Jun-22	795	846	1.06
Jul-22	710	725	1.02
Aug-22	1,174	891	0.76
Sep-22	1,484	585	0.39
Oct-22	1,547	731	0.47
Nov-22	1,591	542	0.34
Dec-22	1,693	513	0.30
Jan-23	1,767	519	0.29
Feb-23	1,795	712	0.40
Mar-23	1,868	746	0.40
Apr-23	1,883	696	0.37
Sep 2022 - April 2023 (avg)	1,704	631	0.37

1 The data demonstrates that few AFP participants successfully meet PWSA’s requirement
 2 that they make a full and timely payment not only of their bill for current service but of
 3 the installment payment toward their pre-existing arrearage. Beginning in the Fall of
 4 2022 and continuing to the present, with one exception (October 2022), 40% or less of
 5 PWSA’s AFP participants successfully earned their matching arrearage forgiveness credit.
 6 Indeed, from December 2022, when the federal government’s COVID emergency water
 7 assistance grant program went away, through April 2023, PWSA would have issued
 8 10,597 AFP bills but made only 3,728 AFP arrearage forgiveness credits.

9 **Q. WHAT DO YOU FIND?**

10 A. What we know from the discussion above, therefore, is the following: (1) in May 2023,
 11 PWSA had 6,497 BDP participants; (2) from May 2021 through May 2023, more than
 12 71% of low-income customers enrolling in BDP had pre-existing arrears at the time of

1 enrollment; (3) in May 2023, of the 6,497 BDP participants, 1,956 (30%) were enrolled
2 in the AFP; and (4) of those enrolled in AFP, in May 2023, PWSA posted arrearage
3 forgiveness credits to 640 accounts (33%). Even within the limited population of BDP
4 participants enrolled in the AFP, consistently fewer than 40% of those AFP participants
5 received an AFP credit toward their pre-existing arrears. I conclude that the number of
6 BDP participants who are actually receiving credits toward their pre-existing arrears falls
7 well short of the number of BDP participants who have pre-existing arrearages on their
8 accounts.

9 **Q. WHAT DO YOU RECOMMEND?**

10 A. While PWSA agreed to minimize the steps that BDP participants must take in order to
11 also enroll in the AFP, the data shows that a substantial number of BDP participants with
12 arrears do not enter the AFP. To have low-income customers receiving a discount toward
13 their bill for current service, but to also continue to bear responsibility for arrears that
14 were incurred during the time prior to receiving the discount, is unreasonable. I
15 recommend that the PUC direct PWSA to automatically enroll any customer who newly
16 enrolls in the BDP into the AFP as well. In addition, I recommend that the PUC direct
17 PWSA to retroactively enroll customers who have previously enrolled in BDP, and who
18 currently have arrears, into AFP as well. Such enrollment of existing BDP participants
19 with arrears would subject the BDP participant arrears to the rules of the AFP for all
20 arrears on the account at the time of AFP enrollment.

1 **B. Granting Retroactive AFP Credits for “Cured” Missed Payments.**

2 **Q. UNDER WHAT CIRCUMSTANCES DOES PWSA PROVIDE AN ARREARAGE**
3 **FORGIVENESS CREDIT TO AFP PARTICIPANTS?**

4 A. Pursuant to PWSA’s AFP, a low-income program participant may earn a \$30 credit for
5 each bill that is paid in-full and on-time. PWSA defines an “on-time” payment as a
6 payment that is made before the Company’s tariffed late payment charge is imposed. In
7 my discussion below, I document how this limitation on the grant of arrearage
8 forgiveness severely limits arrearage credits that are provided to low-income customers
9 who make complete payments toward their PWSA bills. I recommend that the PUC adopt
10 the same policy for PWSA that it has adopted for the arrearage forgiveness programs for
11 the state’s natural gas and electricity distribution companies. PWSA should *begin* by
12 providing arrearage forgiveness credits for each payment made in-full and on-time. *In*
13 *addition*, PWSA should provide retroactive credits for payments that fully pay a bill, even
14 if those payments are made after the bill payment “due date.”

15 **Q. WAS PWSA ABLE TO PROVIDE DATA ON THE COLLECTABILITY OF BILLS**
16 **ISSUED TO AFP OR BDP PARTICIPANT?**

17 A. No. While PWSA considers the rate at which it translates billings into revenues
18 (sometimes referred to as receipts) for customer classes, it does not do so for its specific
19 low-income programs. (OCA-III-10; see also, OCA-III-50, OCA-III-52)). Moreover,
20 when asked for information on payments for AFP participants (OCA-III-48(i) – (j)),
21 PWSA could not provide that data. For purposes here, it is important to distinguish
22 between “billings” and “receipts.” In contrast to the dollars included on bills to
23 customers, “receipts” are recorded revenues actually received. (OCA-III-51; see also,

1 OCA-VIII-16). Since PWSA does not track the collectability of the bills which it issues
2 to AFP customers in particular, it cannot assess the extent to which AFP participants do or
3 do not miss payments (and thus do not earn AFP credits).

4 **Q. IS THERE ANY WAY TO GAIN INSIGHTS INTO THE EXTENT TO WHICH**
5 **BDP AND/OR AFP PARTICIPANTS PAY THEIR BILLS IN A COMPLETE**
6 **FASHION?**

7 A. Yes. While PWSA specifically states that it cannot track the number of accounts on
8 which a payment has been made to reduce the account balance to \$0. (OCA-III-57(f)), it
9 is possible to gain some insights into the payment patterns for the BDP by looking at the
10 aging reports for arrears carried by BDP participants. An “aging report” presents the
11 dollars of arrears by the age of arrears (e.g., 1 – 30 days, 31 – 60 days, 61-90 days).
12 PWSA provided the aging of arrears for individual BDP participants for each month
13 September 2021 through May 2023. (OCA-III-58).⁵¹

14 PWSA’s aging reports for its BDP population provide important insights into the
15 operation of the AFP as well.⁵² The data is set forth in the Table below.

⁵¹ While the aging reports were marked as “confidential,” by agreement with PWSA, only the personally identifiable information in the reports was considered “confidential.” This discussion does not reveal any personally identifiable information, but instead only provides compiled data.

⁵² As established above, even though only 30% of BDP participants have also been enrolled in the AFP, more than 70% of BDP participants entered the discount program with pre-existing arrears.

Table 18. PWSA Aging of Arrears (BDP) May 2022 – May 2023

	No. BDP Accounts ⁵³	Accounts 1-30 Days in arrears	Accounts 31-60 Days in Arrears	Pct Total Accounts 31-60 days in Arrears	Accounts 61-90 days in arrears
May-22	1,559	1,536	898	58%	743
Jun-22	1,537	1,516	881	57%	694
Jul-22	1,486	1,462	875	59%	676
Aug-22	2,557	1,864	1,129	44%	1,013
Sep- 22 ⁵⁴	Not available	Not available	Not available	Not available	Not available
Oct-22	4,672	4,556	2,764	59%	2,531
Nov-22	4,386	3,993	2,663	61%	2,285
Dec-22	4,822	4,619	2,786	58%	2,300
Jan-23	4,675	4,333	2,883	62%	2,375
Feb-23	4,897	4,721	2,642	54%	2,436
Mar-23	5,038	4,907	2,662	53%	2,385
Apr-23	4,914	4,724	2,701	55%	2,319
May-23	5,225	5,051	2,845	54%	2,283

1 The data in the Table above shows why not allowing AFP participants to earn arrearage
2 forgiveness credits by completing a full payment, even if not on-time, is unreasonably
3 restrictive. While PWSA reports that, as a general rule, between 50% and 60% of its
4 BDP participants have an arrearage that is 31 to 60 days old,⁵⁵ significant numbers of
5 BDP participants reduce their arrearage to \$0 in each subsequent month. In March 2023,

⁵³ PWSA did not explain the difference in its count of BDP participants by month in its aging reports and its count of BDP participants provided elsewhere.

⁵⁴ PWSA reported that data for September 2022 was not available.

⁵⁵ Having an arrearage in each aging bucket necessarily implies that the account has an arrearage in each “younger” aging bucket. If, for example, an account has an arrears that is 61 to 90 days old, that account will also have an arrears that is 31 to 60 days old. For this reason, the numbers in the columns above are not additive. The younger buckets are subsets of the older buckets.

1 for example, while PWSA had 4,907 BDP participants with arrears aged 1 to 30 days, by
2 the next month (April), there were only 2,701 of those accounts that still had an unpaid
3 balance (and thus had an arrears in the 31 – 60 day old bucket). By the next month
4 (May), it had only 2,283 in the 61 – 90 aging bucket. Between Day 31 and Day 90, in
5 other words, more than half (52%) of the BDP accounts with arrears at Day 30 had retired
6 their arrears completely. Nonetheless, these customers had not received arrearage
7 forgiveness for making those complete payments.

8 Similar results are seen in other months. In December 2022, 4,619 BDP participants had
9 arrears in the 1 to 30 day aging bucket. By the next month (January), however, the
10 number of BDP participants continuing to have arrears was reduced to 2,883 (a reduction
11 of 48%), while by the next month (February), the number of BDP participants continuing
12 to have arrears had been reduced to 2,436. Despite having paid their bills such that they
13 did not have arrears falling into the *next* aging bucket, the 1,736 low-income customers
14 (of the 4,619 in December 2022) having retired their arrears in January would not have
15 received any arrearage forgiveness credits. Despite having paid their bills such they did
16 not have arrears falling into the 61 to 90 day aging bucket, the 2,183 low-income
17 customers having made complete payments toward their December bills (4,619 – 2,436)
18 would not have received any arrearage forgiveness credit.

19 **Q. UPON WHAT DID PWSA GROUND ITS OPPOSITION TO PROVIDING MORE**
20 **EXTENSIVE ARREARAGE FORGIVENESS?**

21 A. PWSA witness Edward Barca explained PWSA's opposition as follows:

22 we still do not support restructuring the program at this time due to the
23 successful Low Income Household Water Assistance Program (LIHWAP).

1 Pennsylvania’s program awarded more than \$43 million last year, with the
2 funds paid directly to water and wastewater providers. It is anticipated that a
3 second round of funding will occur. The funding for the second round will
4 come from the states that did not spend the first round of federal funding by
5 the government’s deadline. Therefore, in PWSA’s view, there will be
6 additional funding to assist low income customers with paying their bills. . .

7 (PWSA St. 2, at 52). In fact, however, when Congress adopted its legislation increasing
8 the federal debt ceiling, it rescinded all unspent LIHWAP funding. The funding that
9 PWSA “anticipated” would come from states that did not spend their first round of
10 federal funding no longer exists.⁵⁶ The number of PWSA BDP participants who received
11 a LIHWAP grant from November 2022 through May 2023 is set forth in the Table below.
12 The federal LIHWAP funding that PWSA “anticipated” would be available is *not*
13 available. From January 2023 through May 2023, nine (9) PWSA customers received
14 LIHWAP grants. From March 2023 through May 2023, three (3) PWSA customers
15 received LIHWAP. While acknowledging in discovery that its “anticipated” additional
16 funding has been rescinded by Congressional action (OCA-VIII-19), PWSA chooses not
17 to modify its opposition to changes in its AFP that it originally had justified on the basis
18 of the existence of such funding. (OCA-VIII-20, OCA-VIII-21, OCA-VIII-22, OCA-
19 VIII-23, OCA-VIII-24).

⁵⁶ Any final residual LIHWAP funding that the State of Pennsylvania may have made will not be available after August 11, 2023. There was one brief open application period starting July 10, 2023 and ending August 11, 2023. <https://www.dhs.pa.gov/Services/Assistance/Pages/LIHWAP.aspx>

1 month period at the rate of 1/24th of the pre-existing arrears for each full payment
2 received.

3 **Q. WHAT IS THE PRACTICAL SIGNIFICANCE OF HAVING PWSA ADOPT THE**
4 **SAME ARREARAGE FORGIVENESS STRUCTURE THAT HAS BEEN**
5 **ADOPTED BY THE PUC FOR PENNSYLVANIA’S ELECTRICITY AND**
6 **NATURAL GAS DISTRIBUTION UTILITIES?**

7 A. The immediate significance of adopting this arrearage forgiveness structure is that PWSA
8 would eliminate its requirement that AFP participants enter into deferred payment
9 arrangements for their pre-existing arrears and receive matching credit only if they pay
10 their entire bill for current service *plus* the required payment arrangement installment
11 payment against their arrears. My recommendation is that AFP participants receive a
12 credit equal to 1/24th of their entire pre-existing arrears in exchange for complete
13 payments of their bill for current service.

14 Imposing an obligation to make an installment payment toward their pre-existing arrears
15 in addition to paying their bill for current service would impose unreasonable burdens on
16 PWSA’s low-income customers, particularly those in the lowest tier of FPL. As the Table
17 below documents, customers with income falling in the lowest FPL tier will frequently
18 have extremely high pre-existing arrears. In six of the 16 months examined (January
19 2022 – May 2023), including four of the most recent six months (December 2022 – May
20 2023), those months when federal emergency assistance grants were no longer available,
21 the average arrears of BDP participants with income less than 50% FPL exceeded \$900.
22 In four of those six months, the average arrears of the lowest income BDP participants at
23 the time of enrollment exceeded \$1,000.

**Table 20. Average Arrears at Time of BDP Enrollment by Month and Tier of FPL
(January 2022 – May 2023) (OCA-III-54)⁵⁷**

	0 - 50% PL		50-100% FPL		100-150% FPL	
	Number Accts	Avg Arrears	Number Accts	Avg Arrears	Number Accts	Avg Arrears
Jan-22	38	\$811	64	\$760	55	
Feb-22	35	\$796	45	\$969	55	\$317
Mar-22	31	\$813	54	\$879	63	\$570
Apr-22	22	\$1,449	63	\$343	62	\$298
May-22	19	\$804	36	\$1,152	37	\$834
Jun-22	21	\$691	38	\$390	29	\$705
Jul-22	50	\$418	52	\$560	45	\$564
Aug-22	23	\$1,618	27	\$921	44	\$547
Sep-22	Data not available					
Oct-22	20	\$802	45	\$596	37	\$1,069
Nov-22	19	\$666	23	\$745	30	\$423
Dec-22	40	\$1,026	72	\$1,316	74	\$827
Jan-23	34	\$557	50	\$921	59	\$505
Feb-23	29	\$918	38	\$797	42	\$755
Mar-23	45	\$990	52	\$2,380	74	\$1,432
Apr-23	29	\$1,276	39	\$1,054	61	\$1,054
May-23	52	\$827	74	\$803	71	\$754

1 Adding the installment payment to bills at rates proposed by PWSA (including PWSA’s
 2 proposed discounts) will yield unaffordable bill burdens at the lowest FPL tier. PWSA
 3 Witness Mechling reported that PWSA’s bills would, for a 2-person household, yield
 4 burdens at 50% FPL of 2.8% in 2023, 3.2% in 2024, 3.8% in 2025 and 4.4% in 2026.

⁵⁷ Similar to my use of data from PWSA “aging reports” above, PWSA’s response to OCA-III-54 contained individually-identifiable data for specific PWSA customers. By agreement with PWSA, only the personally identifiable information in this data request response was considered “confidential.” This discussion does not reveal any personally identifiable information, but instead only provides compiled data not deemed to be confidential.

1 (PWSA St. 6, at 49).⁵⁸ For a 1-person household (which represents 42% of Pittsburgh's
2 total household population, PWSA's bills would yield bill burdens of 3.8% in 2023, 4.4%
3 in 2024, 5.2% in 2025, and 6.0% in 2026 without the added financial obligation of an
4 installment payment required for a pre-existing arrearage. For a 3-person household,
5 which represents an additional 12% of the Pittsburgh population, PWSA's bills would
6 yield bill burdens of 2.2% in 2023, 2.6% in 2024, 3.0% in 2024, and 3.5% in 2025
7 without the additional obligation of an installment payment to help retire a pre-existing
8 arrearage. Even these burdens understate the PWSA burdens imposed by PWSA bills.
9 These burdens are calculated using the maximum income allowed in PWSA's lowest
10 income tier. Customers would not, however, live at the maximum income level. They
11 would live with average incomes within that FPL tier. In fact, therefore, their burdens
12 will be even higher than I note. Adding an arrearage installment payment drives these
13 burdens substantially higher.

14 **Q. WHAT DO YOU CONCLUDE?**

15 A. I conclude that PWSA's requirement that AFP participants enter into a deferred payment
16 arrangement based on their pre-existing arrears, and that AFP participants be required to
17 pay their installment payment in addition to their bill for current service, is unreasonable.
18 Rather than requiring such payment arrangements, and the associated copayments toward
19 pre-existing arrears, PWSA should modify its program to allow 1/24th of the complete

⁵⁸ Ms. Mechling also calculated burdens for 4-person and 6-person households. However, as I demonstrated earlier in my testimony, few of Pittsburgh's households have four or more persons in the household. I noted above that in 2021, out of a total of 136,747 households, 57,752 had one-person; 47,320 had 2-persons; 16,035 had three-persons; and 15,590 had four or more persons. A more meaningful comparison, therefore, would have been to examine 50% FPL for a 1-person and 3-person household.

1 pre-existing arrears to be forgiven for each complete payment that a program participant
2 makes.

3 **Q. DOES PWSA CONTINUE TO HAVE THE INFORMATION TECHNOLOGY**
4 **LIMITATIONS IT HAS HAD IN THE PAST WHICH WOULD IMPEDE**
5 **ADOPTING YOUR RECOMMENDED ARREARAGE FORGIVENESS**
6 **STRUCTURE?**

7 A. No. While PWSA witness Julie Mechling asserts that PWSA continues to oppose a
8 restructuring of PWSA's AFP as a matter of policy, there are no longer limitations
9 imposed by the PWSA billing system. She specifically testified that: "I do want to be
10 clear that while PWSA does not believe the costs of implementing a change to the AFP as
11 suggested by the last rate case settlement are reasonable, we did ensure that the
12 functionality was included in our current system to be able to accommodate the revised
13 structure contemplated by the settlement if PWSA elects to implement it in the future."
14 (PWSA St. 6, at 47).

15 **D. Responding to PWSA's "Benefit-Cost Analysis" of AFP Changes.**

16 **Q. PLEASE RESPOND TO PWSA'S "BENEFIT-COST ANALYSIS" OF MAKING**
17 **CHANGES TO ITS ARREARAGE FORGIVENESS PROGRAM.**

18 A. As PWSA witness Barca testified about the Settlement of its last base rate case:

19 PWSA agreed to undertake a cost-benefit analysis regarding a restructuring
20 of its current program that would have included: (1) reducing the customer's
21 account balance by 1/36th of the original pre-program balance account; (2) at
22 the time of enrollment, separating (or "freezing") the customer's total arrears
23 from their current and future bills; (3) forgiving the frozen arrearage at a rate
24 of 1/36th per month for each month the customer timely and fully pays the
25 bill; (4) retroactively forgive arrearages for customers who miss a monthly
26 bill payment but make catch-up payments

1 (PWSA St. 2, at 51). PWSA provided its Exhibit EB-9 in fulfillment of that
2 commitment. (PWSA St. 2, at 51 – 52). The benefit-cost analysis that PWSA presents is
3 so flawed it should not be used as a basis for decision-making.

4 **Q. WHAT FLAWS DID YOU FIND IN MR. BARCA’S BENEFIT-COST RATIO?**

5 A. There are multiple flaws in Mr. Barca’s benefit-cost analysis. They include the
6 following:

7 First, Mr. Barca assumes that 100% of payments are made by AFP participants and,
8 therefore, that 100% of arrearage forgiveness credits are granted under either the existing
9 procedures or the alternative procedures. He specifically acknowledges that his analysis
10 “shows the cost of forgiving existing arrearages assuming all customers within the BDP
11 who have an arrearage balance make on-time payments every month over a 3-year
12 period.” (OCA-VIII-31). In making this assessment, Mr. Barca does not compare the
13 number, or percent, or dollar amount, of arrears that would be forgiven under the current
14 PWSA procedures to the number, or percent, or dollar amount, of arrears that would be
15 forgiven under the alternative procedures. (OCA-VIII-31, OCA-VIII-32, OCA-VIII-33).
16 He does not attempt to determine the portion of arrears eligible for forgiveness that would
17 remain unpaid, or unforgiven, at the end of the three-year period under either procedure.
18 (OCA-VIII-33).

19 Second, as a result of Mr. Barca’s assumption of a 100% collectability rate (OCA-VIII-
20 34), he does not compare the difference in costs associated with the payment rate under
21 the existing procedures compared to the payment rate under the recommended
22 procedures. In Mr. Barca’s flawed analysis, he assumes that the rate of uncollectibles is

1 identical, the rate of collection activity is identical, the magnitude of arrears carried is
 2 identical, and the number of customers continuing to carry arrears is identical, whether
 3 under the current PWSA procedures or under the alternative procedures.

4 This assumption does not reflect reality. The number of AFP participants making
 5 complete and on-time payments, and thus earning arrearage credits, is a small fraction of
 6 the total number of AFP participants. (OCA-VIII-27). The Table below, for example,
 7 compares the number of AFP accounts receiving an AFP credit to the number of AFP
 8 participants for the months reported through April 2023. (OCA-VIII-27). By not
 9 allowing AFP participants to retire their pre-existing arrears through the existing AFP,
 10 PWSA faces substantial costs in terms of carrying costs, bad debt, and collections costs.
 11 None of that was considered by Mr. Barca.

Table 21. Number of AFP Participants vs. Number of AFP Credits Granted by Month (2023)		
	AFP Participants	AFP Credits
Jan-23	1,767	519
Feb-23	1,795	712
Mar-23	1,868	746
Apr-23	1,883	696

12 Third, Mr. Barca’s “benefit-cost analysis” is flawed in that he makes no effort to identify
 13 any “benefits” at all arising from the alternative procedures he purportedly was assessing.
 14 (OCA-VIII-36). Even when he asserts that PWSA would benefit if “more in current
 15 charges were recovered,” he then turns around and merely assumes, contrary to fact, that
 16 PWSA would collect 100% of its current charges under either procedure. It is thus no
 17 surprise that Mr. Barca failed to identify any “benefits.” In fact, Mr. Barca did not seek
 18 to determine “costs” and “benefits.” He concedes that his analysis was, from the

1 beginning, designed only as follows: “The purpose of the cost-benefit analysis included
2 as Exh. EB-9 was *to quantify the cost (if any) of forgiving arrearages*, assuming
3 customers with an arrearage stayed current on their PWSA bills.” (OCA-VIII-29)
4 (emphasis added). Since Mr. Barca did not set out to determine whether, or to what
5 extent, “benefits” might arise from using the alternative arrearage forgiveness procedures,
6 he assigned no dollar value to any benefits in his “benefit-cost analysis.” (OCA-VIII-30).

7 **Q. HOW DID MR. BARCA’S BENEFIT-COST ANALYSIS ASSESS ANY**
8 **IMPROVEMENT IN THE FORGIVENESS OF ARREARS THAT WOULD ARISE**
9 **FROM ADOPTING THE ALTERNATIVE ARREARAGE FORGIVENESS**
10 **PROCEDURES?**

11 A. Mr. Barca made no effort to assess the extent of changes in the extent to which pre-
12 existing arrears would be forgiven under the alternative arrearage forgiveness procedures
13 rather than under PWSA’s existing procedures. He stated that doing so would not be
14 possible “given the unknowns of customers missing payments, making infrequent
15 payments, or customers not making payments at all.” (OCA-VIII-27). He declined to use
16 the historical data on actual, known, historic, payment patterns of AFP participants to
17 determine what the difference in forgiveness would have been under the existing
18 procedures versus the alternative procedures. (OCA-VIII-27). Instead, he asserts that “it
19 is impossible to factor in assumptions based on customers missing payments or those that
20 completely stop making payments.” (OCA-VIII-31). He refused to acknowledge that he
21 did not need to “make assumptions.” He could have easily used known, historic, data on
22 the bills and payments of actual AFP participants to determine what arrears would have
23 been forgiven under the existing procedures relative to the alternative procedures.

1 **Q. IS MR. BARCA’S ARREARAGE FORGIVENESS ANALYSIS CONSISTENT**
 2 **WITH PWSA’S REMAINING FILING IN THIS PROCEEDING?**

3 A. No. The fallacy of Mr. Barca’s analysis is seen by the complete disconnect between Mr.
 4 Barca’s numbers and PWSA’s filing in this proceeding. The Table below compares Mr.
 5 Barca’s assumed cost of arrearage forgiveness (Exh. EB-9) to the projected actual cost of
 6 arrears forgiveness that PWSA used to request rates in this proceeding. PWSA’s own
 7 requested cost recovery for arrearage forgiveness, in other words, demonstrates how
 8 disconnected from reality Mr. Barca’s analysis is.

Table 22. Arrearage Forgiveness Costs Assumed in EB-9 (“cost-benefit analysis”) Compared to Requested Arrearage Forgiveness Cost Recovery			
	2024	2025	2026
Cost-benefit AF cost (EB-9)	\$1,231,722	\$1,231,722	\$1,231,722
Requested Cost Recovery (OCA-VIII-13)	\$240,000	\$240,000	\$240,000

9 Based on the data and discussion above, I find that Mr. Barca’s “benefit-cost
 10 analysis” presented in EB-9 is fatally flawed. It cannot reasonably be used to
 11 determine the costs and benefits of moving to alternative arrearage forgiveness
 12 procedures as I have recommended in my testimony. Accordingly, I recommend
 13 adoption of the modifications to the PWSA arrearage forgiveness program that I
 14 have presented in detail above.

1 **Part 5. Recovery of Universal Service Costs.**

2 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
3 **TESTIMONY.**

4 A. In this section of my testimony, I present the projected costs of modifying PWSA's BDP
5 in the ways I recommend above. In addition, I review the rate recovery of PWSA's BDP
6 and arrearage forgiveness costs. I do not address the reasonableness of the proposed CAC
7 Rider as a cost recovery mechanism. That discussion is instead presented in the
8 testimony of OCA witness Karl Pavlovic.

9 **A. The Cost of Modifying PWSA's Bill Discount Program.**

10 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
11 **TESTIMONY.**

12 A. In this part of my testimony, I explain the level of increased costs associated with the
13 modifications I recommend for the PWSA Bill Discount Program (BDP). These costs
14 should be included in base rates.

15 **Q. WHAT LEVEL OF INCREASED COSTS RESULT FROM YOUR**
16 **RECOMMENDED MODIFICATIONS TO THE BDP?**

17 A. I recommend three changes to the BDP that will have cost impacts: (1) adding an
18 additional tier with a 30% discount; (2) increasing the Tier 1 (below 50% FPL) discount
19 from 50% to 60%; and (3) making modest changes in the fixed monthly credit to offset
20 the changes in the minimum bill.

- 21 ➤ The foregone revenue from Tier 1 (below 50% FPL) at a 50% discount is
22 \$224,877 in 2024 and is \$332,027 in 2025. (OCA-VIII-10). The foregone
23 revenue from Tier 1 at a 60% discount is \$269,852 in 2024 and \$398,433 in

1 2025. The cost of increasing the discount is thus \$44,975 in 2024 and is
2 \$66,406 in 2025.

3 ➤ The monthly bill for a Tier 2 customer (50% to 100% FPL) would be \$51.85
4 with no volumetric discount in 2024 and \$36.76 with a 30% discount. (OCA-
5 VIII-8), a monthly difference of \$15.09. The monthly bill for a Tier 2
6 customer would be \$70.41 with no volumetric discount in 2025 and \$46.87
7 with a 30% discount (Id.), a monthly difference of \$23.54. Given PWSA's
8 report of 1,359 BDP participants with annual income at 50% to 150% FPL in
9 June 2023 (United-I-11.b), the total cost of the 30% discount would thus be
10 \$246,088 in 2024 ($[\$51.85 - \$36.76] = \$15.09/\text{month} \times [1,359 \text{ participants} \times$
11 12 monthly bills]). PWSA estimates the same number of CAP bills in 2025 as
12 in prior years. The total cost of the 30% discount in 2025 would thus be
13 \$383,890 in 2025 ($[\$70.41 - \$46.87] = \$23.54/\text{month} \times [1,359 \times 12]$ monthly
14 bills).

15 ➤ The cost of increasing the fixed monthly credit would be \$0 in 2024 (since it
16 would not go into effect until the rate design change in 2025). The cost in
17 2025 would be \$5 per month for all CAP participants taking water service. It
18 would be \$3 per month for all CAP participants taking wastewater service.
19 Given PWSA's estimate of 55,028 CAP water bills (50 – 150% PL) and of
20 11,141 CAP50 water bills (below 50% FPL), the 2025 water cost would be
21 \$330,845 ($[55,028 + 11,141] \times \$5/\text{month}$). Given PWSA's estimate of 78,870
22 CAP wastewater bills (50 – 150% FPL) and of 16,524 CAP50 wastewater

1 bills (below 50% FPL), the 2025 wastewater cost would be \$286,182 ([78,870
2 + 16,524] x \$3 per month).

3 The dollars to be placed into rates in 2024 would be \$560,915 (\$44,975 + \$269,852 +
4 \$246,088).

5 **B. The Cost of Modifying PWSA's Arrearage Forgiveness Program**

6 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
7 **TESTIMONY.**

8 A. In this section of my testimony, I explain the level of increased costs associated with the
9 modifications I recommend for the PWSA Arrearage Forgiveness Program (AFP). These
10 costs should be included in base rates.

11 **Q. WHAT LEVEL OF INCREASED COSTS RESULT FROM YOUR**
12 **RECOMMENDED MODIFICATIONS TO THE AFP?**

13 A. I recommend a series of modifications to the AFP that will increase the rate at which
14 program participants will earn arrearage forgiveness. According to PWSA, in the 12
15 months ending May 2023, 68.7% of BDP participants made payments toward their
16 monthly bills. (OCA-III-47(f), 47(i)). This is consistent with the experience of
17 participants in Pennsylvania's EDC CAPs (66.8% in 2021), and somewhat higher than
18 the participants in Pennsylvania's NGDC CAPS (57.0% in 2021). Using the number of
19 customers who enrolled in BDP each month with a pre-program arrearage, using the
20 average arrearage of those customers, (United-I-12), and assuming 100% of the BDP
21 customers with pre-program arrears will also enroll in the AFP to obtain forgiveness of
22 those arrears, I determined that the cumulative pre-program arrears of BDP customers
23 enrolled since January 2021 was \$2,673.193 in May 2023. Forgiving those arrears over a

1 24-month period for each full payment made would yield an annual cost of \$871,461.
2 Given that PWSA has already included \$240,000 of arrearage forgiveness costs in rates
3 (OCA-III-12), the total incremental costs of making the enhancements I recommend
4 would be \$631,461. Allocating those costs between water and wastewater in the same
5 way that PWSA proposed to allocate arrearage forgiveness costs between water and
6 wastewater (OCA-III-12), the costs of my recommendation would be \$275,815 for water
7 and \$373,646 for wastewater.

8 **Part 6. Treatment of Mail “Undeliverable as Addressed.”**

9 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
10 **TESTIMONY.**

11 A. In this section of my testimony, I address how PWSA handles situations where it mails a
12 PWSA bill, or notice of a potential nonpayment disconnection, or a BDP recertification
13 notice, which mailing is returned to PWSA as undeliverable as addressed (UAA). When
14 asked for a detailed explanation of what response PWSA makes when it receives returned
15 mail, PWSA referenced its dunning process, and stated that “the process continues even if
16 an invoice or mailed notice is returned.” (OCA-III-35). PWSA stated, however, that it
17 would continue with its established process to post a 3-day pre-termination notice, or to
18 make personal contact at the time of a disconnection, to encourage customers to “halt the
19 termination by entering into payment arrangements, enrolling in one or more [of] PWSA
20 customer assistance programs, submitting a medical [form], or submitting a Protection
21 From Abuse order or some other court order.” (Id.)

22 PWSA tracks very little data about the extent of hardships imposed by mail that is
23 returned UAA. However, the data does show that the extent of residential bills that are

1 returned as undeliverable is substantial in the PWSA service territory. PWSA first began
2 to track such returned mail in March of 2023. In the first three months, PWSA found that
3 it had: (1) 1,556 returned bills in March 2023; (2) 1,119 returned bills in April 2023; and
4 (3) 1,771 returned bills in May 2021. (OCA-III-33).

5 PWSA does not track what occurs when a customer does not make a bill payment
6 because that customer never received their bill. For example, PWSA does not track either
7 (1) the number of accounts for which bills were returned to PWSA as undeliverable as
8 addressed who were subsequently sent a notice of disconnection for nonpayment; or (2)
9 the number of mailed notices of disconnection for nonpayment that were returned to
10 PWSA as undeliverable as addressed. (OCA-III-33). It certainly does not track
11 information geographically. For example, it does not track zip code data on: (1) the
12 number of monthly bills that have been returned to PWSA as undeliverable as addressed;
13 (2) the number of accounts for which bills were returned to PWSA as undeliverable as
14 addressed who were subsequently sent a notice of disconnection for nonpayment; or (3)
15 the number of mailed notices of disconnection for nonpayment that were returned to
16 PWSA as undeliverable as addressed. (OCA-III-34).

17 **Q. IS IT REASONABLE FOR PWSA TO ATTRIBUTE MAIL THAT IS RETURNED**
18 **AS UNDELIVERABLE TO CUSTOMERS FAILING TO GIVE PWSA A**
19 **CORRECT ADDRESS?**

20 A. No. While PWSA has just begun to track mail returned to it as undeliverable, the U.S.
21 Postal Service (USPS) has kept detailed statistics for a considerable time. Returned mail
22 to the USPS is referred to by the technical term “Undeliverable As Addressed” (UAA).
23 According to the USPS procedures manual, there are nearly 20 reasons why mail may be

1 UAA. The USPS publishes monthly statistics on UAA mail. Having an “insufficient
 2 address” is a relatively small portion of UAA mail each month. Other reasons, having
 3 little or nothing to do with what information a customer provides PWSA, make
 4 substantive contributions to UAA. Selected data on reasons for UAA shows some of the
 5 primary reasons for mail being UAA in the most recent five months (February, March,
 6 April, May, June) of 2023.

Table 23. Undeliverable As Addressed (UAA) Class Volume (selected UAA Reasons)⁵⁹

UAA Reason Description	February 2023	March 2023	April 2023	May 2023	June 2023
Insufficient address	8.14%	8.21%	8.22%	8.35%	8.99%
Illegible	0.08%	0.07%	0.07%	0.07%	0.06%
No mail receptacle	2.56%	2.83%	2.87%	2.79%	2.97%
No such number	2.69%	2.86%	2.81%	2.80%	2.89%
No such street	1.07%	1.06%	1.07%	1.08%	1.11%

7 The reasons identified above may have nothing to do with factors within the control of a
 8 PWSA customer. Having no mail receptacle, for example, often occurs at rental units
 9 where the property owner, not the occupant, has failed to maintain a usable mailbox. An
 10 “insufficient address” often occurs when an apartment or unit number is placed in the
 11 “primary” address line (along with the street address) rather than in the “secondary”
 12 address line of the mailing address. Particularly in urban areas, cities rename streets
 13 and/or renumber housing units resulting in UAA errors of “no such number” or “no such
 14 street.” The UAA error “attempted not known” often occurs when numbers in the
 15 address get inadvertently transposed, a circumstance also often yielding an “insufficient

⁵⁹ <https://postalpro.usps.com/address-quality-solutions/undeliverable-addressed-uaa-mail> (data files: Monthly UAA Statistics by UAA Reason)

1 address” UAA error. Indeed, a 2015 “Management Advisory Report” by the Office of the
 2 Inspector General for the USPS reported that “the Postal Service itself is responsible for
 3 about 23 percent due to sorting errors or failed deliveries.”⁶⁰

4 In addition to the monthly reporting of *total* UAA volume (by reason for the UAA mail),
 5 the USPS also publishes quarterly statistical reports of UAA volume by industry type.
 6 Since the utility industry is a major mass mailer, utilities are one of the industries for
 7 which data is separately reported.

UAA Reason Description	Utilities			
	FY22 QTR4	FY23 QTR1	FY23 QTR2	FY23 QTR3
Attempted not known	12.19%	12.39%	13.47%	13.80%
Insufficient address	8.98%	9.58%	9.93%	9.92%
Illegible	0.05%	0.06%	0.08%	0.07%
No mail receptacle	4.06%	4.06%	3.80%	3.99%
No such number	2.97%	3.02%	2.93%	2.99%
No such street	1.02%	1.07%	1.04%	1.08%

8 Under PWSA’s policy with respect to UAA mail (i.e., “the dunning process continues”
 9 [OCA-III-35]), a customer would have no indication that the City of Pittsburgh may have
 10 renumbered some housing units, or that PWSA may have transposed some digits in their
 11 address or zip code, or that placing their apartment unit number in the same address line

⁶⁰ Office of Inspector General, United States Postal Service, Strategies for Reducing Undeliverable As Addressed Mail, Management Advisory Report, at 1, Report Number MS-MA-15-006 (May 1, 2015), <https://www.uspsog.gov/reports/audit-reports/management-advisory-strategies-reducing-undeliverable-addressed-mail>

⁶¹ <https://postalpro.usps.com/address-quality-solutions/undeliverable-addressed-uaa-mail> (data files: Quarterly UAA Statistics by Mailing Industry)

1 as their street address, might result in undeliverable mail, until their service is
2 disconnected for nonpayment, or they possibly receive a short-term notice of termination.
3 When a customer goes without receiving a bill, they would have no reason to wonder
4 why they did not receive a disconnection notice. The only party to the transaction who
5 would know that something is awry would be PWSA, who receives the returned UAA
6 mail returned to it.

7 **Q. DO OTHER PENNSYLVANIA UTILITIES HAVE A SPECIFIC POLICY**
8 **REGARDING UAA MAIL?**

9 A. Yes. In the natural gas industry, Columbia Gas sends returned bills to an outside service
10 provider who specializes in Returned Mail processing, Redsson. If Redsson finds a
11 correct or alternative address for the customer, the updated information is passed to
12 CGPA's system in an electronic transmission file. If an update is not available, that will
13 also be passed to CGPA in the transmission file and trigger an exception on the account
14 for manual review and follow-up with the customer. Returned disconnection notices are
15 then sent to the Company's internal Revenue Recovery department. The Revenue
16 Recovery department will contact the customer to validate or obtain appropriate mailing
17 address. If the address is unable to be validated with the customer, Columbia will contact
18 the property owner if applicable. If Columbia receives three returned termination notices
19 on the account, Columbia will pursue termination of the premise following regulatory
20 guidelines.

21 Similarly, in the water industry, Pennsylvania American Water Company is working on a
22 system enhancement to create a Business Performance Exception Management (BPEM)
23 if multiple pieces of mail are returned as undeliverable within a certain time period for a

1 customer service representative to follow up with the customer to update their contact
2 information; enable reports on undeliverable mail; generate an email (if an email address
3 is attached to the account), phone call or text to advise of undelivered mail and encourage
4 the customer to log in online to verify and update their information or if they do not have
5 an online account, ask that they contact the Customer Service Center.

6 Either of these approaches would be a reasonable response for PWSA to undertake in
7 response to bills and/or disconnect notices that are returned as undeliverable as addressed
8 (UAA). It would be reasonable for PWSA to create a process to respond to UAA mail
9 that is returned to the utility.

10 **Q. IS THERE OTHER PRECEDENT REQUIRING THE ADOPTION OF SPECIFIC**
11 **RESPONSES TO MAIL RETURNED AS UAA?**

12 A. Yes. Under federal law, states must take all reasonable measures to ensure that
13 individuals who are eligible for both Medicaid and the federal Children's Health
14 Insurance Program (CHIP) remain enrolled as long as they meet eligibility criteria. This
15 includes both (1) maintaining regular communication with beneficiaries, and (2)
16 attempting to locate beneficiaries when mail is returned. The COVID-19 public health
17 emergency has disrupted state eligibility and enrollment operations and beneficiary
18 communications, and the resulting economic recession has amplified housing instability.
19 Accordingly, there was an increased risk that states would inappropriately terminate
20 eligible beneficiaries as states restored routine operations when the health emergency
21 ended. On December 29, 2022, the Consolidated Appropriations Act, 2023 (P.L. 117-

1 328) (CAA, 2023) was enacted.⁶² Pursuant to the new law, Section 5131 added a new
2 subsection (f) to section 6008 of the Families First Coronavirus Response Act (FFCRA).
3 States seeking additional federal Medicaid funding must, among other things, meet
4 certain new conditions under section 6008(f) of the FFCRA. Those “new conditions”
5 include “undertak[ing] a good-faith effort to contact an individual *using more than one*
6 *modality prior to terminating their enrollment on the basis of returned mail.*” (emphasis
7 added)⁶³

8 **Q. WHAT DO YOU CONCLUDE AND RECOMMEND?**

9 A. The clear policy of the State of Pennsylvania is that utility customers should not have
10 essential utility service disconnected for nonpayment without first receiving timely and
11 adequate pre-termination notice. I recommend that PWSA be directed to place a
12 collection hold on all accounts for which bills and/or disconnection notices are returned
13 UAA.

14 I further recommend that PWSA be directed to adopt a procedure which would create an
15 exception if multiple pieces of mail are returned as undeliverable within a certain time
16 period for a customer service representative to follow up with the customer to update
17 their contact information; enable reports on undeliverable mail; generate an email (if an
18 email address is attached to the account), phone call or text to advise of undelivered mail
19 and encourage the customer to log in online to verify and update their information or, if
20 they do not have an online account, ask that they contact the Customer Service Center. I

⁶² <https://www.congress.gov/117/bills/hr2617/BILLS-117hr2617enr.pdf>

⁶³ Id., at section 6008(f)(2)(C).

1 finally recommend that this same procedure be applied to notices regarding requirements
2 to maintain participation in PWSA’s BDP and/or AFP (e.g., the need to periodically
3 recertify).

4 **Part 7. Response to Public Input Hearing Testimony (PIH).**

5 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
6 **TESTIMONY.**

7 A. In this section of my testimony, I respond to certain testimony provided at the public
8 input hearings of July 25, 2023 (afternoon and evening) and July 27, 2023 (afternoon and
9 evening). My understanding of the public input that was provided at those hearings
10 derives from my review of the written transcripts of those hearings. Virtually every
11 aspect of my testimony presented above finds support in the real life experiences
12 articulated to the PUC through the public input hearing testimony I respond to.⁶⁴

13 **Q. WHAT IS THE FIRST ISSUE YOU WISH TO ADDRESS?**

14 A. The PIH process elicited testimony that profoundly supports my discussion of the need to
15 address affordability through PWSA’s Bill Discount Program. Simply offering “some”
16 assistance is not sufficient. The testimony of Dan Gladis, chief of staff to State
17 Representative Jessica Benham is one example. He stated that the Representative’s office
18 “hear[s] stories of the significant hardship that people face every day. People who are
19 making difficult choices between medicine, paying bills, and the quality or quantity of
20 food that they buy. . .It’s great to have infrastructure that works. But if you can’t afford to

⁶⁴ Since the public input hearing transcripts were sequentially paginated (i.e., the page numbering did not start over for each hearing), my citations to public input testimony will be to Public Input Hearing (PIH) transcript page numbers, but not to the date and time of the hearing.

1 turn on the tap, then it's really of no benefit to you in the long run." (PIH Tr., at 74 –
 2 75).⁶⁵ The Commission should heed the insights, too, of Ms. MJ Samson, a committee
 3 woman for the 11th Ward, Fourth District. Ms. Samson noted that the Commission may
 4 seldom hear from those "individuals who are hurting worse. . .[T]hey're reluctant to
 5 come forward because they don't really know what to say other than that they're in pain."
 6 (PIH Tr., at 134, 135).

7 My testimony offers a remedy. This repeated PIH testimony supports my
 8 recommendation for PWSA to divide Tier 2 of its existing discount structure into two
 9 tiers, and offering additional assistance to customers with annual income exceeding 50%
 10 but not to exceed 100% PL.

11 **Q. WHAT IS THE SECOND ISSUE TO WHICH YOU WISH TO RESPOND?**

12 A. The PIH testimony supports the conclusion that there are customers who may be
 13 somewhat above the traditional income eligibility definition of 150% FPL who,
 14 nonetheless, have substantial difficulties in paying their PWSA bills. Patrice McNeely,
 15 for example, testified "I can't go to my – my employer and ask for a raise to pay my
 16 water. I can't do that." (PIH Tr., at 127). She was like Myra Taylor, who testified "This
 17 year, I received a 2.5 percent increase in my pay. I call myself a middle income family,
 18 and that pay raise was just over \$1 per hour. . .With having that barely –just over that \$1

⁶⁵ See also, the PIH testimony of Benjamin Chiszar, a "disabled veteran" who testified to the "serious choices" that will be forced on low-income customers by PWSA's proposed rate hike. (PIH Tr., at 77). In addition, Mr. Richard Marini, testified to "older people that live paycheck to paycheck" that are "going to have to decide between food, medicine, and a water bill." (PIH Tr., at 79 – 80). In contrast, DeWitt Walton, a PWSA customer and an Allegheny County Councilman, spoke not merely of the immediate adverse impacts, but the long term impacts as well ("this proposed rate increase will make it impossible for them to survive *or even think about flourishing*." (PIH Tr., at 116, 117) (emphasis added).

1 increase an hour, it's not sustainable for us to have our utilities, such as water, which is
 2 mandatory to live, to go up so high so fast." (PIH Tr., at 267, 268). Ms. Taylor testified
 3 that "many people that I know, like my neighbors, we just don't qualify for any assistance
 4 programs. . ." (PIH Tr., at 268).⁶⁶ As PIH witness Rita Porterfield testified, PWSA's rate
 5 increases "come on the backs of not only the lower class and lower income, but the
 6 working class, those who are just barely making it, and those who would not even
 7 otherwise qualify, but still find it as struggle." (PIH Tr., at 192, 193).

8 This testimony provides strong support for the PWSA proposal to expand the maximum
 9 income eligibility of its BDP program, which I recommend be approved, from 150% to
 10 200% FPL.

11 **Q. WHAT IS THE THIRD ISSUE YOU WISH TO ADDRESS?**

12 A. Participants in the PIH process noted that the impact of PWSA rate hikes need to be
 13 assessed not only from the perspective of the immediate impact, but also from the
 14 perspective of what impacts arise over time. Mr. Walton, for example, noted that he
 15 "understand[s] that PWSA is suggesting that they have assistance programs for low
 16 income individuals." (PIH Tr., at 117). However, he noted that "at the levels they are
 17 suggesting, that assistance will not cover the rate increases themselves. It is – it's
 18 untenable. It's unrealistic. It's impracticable at best." (Id.) His testimony was supported

⁶⁶ See also, the PIH testimony of Candice Herriott, who stated that "I'm more of a lower middle class customer, so I make obviously more money to be able to get assistance. But sometimes I have to rob Peter to pay Paul when it comes time to pay bills." (PIH Tr., at 274). These customer in need may not be amongst those traditionally considered to be "low-income." Rita Porterfield, for example, testified that "I am 35 and a millennial and my story is not atypical as PWSA ratepayer. I work for a public entity. I work for a local government. I work full time. . . I do not clear \$60,000 a year." She has a 4-person household. Ms. Porterfield testified the PWSA rates, as proposed would that would do to me would push me from middle class to need. And a water bill shouldn't do that. A necessity shouldn't do that." (PIH Tr. At 278, 279).

1 by the PIH testimony of Ms. Becky Boyle, presented on behalf of Senator Lindsey
2 Williams. Ms. Boyle correctly noted: “[T]his rate increase request comes directly on the
3 heels of several years of rate increases, including the 13.9 percent increase as a result of
4 the 2018 rate increase case, and an 8.9 percent increase as a result of the 2021 rate
5 increase case. Simply put, PWSA customers have faced soaring water and wastewater
6 costs over the past five years.” (PIH Tr., at 182, 183).

7 This testimony presents strong support for my conclusion that the Tier 1 discount (i.e., for
8 those with annual income less than 50% FPL) should be adjusted upward to take into
9 account the decreased affordability attributable to the current proposed rate hike. It is
10 support for my recommendation to increase the Tier 1 volumetric discount from 50% to
11 60%.

12 **Q. WHAT IS THE FOURTH ISSUE YOU WISH TO ADDRESS?**

13 A. The PIH testimony provides strong support for my recommendations regarding the need
14 to improve the outreach, particularly to PWSA’s low-income communities. Sonia
15 Rucpic, for example, testified about the BDP that “it is clear right now a great many
16 residents who do qualify don’t know about the program and are not enrolled in it. . .So
17 PWSA could do a better job of letting residents know about this program in addition to
18 expanding it.” (PIH Tr., at 188 – 189). Leslie Centola testified on behalf of Upstream
19 Pittsburgh, a local nonprofit focused on clean water, stormwater management, and
20 climate justice. She noted the potential benefits of having specific PWSA “community
21 outreach staff.” (PIH Tr., at 211 – 212). Just as importantly, however, was her testimony
22 that “we’re always happy to work with PWSA.” (Id., at 212). This notion of the
23 importance of grassroots outreach was emphasized time and again. Ms. Nyota Robinson

1 said, “I knew nothing about this meeting except for someone calling me and telling me.”
2 (PIH Tr., at 219 – 220).⁶⁷

3 Mr. Curtis Davon, who spoke on behalf of Clean Water Action, another local nonprofit,
4 stated that “PWSA can do a better job of reaching out to those that they serve.” (PIH Tr.,
5 at 249). He, too, noted the benefits of a grassroots approach, listing examples such as
6 “things like door hangers, reaching out to the council, coming to community meetings
7 and centers, and working with organizations like Clean Water. . .” (Id.) Allison McLeod,
8 the founder of Building Briges Parent Support Group, provided additional support for this
9 need for grassroots outreach. “With all the community events that took place all across
10 the City of Pittsburgh in the last few months, festivals, things like that, where are the
11 people who are on foot and on ground advertising these events?” (PIH Tr., at 263). Ms.
12 Williams testimony was similar. “We have committee people from Allegheny County,
13 Democratic Committee, that could spread the word. We have very popular people that
14 can spread the word.” (PIH Tr., at 292).

15 The PIH testimony provides strong support for the recommendations in my testimony
16 regarding not merely the need to improve outreach, but also the ways in which PWSA
17 can engage in such improved outreach.

⁶⁷ See also, the testimony of Kim Williams, who said “I found out today through a friend that this meeting was taking place.” (PIH Tr., at 288).

1 **Q. IS THERE A FIFTH ISSUE RAISED IN THE PIH PROCESS TO WHICH YOU**
2 **WISH TO RESPOND?**

3 A. Yes. The PIH testimony supported the need to modify the PWSA arrearage forgiveness
4 program to allow that program to provide meaningful relief from pre-existing arrears.
5 Candice Herriott testified as to how, because of a dispute over whether or not she had a
6 leak, she incurred (“And now, I’m still stuck with a very sky high water bill that I’m
7 trying to pay down. And it’s become impossible sometimes to get myself caught up.”)
8 (PIH Tr., at 274, 275). With a lack of any relief, the PWSA rate hike compounds her
9 problem. She states, “So a bill increase is not only going to hurt me for future bills, but
10 it’s also just going to add more insult to injury to the high bill that I have [and] to the leak
11 that I’m paying for right now, that I’m still paying for months and months, almost a year
12 later, trying to take care of the leak.” (PIH Tr., at 275).

13 Ms. Herriott’s testimony supports the recommendations I made to modify the PWSA
14 Arrearage Forgiveness Program in order for the AFP to provide meaningful assistance.

15 **Q. IS THERE A FINAL ISSUED RAISED IN THE PIH PROCESS TO WHICH YOU**
16 **WISH TO RESPOND?**

17 A. Yes. The PIH testimony was strongly supportive of my recommendations that PWSA
18 undertake greater effort to serve the needs of its low-income tenants. Caroline West, an
19 officer of the Apartment Association of Metropolitan Pittsburgh (and chair of its
20 government and law committee) addressed the needs of low-income tenants. “Those who
21 rent their homes,” she said, “often do not qualify for these programs, as they, by
22 definition, are not PWSA customers.” (PIH Tr., at 254). She continued on to testify:

1 So, in short, even though renters comprise more than half of Pittsburgh’s
2 residential population, renters are excluded from obtaining financial
3 assistance and effectively shut out of this administrative process, as they are
4 not PWSA customers. And even though multifamily building owners are
5 PWSA customers and the multifamily industry in Pittsburgh is an
6 increasingly critical stakeholders, PWSA has failed to proactively engage
7 with us to discuss or brainstorm alternative solutions to mitigate the
8 detrimental impact of this exorbitant rate increase on the majority of the City
9 citizens. . .

10 (PIH Tr., at 255). My testimony addresses the needs of Pittsburgh tenants, and offers
11 recommendations on how to address the needs of tenants. Ms. West’s testimony provides
12 additional support for adopting my recommendations.

13 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

14 A. Yes. However, I reserve the right to supplement this testimony if additional relevant
15 information is received.

Colton Exhibits

**Exhibit RDC-1: Summary Vitae
Roger Colton
Fisher, Sheehan & Colton
Public Finance and General Economics
Belmont, MA**

* * * * *

EDUCATION:

- J.D. (Order of the Coif), University of Florida (1981)
- M.A. (Regulatory Economics), McGregor School, Antioch University (1993)
- B.A. Iowa State University (1975) (journalism, political science, speech)

PROFESSIONAL EXPERIENCE:

Fisher, Sheehan and Colton, Public Finance and General Economics: 1985 – present.

As a co-founder of this economics consulting partnership, Colton provides services in a variety of areas, including: regulatory economics, poverty law and economics, public benefits, fair housing, community development, energy efficiency, utility law and economics (energy, telecommunications, water/sewer), government budgeting, and planning and zoning.

Colton has testified in state and federal courts in the United States and Canada, as well as before regulatory and legislative bodies in more than forty (40) states. He is particularly noted for creative program design and implementation within tight budget constraints.

PROFESSIONAL AFFILIATIONS:

- Past Chair: Belmont Zoning By-law Review Working Committee (climate change)
- Member: Board of Directors, Massachusetts Rivers Alliance
- Columnist: Belmont Citizen-Herald
- Producer: Belmont Media Center: BMC Podcast Network
- Host: Belmont Media Center: Belmont Journal
- Member: Belmont Town Meeting
- Vice-chair: Belmont Light General Manager Screening Committee
- Past Chair: Belmont Goes Solar
- Coordinator: BelmontBudget.org (Belmont’s Community Budget Forum)
- Coordinator: Belmont Affordable Shelter Fund (BASf)
- Past Chair: Belmont Solar Initiative Oversight Committee
- Past Member: City of Detroit Blue Ribbon Panel on Water Affordability
- Past Chair: Belmont Energy Committee

- Member: Massachusetts Municipal Energy Group (Mass Municipal Association)
- Past Chair: Housing Work Group, Belmont (MA) Comprehensive Planning Process
- Past Chair: Board of Directors, Belmont Housing Trust, Inc.
- Past Chair: Waverley Square Fire Station Re-use Study Committee (Belmont MA)
- Past Member: Belmont (MA) Energy and Facilities Work Group
- Past Member: Belmont (MA) Uplands Advisory Committee
- Past Member: Advisory Board: Fair Housing Center of Greater Boston.
- Past Chair: Fair Housing Committee, Town of Belmont (MA)
- Past Member: Aggregation Advisory Committee, New York State Energy Research and Development Authority.
- Past Member: Board of Directors, Vermont Energy Investment Corporation.
- Past Member: Board of Directors, National Fuel Funds Network
- Past Member: Board of Directors, Affordable Comfort, Inc.
- Past Member: National Advisory Committee, U.S. Department of Health and Human Services, Administration for Children and Families, Performance Goals for Low-Income Home Energy Assistance.
- Past Member: Editorial Advisory Board, International Library, *Public Utility Law Anthology*.
- Past Member: ASHRAE Guidelines Committee, GPC-8, *Energy Cost Allocation of Comfort HVAC Systems for Multiple Occupancy Buildings*
- Past Member: National Advisory Committee, U.S. Department of Housing and Urban Development, Calculation of Utility Allowances for Public Housing.
- Past Member: National Advisory Board: Energy Financing Alternatives for Subsidized Housing, New York State Energy Research and Development Authority.

PROFESSIONAL ASSOCIATIONS:

- National Association of Housing and Redevelopment Officials (NAHRO)
- National Society of Newspaper Columnists (NSNC)
- Association for Enterprise Opportunity (AEO)
- Iowa State Bar Association
- Energy Bar Association
- Association for Institutional Thought (AFIT)
- Association for Evolutionary Economics (AEE)
- Society for the Study of Social Problems (SSSO)
- Association for Social Economics

BOOKS

- Colton, *et al.*, *Access to Utility Service*, National Consumer Law Center: Boston (4th edition 2008).
- Colton, *et al.*, *Tenants' Rights to Utility Service*, National Consumer Law Center: Boston (1994).

Colton, *The Regulation of Rural Electric Cooperatives*, National Consumer Law Center: Boston (1992).

BOOK CHAPTERS

Colton (2018). The equities of efficiency: distributing energy usage reduction dollars, Chapter in *Energy Justice: US and International Perspectives* (Edited by Raya Salter, Carmen Gonzalez and Elizabeth Ann Kronk Warner), Edward Elgar Publishing (London, England).

JOURNAL PUBLICATIONS

65 publications in industry and academic journals, primarily involving utility regulation and affordable housing. (list available upon request)

TECHNICAL REPORTS

200 technical reports for public-sector and private-sector clients (list available upon request)

JURISDICTIONS IN WHICH EXPERT WITNESS PROVIDED

- | | | |
|-----------------------------|---------------------------|---------------------------|
| 1. Maine | 17. Tennessee | 33. Montana |
| 2. New Hampshire | 18. Kentucky | 34. Colorado |
| 3. Vermont | 19. Ohio | 35. New Mexico |
| 4. Massachusetts | 20. Indiana | 36. Arizona |
| 5. Rhode Island | 21. Michigan | 37. Utah |
| 6. Connecticut | 22. Wisconsin | 38. Idaho |
| 7. New Jersey | 23. Illinois | 39. Nevada |
| 8. Maryland | 24. Minnesota | 40. Washington |
| 9. Pennsylvania | 25. Iowa | 41. Oregon |
| 10. Washington D.C. | 26. Missouri | 42. California |
| 11. Virginia | 27. Kansas | 43. Hawaii |
| 12. North Carolina | 28. Louisiana | Canadian Provinces |
| 13. South Carolina | 29. Arkansas | 1. Nova Scotia |
| 14. Florida (Federal Court) | 30. Texas (Federal Court) | 2. Ontario |
| 15. Alabama | 31. South Dakota | 3. Manitoba |
| 16. Mississippi | 32. North Dakota | 4. British Columbia |

Exhibit RDC-2

Improving Customer Service in Health and Human Services Through Technology



August 22, 2018

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Over the past decade, most state and local agencies that administer programs supporting low-income families — such as Medicaid, the Supplemental Nutrition Assistance Program (SNAP, formerly food stamps), and Temporary Assistance for Needy Families (TANF) — have taken steps to streamline eligibility determinations. Spurred by new requirements and funding connected with the Affordable Care Act, states have deployed new eligibility and enrollment systems, online applications, and electronic case files. These modernizations have, in most cases, simplified processes for families and improved accuracy and efficiency.

As agencies continue the modernization process, this paper looks at the next phase in efforts to improve government's interactions with those it serves through technology. Improved client-facing processes — systems that applicants and recipients use directly for actions like applying, submitting documents, or getting information about their case — allow clients to better obtain information and receive benefits more quickly. They also can help agencies get the information they need to conduct eligibility determinations and improve performance and outcomes.

The first section of this paper, **Technology in Action**, outlines common challenges agencies face while administering these benefits and gives examples of how the technologies profiled in this paper can streamline processes. The technologies discussed here are not theoretical; rather, they are applicable to real-world issues clients and agencies face each day.

The second section, **Best Practices by Technology**, provides a brief overview of each technology, how it can be used in the public benefits arena, and best practices for implementing it. It covers:

- Web-based tools – including advances in online web portals and electronic notices;
- Mobile-based technology – including texting, mobile apps, and instant messaging; and
- Call center tools – including interactive voice response and telephonic signatures.

The next section, **Considerations When Implementing Technology**, discusses the importance of user-centered design, explains why technology is just one piece of the puzzle and must be considered in conjunction with policy and operations, and outlines the role of advocates.

The final section discusses what is **On the Horizon in** this field and developing technology that may eventually play a role in public benefits administration.

For technology to be effective, it must focus on the user — both clients seeking critical benefits to support their families and eligibility workers handling overwhelming caseloads with inadequate resources. Technology must also be considered as part of the broader eligibility and enrollment process, in conjunction with policies and operations. Technology alone isn't the solution to the

challenges outlined in this report, but can be a critical part of a solution when combined with changes to other parts of the process.

Further, technology like online portals, texting, and electronic notices must be an addition, not a replacement. Health and human services programs serve a wide variety of clients with varying levels of Internet access, computer literacy, and comfort with technology. These tools can provide convenient and efficient ways for some clients to conduct business, but more traditional access points like phone and in-person assistance should remain available for those who need them.

This work isn't easy. It often requires wrestling with funding, staffing, procurements, vendors, and a wide variety of state and federal rules about what can and can't be done. But the solutions profiled in this paper can significantly enhance the experience of clients and staff. Many of these technologies are commonly used across various other industries; users in government should also have access to these ways of conducting business.

Information and examples in this paper are based on the latest research and interviews with a wide range of local and state agencies that have implemented new client-facing technology. This paper provides practical, hands-on advice to make client interactions more understandable, workable, and successful for all stakeholders. Government agencies and advocates can use this paper to learn about implementing client-facing technology to improve the application, renewal, and case management processes for Medicaid, SNAP, TANF, and other human service programs. Local and state agencies may be able to use these innovations to improve customer service, increase participation, and achieve administrative efficiencies.

Part 2 Technology in Action

Agencies face a myriad of challenges in assisting clients in the eligibility and enrollment process. No one technology product can fix all problems, but once the underlying problems are identified, agencies can use a combination of the technologies discussed in the following sections to address common obstacles and improve customer service, as the examples below show.

Problem #1: An agency has a low completion rate for SNAP interviews at initial application and renewal. Clients are missing their interview appointments, leading to calls to reschedule missed interviews, denials and cancellations, and re-applications.

Underlying Issues:

- Clients don't receive timely notice of the scheduled interview.
- Clients are unable to complete the interview at the scheduled time due to transportation issues and work or school schedules.
- Clients are unable to reach agency staff to reschedule their appointment.

Potential Technology Solutions:

- Accept *telephonic signatures* for applications and renewals completed over the phone. Conduct the interview in conjunction with the application or renewal or allow clients to call in to complete the interview.
- Allow clients to use a *mobile app* or *online portal* to select an interview time that works with their schedule.
- Send clients an *e-notice* with interview appointment information.
- *Text* clients a reminder before the scheduled interview.

Problem #2: An agency has long application processing times because clients don't provide required verification documents with the application and must send them through the mail. Frequently, the documents are never submitted or are lost and applications are denied.

Underlying Issues:

- Clients don't know what documents are required.
- Clients can't electronically submit documents, or must have access to a scanner to do so.
- The agency loses documents that are mailed in or has a backlog in processing mailed documents.

Potential Technology Solutions:

- Send clients an *e-notice* to inform them of what documents are required.
- *Text* clients a reminder that documents are due.
- Allow clients to submit documents through an *online portal*.
- Allow clients to take a picture of documents with their phone and upload it to their case file through an *online portal* or *mobile app*.

Problem #3: An agency has a low rate of completion at renewal. Clients fail to complete the renewal form properly or fail to submit the form and their benefits are terminated. They must reapply to reinstate their benefits.

Underlying Issues:

- Clients are unaware their renewal form is due.
- Clients don't receive the paper renewal form.
- Clients don't provide information on the renewal form they had previously provided the agency and don't realize they are sending in an incomplete form.
- The agency frequently loses paper renewal forms or has a backlog in processing mailed documents.

Potential Technology Solutions:

- Send clients an *e-notice* notifying them that their renewal is due and listing the steps they must take to renew their benefits.
- *Text* clients a reminder that their renewal is due and provide links to the *online portal* and a phone number to call to complete the renewal.
- Use a *telephonic signature* to accept renewals by phone.
- Allow clients to complete their renewal and submit it electronically through the *online portal* or *mobile app*.
- *Pre-fill* client information that the agency has on file on the paper renewal form and through the online renewal application.
- Send a reminder *text* if the renewal hasn't been completed by the due date.

Problem #4: An agency's call center volume is high, leading to long wait times, dropped calls, and customer complaints. Clients frequently must go to offices in person to ask questions and address basic issues, leaving less time for staff to process cases. This further increases call volume as clients call in to find the status of their cases.

Underlying Issues:

- The only way for clients to get information is to talk to someone in the call center.
- The increased volume of callers requires the agency to adjust staffing, which affects other work.
- Wait times are increasing due to the volume of callers and types of questions asked.

Potential Technology Solutions:

- Provide an *instant messaging (IM)* tool for simple questions.
- Use an online *chatbot* that can help answer frequently asked questions.
- Notify callers of expected wait times and offer a callback through the *IVR phone system*.
- Expand functionality of the *online portal* so clients can report changes and check benefit status themselves, freeing up eligibility workers to process cases.

Part 3 Best Practices by Technology

This section summarizes specific types of technology that agencies are using to help clients receive and provide information during the application and renewal processes. Each profile includes details on how the technology generally functions, key features, and considerations to keep in mind based on interviews with agency staff who have implemented the technology.

In the profiles that follow, certain features, functions, or technology may be referred to as Version 1.0 or Version 2.0. For purposes of this guide, Version 1.0 includes client-facing technologies that were commonly used prior to and during implementation of the Affordable Care Act in 2013-2014, such as online applications. Version 2.0 includes newer technologies as well as enhancements to prior technologies.

Checklist of Basic Technology Functions

Individuals use technology for an increasing number of functions and expect it to work in certain ways. Consider how you use technology to shop, send e-mails, text, use social media, or check your bank account balance. Keep these user expectations and industry standards in mind when designing new client-facing technology.


- Don't make clients reset their password every month.
- Any online service should work on all available browsers — Chrome, Firefox, Safari, and Internet Explorer.
- After an action is completed (e.g., document uploaded), provide the client with a confirmation on screen and/or by e-mail.
- Collect email addresses and mobile phone numbers for texting as part of the normal demographic and contact information process rather than asking for that information separately.
- Set appropriate client expectations about new features or tools. Framing a tool as in “beta” (still being tested) and thanking clients for their patience will help until the tool is fully functional.
- Make it easy for a user to find the agency's contact information. Use commonly used icons — such as a picture of a phone to call the agency — to provide visual clues. Create an online form for users to submit questions or comments.
- Allow your solution to use the native (built-in) features of a computer, tablet, or phone, such as using its calendar feature to schedule an appointment or using its camera to upload a document or picture.
- Use navigation signals and progress bars to move through multiple screens.

Section A: Web-Based Tools

Online Portals 2.0

Online portals allow clients to create an account and apply for benefits or perform other case maintenance functions. Most agency websites include an online portal that allows clients to apply for benefits. Many agencies have expanded the services offered through the online portal to provide additional functionality, including a way to report changes, complete and submit a renewal form, or track the status of an application after submission. Investing in a more user-friendly and robust web portal can improve customer service.

Below is a summary of the functions, features, and technical capabilities of the next generation of online portals as compared to the first generation.

Original Functionality		Today's Functionality
Clients may be able to download a blank change report form and submit in person, by mail, or by fax.	Change Reporting	Clients can electronically report changes through the online portal.
Clients may be able to download a blank renewal form and submit in person, by mail, or by fax.	Renewal	Clients can access a pre-populated renewal form that they can electronically sign and submit through the online portal.
Clients must wait for a mailed notice or must call or visit the agency in person to find out their case status.	Case Status	Clients can view case status and updates 24/7 via the online account.
Agency mails paper notices.	Notices	Agency uploads electronic notices to clients' online account and sends clients an email when a new notice is available.
Clients have limited ability to directly upload verification documents with an application or must submit in person, by mail, or by fax.	Documentation	Clients can upload verification documents in a range of file formats from a computer, cloud, or mobile device through the online portal.
Portal can only send application data to the eligibility system.	Back-End Interface	Portal can display case information (e.g., benefit amount) and interface with multiple systems (e.g., can display EBT account balances and transaction data).
Portal's layout, graphics, and font are designed only for viewing from a desktop computer.	Design and Display	Portal's display and features can adapt to multiple devices and screen sizes.
Portal can't work with native features on clients' devices.	Additional Tools and Features	Portal can work with native features on clients' devices, such as calendar and auto-dial.

Key Features of an Online Portal

Today, online portals can do more than simply allow clients to apply for benefits or find basic information. Below is a list of features that could be included in a social services agency's online portal or mobile app. The most commonly asked questions from clients could help identify which of these features would be most useful to clients and best reduce demand on agency staff.

All programs

- Multi-benefit application
- Case status, including upcoming deadlines
- Report changes
- Upload/Manage/View documents
- Renew benefits
- Secure messages
- Preferences to opt in to alerts
- Contact agency
- Office locator and phone numbers
- Schedule or view scheduled appointments
- Frequently asked questions (FAQs)
- Register to vote
- Screening/referrals for other benefits (school lunch, child care, WIC, etc.)

Medicaid Specific

- Display Medicaid card
- Healthcare provider directory
- Select/Change health plan
- List of covered benefits

SNAP Specific

- EBT SNAP balance
- Transaction history
- Retail store locator and map
- Farmers' market locator

Other Programs

- TANF cash balance
- Free ATM locator (TANF)
- Summer meals site finder

Don't forget:

- Agencies can accept electronic signatures for applications, renewals, and other forms.
- Online applications or renewal forms should use dynamic questioning or skip logic to eliminate unnecessary or irrelevant questions (for example, they should only ask applicants who indicate they are female if they are pregnant).

Electronic Notices

Electronic notices (e-notices) are notices of case actions and other notices that are uploaded to a client's online account. E-notices allow clients to quickly access important notices online even if they have difficulty accessing a secure mailbox, move frequently, or are homeless. E-notices also benefit states by increasing the likelihood that clients receive and act on notices to submit documents or complete a renewal. In addition, clients who receive timely information are less likely to call to inquire about case status. While sending both the paper notice and e-notices increases the likelihood of the information reaching clients, agencies may offer individuals the opportunity to “Go green” and receive only e-notices, reducing postage costs.

How it works: Clients who opt in to receive e-notices will receive an email notifying them that they have a new notice. They then must log in to their online account and view their notice.

Requirements: E-notices must be uploaded to clients' online account on the agency's web portal to ensure security and protect privacy. Clients then receive an email notifying them that a new notice is available to view in their online account. E-notices can't be sent directly to clients' email accounts. E-notices are mandatory for Medicaid and are now a state option for SNAP (a waiver was previously required).

Advice from the Ground

- Require clients to create an online account before opting in to e-notices. This will ensure that clients can view the e-notices.
- Ask clients to affirmatively opt in for e-notices. Clients may provide an e-mail address on the application for purposes of their contact information but may not want to receive e-notices.
- Clearly explain to clients what will happen if they opt in for e-notices. Inform them how they will be able to view their notices and if they will continue to get notices by mail.
- Ask clients to confirm, when they opt in for electronic communications, the e-mail address to which they want notices to be sent.
- Explain what other software/hardware may be needed to view e-notices (e.g., Acrobat Reader).
- Allow for opt out at any time and make it easy for clients to do so. For example, allow clients to change communication preferences via their online account.
- Resume mailing notices if electronic communication fails (e.g., undeliverable email address).
- Measure effectiveness by evaluating the percentage of e-notices that clients access via the online portal and the time between receiving an e-mail and accessing the notice.
- Resume mailing notices if clients don't open their e-notices after a set period of time.
- Ensure eligibility workers can see whether clients have opened their e-notices. If clients aren't accessing their e-notices, eligibility workers can remind clients how to access e-notices and how to opt out if they want to receive paper notices.
- Consider adding information to e-notices that paper notices can't provide, like hyperlinks to sites where clients can obtain further information or complete an action.

Readability and Accessibility Still Matter!

To make client-facing technology user-friendly, make the information provided to clients easy to understand and accessible. The literacy and readability standards with which agencies must comply for written and verbal client communications also apply to electronic communications — such as content on online portals or electronic notices. For example:

- Aim for a 6th grade reading level in written content.
- Use commonly used words in place of terms of art, acronyms, or legal language.
- Use less text and more white space.
- Break down complex instructions or processes into steps rather than presenting a long paragraph of text.
- Use simple graphics or icons with only a few different colors.

Client communication using technology must also comply with existing legal requirements to ensure information is accessible. For example, government agencies must ensure their website designs and features are ADA-compliant, such as compatibility with a screen reader for clients who are visually impaired.

Digital content should also be translated into commonly used languages for clients who are Limited English Proficient (LEP). For example, text messages should be sent in the client's preferred language as identified on the application.

Remember to seek user feedback specifically from persons with disabilities and LEP clients to help design, test, and improve the solution.

Section B: Mobile Tools

Text Messaging

Text messaging is a low-cost and effective means of communicating with clients by sending reminders and other information to a client's mobile phone. Text messaging has become the preferred way to communicate – especially for younger adults. While it's convenient for clients to receive messages via text, texting is a personal activity individuals primarily use to communicate with friends and family and shouldn't be overused.

How it works: Agencies may use a contracted service or capabilities within their own systems to send clients text messages at key points during their application or renewal process. Agencies might send a text message reminding clients that their interview date is approaching, that verification documents are due, or that it is time to complete a renewal.



Advice from the Ground

- Comply with opt-in requirements for text messaging.
- To avoid suspicion or being viewed as spam, the first text message an agency sends to a client should include the agency's name. It should also explain how the client can opt out of receiving any further messages.
- Make text messages concise. Messages exceeding 140 characters become more than one text.
- Use plain text instead of rich text or HTML text so clients without smartphones or those with limited data plans can receive texts.
- Where possible, include a telephone number or website for next steps when action is needed.
- Don't use text messaging to send information that isn't time-sensitive or doesn't require action.
- Be prepared to respond to any reply texts. If no staff are assigned to monitor and respond to text messages, reply texts should generate a standard, automatic response referring the client to a customer service number.
- Evaluate privacy and security considerations if collecting clients' personal information via two-way text messaging.

Opt-In Strategies

Clients must opt in, or affirmatively agree to receive electronic communications, before an agency can send electronic communications, but agencies can make it easier for them to do so. For example, the agency could ask individuals to provide their e-mail address or cell number in the first section of an application or renewal process – along with their name and other contact information – rather than in a separate section for electronic communications at the end of the form. A check box would enable them to opt in.

Email: xxxxxxx@xxx.com *I would like to receive information and notices at this email*
Cell number: XXX-XXX-XXXX *OK to receive text messages? (costs may apply)*

Additional tips to remember:

- Provide multiple opportunities to opt in (not just on the application).
- Create an electronic communications policy outlining when the agency will use electronic communications, specifying that clients must affirmatively opt in, and describing the opt-out process. It may also be helpful to explain the benefits to clients (e.g., “to get reminders so you won’t lose your benefits”).
- At the time clients opt in, explain the opt-out process for receiving electronic communications. For example, inform clients in the initial text message that they can opt out through their online account or by replying with a text saying “Stop.”
- Incorporate into existing language of clients’ rights and responsibilities short explanations of the electronics communication policy, how to opt out, and when to expect the first message (e.g., before or after the application has been processed).

Incorporating the “Nudge”

Behavioral economics studies the psychology of individuals to help identify how best to influence, persuade, or encourage individuals to act. When implementing client-facing technology, agencies can benefit from this growing research and design the product to help “nudge” clients to act on a request or to take action. Health and human service agencies can apply behavioral economics by:

- Encouraging action by reminding clients of what they might lose if they don’t act rather than just providing a due date. For example, a SNAP renewal form could include the actual benefit amount the client will lose if they fail to renew.
- Sending notices requiring action with sufficient time for clients to act. Send reminders/notices about completing a renewal before benefits are about to end. Clients may be overwhelmed and mentally unable to prioritize submitting paperwork at the deadline.

For more information, see the Resources page.

Adapting for Mobile Devices

Agency websites can be adapted to make them function well on mobile devices while taking advantage of native features and Application Programming Interfaces (APIs). The next generation of websites must consider the growing number of electronic devices that individuals use to access the Internet. A website display and functionality must be flexible enough to adapt to many different devices – from netbooks to tablets with different screen sizes to a huge variety of smartphones. In addition, agencies can enhance the effectiveness of their systems by using native features of mobile devices and taking advantage of APIs.

Adapt Content and Design

Websites can be designed to be “mobile-friendly,” or easily viewable on the smaller screen common on mobile devices. Agencies must make an affirmative design decision to ensure their online portals are mobile friendly; it is not an automatic feature when creating a website.

A mobile app cannot substitute for a mobile-friendly website; not everyone will download an agency’s mobile app, but many will attempt to view the agency’s online portal using their mobile device. By making the existing web portal mobile friendly, an agency can lay the groundwork for developing a mobile app in the future.

As the use of mobile devices has proliferated, website developers have adopted multiple design approaches to adapting content and design to smaller screens. Three different approaches that agencies could consider adopting for their online portals are discussed below:



	Mobile Friendly	Mobile Optimized	Responsive Website
Description	Single design that considers size of screen for mobile devices. Baseline for mobile website development.	Two separate designs created — one for desktop and one for mobile devices (e.g., www.agency.gov and www.m.agency.gov).	Single design whose layout, content, and orientation can change based on the type of screen or device.
Design Process	Website layout design includes minor adjustments to enable viewing on a mobile device.	<ul style="list-style-type: none"> • Each design is influenced by the features and likely use of the website from different devices. • Mobile website design layout feels similar to a mobile app and includes icons to help navigate (e.g., menu icon vs. text indicating “menu”). Frequently used links and features are prominently displayed on home page. • Content on the desktop version is more robust than the mobile version. Mobile version provides a link to desktop version to access additional content or features. 	<ul style="list-style-type: none"> • Only one design is needed because the layout and content adapt to the size of the mobile device. • All the website information is available via mobile devices. • Links and icons are scaled to be more touch screen and finger friendly.
Cost	Lowest-cost option.	<ul style="list-style-type: none"> • Moderate upfront costs to build the additional website. • Maintenance costs are higher because content and any changes must be updated twice. 	<ul style="list-style-type: none"> • Highest upfront costs to design and develop. • Minimal maintenance costs because only one design needs to be changed or updated.
Limitations	<ul style="list-style-type: none"> • Design meets minimum usability standards. • Content and features may not be easily viewable or usable on mobile devices due to the need to scroll and zoom. • Links and icons are intended for a computer mouse and not easily selected via touch screen. 	<ul style="list-style-type: none"> • User may still need to visit the desktop site to find information or conduct activities. • Requires design and maintenance of two different websites. • Mobile version may still not be as user-friendly to clients as needed. 	Certain content, such as tables and lists, may still require scrolling and zooming to view.

Take Advantage of Native Features

Agencies should ensure the client-facing technology solution can use the built-in capabilities of a mobile device, or its native features. This capability must be affirmatively set out in the design phase.

Below are native features that could help make an agency's technology solution client friendly:

Native Feature	How to Use
Phone Click to Dial	Client can click on the number (or phone icon) to automatically dial.
Camera	Client can click a camera icon (when asked to upload documents) to directly photograph a document.
Media/Storage	Client can select documents from a photo library to upload.
GPS/Location	Client can click on an office address and view a map and/or directions.
Calendar	Client can schedule an appointment and click a calendar icon to automatically enter the date, time, and address in the device's calendar.
Voice Dictation	Client can fill out form fields by speaking.
Security/Biometrics	Client can quickly log in to an app using a fingerprint.

Note on security: Remind clients and assisters to either delete personal information used on a mobile device (including tablets) if it is a shared device or to enable the device's security features.

Take Advantage of APIs

Agencies can further improve mobile apps and online portals by directly providing clients information or services maintained by a different entity. Agencies can take advantage of external partners that have created an API to add more functionality and features to client-facing solutions without requiring the client to go to a different app or website.

For example, an agency's online portal can directly connect with the EBT vendor's database to display clients' current EBT card balance. Or, if another agency maintains a directory of SNAP retailers or Medicaid providers, the agency's system may have an API that an online portal or mobile app can connect to. This allows clients to find this information directly from the agency's product rather than having to search for that information on their own, adding value to the product with minimal additional development costs.

Mobile Apps

Mobile apps are programs that can be downloaded on a client's mobile device. They can include the same features as the online portal, such as reporting changes, renewing benefits, checking case status or benefit amount, or scheduling appointments. Mobile apps are uniquely suited to facilitating document submission by allowing clients to photograph verification documents with their smartphone and easily send them to the agency.



Advice from the Ground

- Create mobile apps that can provide more than one activity or service. Most clients only need to contact the agency a few times per year. More features give clients more reasons to regularly use the app and keep it on their phone.
- Remember the “real estate” for a mobile app is smaller than the online portal. Consider what information clients likely will need when using a mobile app; for all other information, make sure the existing online portal is accessible from a mobile device (see “Adapting for Mobile Devices” for more information). For example, rather than trying to create a duplicate online application that can fit on a mobile app, create a button on the mobile indicating “Apply Here” that can seamlessly link to the existing mobile-friendly application portal.
- Although content may differ slightly between a mobile app and online portal, functions that clients can use should not differ. For example, uploading images should be available via the app as well as the online portal. This allows clients to conduct activities using either the mobile app or the online portal rather than having to use both to complete certain actions.
- With the feature that allows clients to take a picture of verification documents and upload them to their account, integrate software that enhances the quality of the photo by squaring the edges of the picture and making sure there is sufficient light. Allow them to view the image and re-take the picture if needed prior to upload. This will ensure the document is legible and useable for the eligibility worker.
- Since apps use data and data is expensive, simplify where possible when designing the functionality.
- Develop an app re-engagement strategy, including notifications when new features and new program information become available.
- Monitor the reviews clients leave in the App Store or on Google Play for ongoing user feedback and to quickly identify technical problems.
 - Have a standard response for customer service complaints (unrelated to the mobile app) and provide a number for clients to call to address questions on their case.
 - Get email addresses for people struggling with the mobile app and follow up to help them resolve issues.
 - Invite people to rate the app after they used the system once or twice.
- Consider whether to join agencies that are moving away from mobile apps in favor of mobile-friendly online portals. They are generally more accessible (since a client doesn't have to download a separate app and they can be used on multiple devices) and they tend to be cheaper and easier to maintain. Agencies should consider which solution, or combination of solutions, best fits their needs.

Instant Messaging

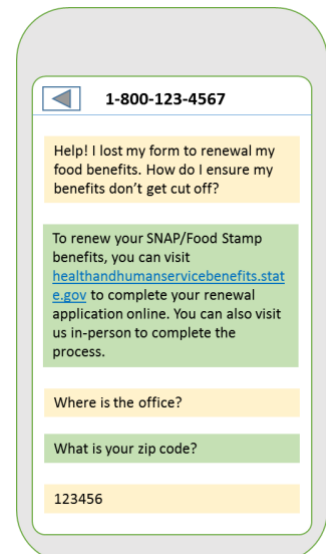
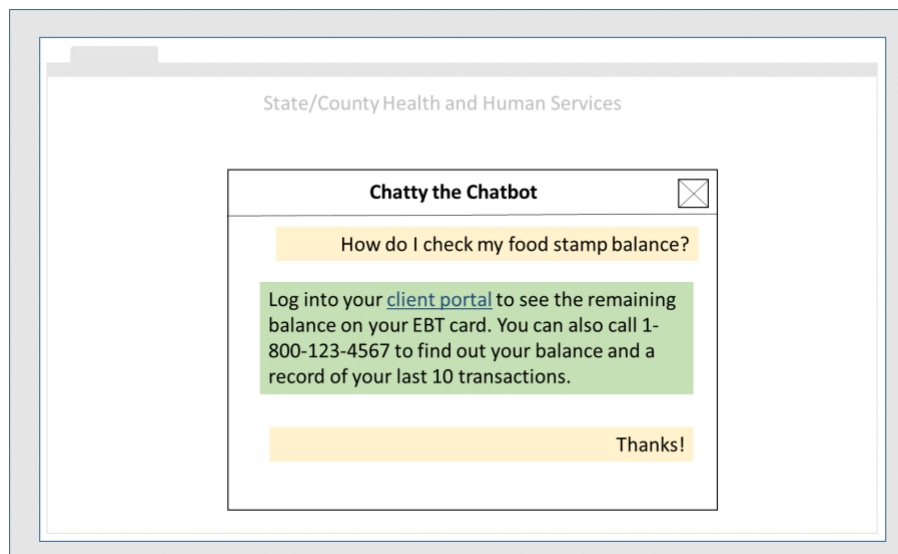
Instant messaging (IM) allows clients to quickly communicate with an agency when they have a simple question or need basic information. This technology should complement rather than replace existing communication platforms or interactive voice response systems.

How it works: Through a mobile app or the agency’s website, clients can click on a “chat now” icon to open a dialogue box where they can type their question. An agency can choose to have dedicated staff who respond in real time to the messages (“live chat”) or can create an automated response system to reply to common questions with pre-programmed responses (“chatbots”). Through either approach, agencies can use IM to provide basic case information (e.g., benefit amounts), answer commonly asked questions (e.g., hours of operation, where to mail an application), or resolve simple problems. For more complex problems, the agency can decide how to refer or hand off an individual to the appropriate contact.

Chatbots

Chatbots – a new form of automated instant messaging technology – can help agencies offer more client-friendly services without additional staffing. One key advantage of chatbots is that the technology is available 24/7, making it convenient for clients. Initial programming of chatbots may take staff time but can help reduce the number of repetitive questions or tasks that staff must handle on an ongoing basis. This helps staff focus on more complex questions.

Chatbots are gaining popularity because they can be used through various technology platforms including text, websites, and mobile instant messaging apps; users need not download a specific mobile app to use chatbots. If personal information is shared via chatbots, make sure the chatbot service provider complies with all security requirements.



Special Considerations for Chatbots

Start small, evaluate the language, and pivot as needed.

Evaluate the wording of the information or database that a chatbot uses to answer questions, including existing FAQ language, so that it includes keywords that clients use when asking a question. For example, clients don't use jargon or legal language to ask a question, but if the chatbot's database does, it will be harder for the chatbot to answer the question.

Take into account commonly misspelled words.

Unlike humans, chatbots rely on clear search queries and can't immediately handle misspelled or vague requests without "training" or "learning" over time. These need to be built into the system and continually expanded through implementation.

Plan for how to handle questions that need a human response.

Clients may ask detailed or complex questions that a chatbot can't answer and require individualized assistance from staff. When clients request detailed case information or ask questions not in the chatbot's database, the chatbot should provide a phone number and inform clients that they will need to speak to someone during business hours for assistance. Chatbots can also be programmed to capture the client's question in the chat and forward the information via email to a staff member. The staff member can research the client's question and call the client back with an answer.

Help the technology learn and improve.

It is important to have an internal process to continually add answers to the chatbot's database. This includes questions that staff initially had to address because the chatbot didn't know the answer. If the chatbot can answer that same question the next time, this frees staff to help clients with issues not easily resolvable by a chatbot.



Advice from the Ground

- Start using an IM platform for easy-to-answer questions or technology support rather than more complex, individualized questions.
- Use IM to help triage a problem and recommend clients call or visit the office to resolve more complex issues.
- Ensure that response times are much shorter for answering an instant message than answering a phone. Individuals are prepared to wait on hold when they reach a call center, but expect an immediate response to an instant message.
- Monitor the type of questions being asked via IM. Update the scripts and automatic responses to reflect new questions. To reduce wait times and frustration, direct individuals with specific types of questions early in the process to the website or call center or recommend that they schedule an appointment.

Section C: Call Center Tools

Interactive Voice Response (IVR) 2.0

Interactive Voice Response (IVR) systems provide automated information and route calls. While agencies have used IVR systems for years, they can upgrade their systems to better answer basic questions and more seamlessly assist clients. Effective IVR systems can save staff time by helping to identify a caller and using a phone tree to route the caller to the appropriate staff or unit.

Original Functionality



Today's Functionality

Able to provide callers basic information, such as hours of operation, where to apply, and an office locator.	Available Information	Able to provide individualized information based on the caller's response or prior interactions with the IVR system.
Limited triage of incoming calls that are routed to customer service staff, who may not have access to the client's case information.	Triage/Routing	Can triage incoming calls based on the caller providing a case number, client ID, or Social Security number and route calls to specialists who can best answer the questions and have access to the client's current information.
Can't contact callers or affirmatively provide individualized information.	Robocalls	Can autodial clients with individualized reminders based on the client's case, or call clients due for an interview and transfer them to workers if they are able to complete their interview.
Clients must wait on hold until an eligibility worker or triage specialist can assist them.	Callbacks	Clients are informed of the expected wait time and can choose to receive a callback instead of waiting.

Telephonic Signatures

Telephonic signatures allow clients to complete the application or renewal process over the phone by capturing their signature via a voice recording. Telephonic signatures allow clients to immediately complete their application or renewal without having to mail in a signed document or visit an office. Agencies must have the ability to record the client verbally affirming identifying information, and link that recording to the case file. Federal regulations require agencies to accept telephonic signatures for Medicaid applications, but agencies can expand the technology to serve SNAP clients applying for or renewing their benefits.

Telephone Interviews: Agencies can offer a telephone interview in conjunction with a SNAP application or renewal taken over the phone to streamline and expedite service. This is more convenient for the client and reduces future in-office and phone traffic related to rescheduling and missed interviews. Agencies can complete more applications and renewals with “one touch” if they also change policies and procedures to rely more on electronic verification or provide easy ways for clients to electronically submit documents. This may allow clients to complete the application, interview, and verification process in one phone call and have their case processed before hanging up.

Call-In Interview: Agencies can also leverage call center infrastructure to further streamline the SNAP interview process by allowing clients who have submitted an application or renewal to complete the interview by phone at a time convenient for them. Agencies may still send clients an appointment date and time but may also inform the client that they can call in for their interview any time before the scheduled appointment. This doesn't require an On-Demand Interview waiver since the client still receives an appointment time. Allowing clients to call in at their convenience can increase interview completion rates and reduce procedural denials.



Advice from the Ground

- Call centers can be a single physical location or can be “virtual,” staffed by workers in offices throughout the state. Virtual call centers may make it easier to staff up and down depending on call volume allowing an agency to meet demand during peak times while allocating staff to other work during non-peak times.
- Where possible, staff call centers with eligibility workers who can act on requests coming in. Immediately conducting an interview, addressing a client's change of information, or processing another request is more efficient than taking a message to pass on to an eligibility worker.
- When monitoring call center performance, focus on call resolution, not just wait times. Clients may be willing to wait a little longer if it means that their needs will be addressed.
- If making outbound calls to clients, work with phone companies to be sure your agency name appears on caller ID, rather than an unfamiliar number clients may not answer.
- Consider how call centers fit into the broader system. While expanded functionality (like allowing for on-demand interviews) may require reallocating staff to the call center, it will relieve pressure on local offices and reduce procedural denials for missed interviews.

Part 4 Considerations When Implementing Technology

Client-facing technology solutions have great potential to improve customer service and streamline processes for agency staff. Implementing these solutions is generally a smaller project than a large eligibility system overhaul, allowing for greater flexibility and freedom to try different approaches. Issues will always arise when making changes and using new technology and processes, but the following basic principles can make modernizing human services more successful.

Embrace innovation.

As technology continues to rapidly advance, it's important for agencies to embrace new options – to improve both efficiency and communication with clients. Change is hard, though, and agencies may be hesitant to take up the challenge of implementing or improving client-facing technologies due to perceived hurdles as well as naysayers. It's important to fight the impulse to keep the status quo and a culture of “this is how we have always done it.” Agencies need to challenge assumptions about what's allowable and encourage the testing of new approaches while working with legal and procurement officials to ensure compliance with federal and state laws. Leadership and external support are essential to overcoming obstacles, so be prepared to help staff understand the value the project brings to the organization.

Focus on the root causes of the problems you are seeking to solve.

The eligibility, enrollment, and retention process is complex; many barriers may hinder accurate and timely determinations and strong customer service. Before implementing any new technology, clearly identify what specific part of the process you are trying to fix and analyze the likely reasons clients or staff face challenges. Pinpointing the root causes – there are often more than one – of a barrier or challenge may take time in the planning process but will ultimately save resources and lead to faster resolution. Ask questions like:

- Where do clients most often drop off in the application or renewal process?
- What leads clients to come into eligibility offices or call eligibility workers?
- Which part of the process is the most time intensive for eligibility workers?

Look at the system as a whole, including current policies and work flows. Perhaps a policy change could resolve the problems faced by a portion of the clients or staff. For example, if cases are frequently terminated for failure to provide documentation, examine where policies could be revised to reduce the need for verifications or if electronic data sources could replace paper documentation from the client.

Upgrade the procurement process and approach to vendor management.

Most state procurement processes and vendor management strategies for creating and implementing technology products could be greatly improved to facilitate flexibility, nimbleness, and innovation. Some government agencies are attempting to make changes through open source code, hack-a-thons, and an agile development process.

Agile Development

Agile software development focuses heavily on iterative development and quick “sprints” of work to continuously improve and flexibly respond to feedback.

To improve the chances of successful implementation, agencies should consider the following questions prior to purchasing a solution:

- What other agencies have implemented a similar solution? What parts of their solution can be used for this project to avoid starting from scratch?
- How will the solution work with other systems inside and outside the agency? Vendors may use terms such as interfaces, modularity, or configurability to describe this important feature.
- Can the solution handle an increased volume of users? Is it scalable?
- Can the agency make required changes and maintain the solution in house once implemented? What level of expertise is needed to make changes?
- When new versions of online browsers, operating systems, or devices such as mobile phones are released, how will the vendor ensure the solution still works?
- How will the vendor provide continuous improvement to the solution once implemented?
- Will the solution be open source and available to share with other agencies to make it easier for them to implement a similar solution?

Seek user feedback before, during, and after implementation.

There are many opportunities to make a new technology solution “user-friendly” – for both clients and eligibility workers using the system. Including user testing before implementing new technology solutions is important for any government modernization efforts, but considering the user experience is not a one-time effort.

Creating a good user experience starts when you identify the need for a technology solution and while you’re designing the solution, before any coding begins. It’s often too late and very costly to change a technology solution based on user feedback after implementation.

The Human Centered Design approach provides a framework for creating a technology solution through initial understanding of the problem and context of when the solution would be used, as well as continual feedback and improvement. Through the development cycle, the primary driving factors of the design are end-users' ability to easily use the solution and to see how it adds value to their lives.

Obtaining user input doesn't require costly focus-group testing or detailed user surveys. Consider:

- Conducting “field work” by simply observing and interviewing users while they're interacting with the current systems. This can help identify users' pain points, barriers to using technology or understanding a process, and even ideas for solutions that users themselves provide.
- Conducting a survey of applicants and enrollees who are waiting in the lobby for their interview. Staff can informally show hand-written designs of a website or mobile app to a group of clients and ask them to walk through the pages to see if they could easily “use” the solution.
- Seeking user input during the design process on demos, storyboards, or prototypes.
- Asking clients directly for feedback rather than relying exclusively on proxies, such as staff at community-based organizations who do application assistance. These external partners can help identify pain points and offer helpful solutions. But they shouldn't substitute for feedback from actual clients, who may be less familiar with certain technologies and are less likely to understand agency jargon or the underlying process.
- Creating a testing environment — or “sandbox” — before and during implementation, where staff and clients try to use the solution without guidance. This can help identify areas of confusion and make it easier for agency staff to help clients by making them more familiar with how clients experience the solution.
- Building into the solution itself, or creating mechanisms outside the solution, to explicitly or implicitly seek users' feedback after deployment. For example, measure client satisfaction with the solution by providing a link to a short survey after an individual submits an application. Or provide a simple mechanism — by email or online — for clients and community partners to suggest improvements.

Inform and educate all stakeholders on the technology.

Engage all stakeholders, including clients, staff, and community partners, before implementing a new solution.

Inform clients of the intended benefits and uses of the new solution rather than assuming they will know. Create an easy-to-read “how-to guide” that agency staff can distribute or send to clients.

Agency staff also need to know how to use and speak about the solution because clients will seek their help if they have questions or problems. Staff should promote the new technology to clients and know where to send clients if they are having technical problems. Staff must also know how the solution fits into the agency's overall operations. For example, staff should know where documents uploaded from a mobile app are sent.

Community organizations are important partners when implementing new technology. They can provide valuable input about user pain points and client needs at all stages of design and implementation. Clearly communicating information about the new technology and issues that arise will help get buy-in from community partners and client communities.

Make improvements as part of implementation.

Technology isn't fool-proof; users expect initial versions of a new solution to have a few errors. Newer technology is often implemented in a "beta" phase to help signal users that the current version has undergone testing, but there may be issues that only a user can identify.

Consider implementing client-facing solutions initially through a pilot or as multiple versions rather than as a finished product that is difficult to change once implemented. Build the solution in bite-size phases so that adjustments can be made along the way, rather than at the end. Make it clear to all stakeholders, including clients, that tweaking, improving, and adjusting are part of the process.

Create an environment focused on continuous improvement. The critical component is to respond to users' reported issues with the solution and quickly address problems. For example, when developers release a new mobile app, they actively monitor the user comments in the App Store or on Google Play to identify issues and then notify users when something has been fixed. Individuals will expect the same from agencies that implement client-facing solutions: imperfection at the start, but clear efforts to seek user feedback and continual improvements as a normal part of the implementation process.

Consider the development and implementation of technology as a continuous circle rather than a straight line from conception to completion. If you aren't continually improving your technology solution based on user feedback, it could quickly become outdated and cause clients to stop using it altogether.

Identify from the start what success looks like and measure it.

A carefully crafted evaluation is essential to determine whether the technology solution successfully addresses the problem identified in the planning phase. Multiple data points and other factors can be measured to evaluate if the technology project was successful.

There are immediate outcomes of technology projects that can easily be measured, such as the number of clients using the technology, the number of problems reported or fixed, or the response

rate to text or mobile app reminders. The effects of a technology solution can also be measured by its impact on operations, such as call volume. In addition, agencies can measure the success of a technology solution based on actual outcomes for clients, for example, if a higher rate of interview completion leads to greater program participation.

Just as important as identifying the desired outcomes for a technology solution is building in, prior to implementation, the right mechanisms to measure progress. Create a plan for what data will be collected, at what intervals, and who will be responsible for analyzing the results. Make sure there is a baseline from which to measure progress.

A wide variety of data is automatically collected by some technology solutions and can be used to monitor performance and measure progress. For example, Google Analytics can be used to determine what parts of an online web portal are most visited to help identify what information users are searching. As part of the planning process, inquire what information is automatically captured by the technology solution as part of its built-in functionality and how non-technical agency staff will be able to collect and review it.

Collecting metrics and feedback is only useful if that information is fed back into the planning and design process to further tweak and improve the solution. Establish mechanisms to use the data to improve operations. For example, one state agency analyzed call center volume over several years to determine seasonal patterns and then applied that information to help create schedules for call center staff so they could handle the call volume. This not only reduced clients' wait times but also improved staff morale by enabling them to assist clients more quickly.

Tips for Advocates

As technology plays an increasingly important role in public benefit administration, it's essential that advocates get involved, early and often. Although advocates may not know the technical details of the systems, they can play a critical role in asking questions and providing input. In addition to the considerations outlined above, advocates can:

- Get a seat at the table. Use existing advisory groups, legislators, or other leverage points to have regular meetings with the state or local agency to identify issues, discuss solutions, get updates, and provide input.
- Ask questions! Don't be intimidated by technical jargon. Push agencies to explain the plan for rolling out new technology and make sure they've considered possible unintended consequences.
- Help make the case for a new technology product. The costs of implementing new technology may be less than the cost of keeping the status quo. Help agencies quantify the real cost of the status quo to clients who can't get the services they need. If the change requires approval or funding from the legislature, support the agency's request.
- Recommend that new technology projects include user-centered design and robust user testing early in the process. Ask agencies to include both as requirements for future procurements of technology projects.
- Engage with the state or county agency early on in developing technology. Work with the agency to address specific concerns about a technology solution at the planning and design phases rather than after implementation.
- Encourage and support the agency in piloting a solution for a subset of clients to improve the solution for others in the long run. Assist the agency in developing and committing to a plan for testing future iterations of the solution with different groups of clients in incremental phases.
- Advocate for the creation of a dedicated position in the agency that's responsible for ensuring technology projects prioritize the client and user experience.
- Research what other states are doing to improve customer service. Bring ideas of effective solutions and encourage the agency to connect with other counties or states.

Ongoing advances in technology may have innovative applications in health and human services. It's important for agencies to look forward and be aware of how these new solutions can improve administration and customer service. Below are four technology trends that may affect client-facing solutions and government services in the future.

Artificial Intelligence (AI)

Most people think of AI in terms of life-like robots that can think and act like a human. Yet AI is also part of the excitement around Big Data or machine learning, where vast amounts of data can be analyzed to improve understanding of changes in populations, traffic patterns, or humans' processing of information. Amazon's ability to provide product recommendations based on your and thousands of others' shopping activity is a simple example of AI in action today.

In the human services sphere, AI may reduce the need for staff to do routine tasks, freeing them for more complex tasks or innovating. AI can also help analyze unstructured data, such as eligibility workers' notes, to help identify patterns that can inform changes to policy or procedures.

Biometrics

Biometrics provides additional ways to use your identity to protect the security of your data through fingerprint imaging, facial recognition, and voice recognition. Smartphones use fingerprint imaging as an alternative to a pin code to unlock the phone. In addition, some mobile apps can integrate with the phone's security settings and allow the fingerprint image to be used to log in into the app. Facial recognition is also available on the latest version of the iPhone.

Voice Responsive Services

Voice responsive tools, such as Alexa and Siri, are gaining popularity and will likely become standard features of consumer-facing technology solutions soon. The data collected and algorithms being perfected by these tools can support users in multiple languages and will be able to account for regional accents and word choice variation. For example, rather than calling a call center to find out the status of an application, clients could ask their mobile device – in their primary language – to seek out this information and verbally respond with the answer, also in their primary language, even though the information maintained by the agency is in English.

Blockchain

Blockchain technology can help make data more secure by breaking data into multiple parts, encrypting each part, and physically storing the data across multiple computers informally connected in a network. Beyond Bitcoin, potential uses of Blockchain include storing health records or financial data so that the data isn't easy to change, delete, or gain access to. Illinois is piloting use of Blockchain to convert and store existing birth certificate records. While there's considerable hype about blockchain technology, its use in the public benefit arena remains uncertain.

Resources

Food and Nutrition Service (FNS) - SNAP

Program Access Toolkit (2013) - <https://fns-prod.azureedge.net/sites/default/files/2013-toolkit.pdf>.

Electronic Notice Waivers and Options (November 3, 2017) - <https://fns-prod.azureedge.net/sites/default/files/snap/Memo-Electronic-Notice-and-Other-Options-11317.pdf>.

Call Center/Contact Center Support for States – A Framework and Reference Guide (August 2011) - https://fns-prod.azureedge.net/sites/default/files/call_center.pdf.

SNAP Telephonic Signature Guidance (May 12, 2014) - <https://fns-prod.azureedge.net/sites/default/files/SNAP%20Telephonic%20Signatures%20Policy%20Memo.pdf>.

Accepting SNAP Applicant and Client Signatures Electronically (April 21, 2016) - https://fns-prod.azureedge.net/sites/default/files/snap/Electronic_Signatures_Memo.pdf.

Behavioral Economics

Ideas 42: Behavioral Science 101 - <http://www.ideas42.org/learn/>.

Administration for Children & Families – Behavioral Economics and Social Policy - <https://www.acf.hhs.gov/opre/resource/behavioral-economics-and-social-policy-designing-innovative-solutions-for-programs-supported-by-the-administration-for>.

Mathematica: Quick Steps to Improve Programs Using Behavioral Insights - <https://www.mathematica-mpr.com/our-publications-and-findings/publications/quick-steps-to-improve-programs-using-behavioral-insights>.

Governing: Getting Public Benefits to the People Who Need Them - <http://www.governing.com/gov-institute/voices/col-improving-low-take-up-rates-benefit-programs-earned-income-tax-credit.html>.

Design

IDEO: Human-Centered Design Kit - <http://www.designkit.org/human-centered-design>.

NYC Mayor's Office for Economic Opportunity: Civic Service Design Tools + Tactics - <https://www1.nyc.gov/assets/servicedesign/index.html>.

SNEAKPEEKIT: Printable Grids for Design Wireframing - <http://sneakpeekit.com/>.

Accessibility and Readability

Plain Language Action and Information Network - <https://www.plainlanguage.gov/>.

U.S. Department of Justice Civil Rights Division: Information and Technical Assistance on the Americans with Disabilities Act, Accessible Technology - <https://www.ada.gov/access-technology/index.html>.

U.S. Department of Health & Human Services: Website Requirements Checklist -
<https://www.hhs.gov/web/building-and-managing-websites/development-process-and-milestones/website-requirements-checklist/index.html>.

Texting

Northwest Center for Public Health Practice – Texting for Public Health -
<http://www.nwcphp.org/docs/sms-toolkit/overview/index.htm>.

TextPower – A Guide to Text Messaging Regulations -
<http://www.textpower.com/Docs/TextPower-GuideToRegulationsAndOptingIn.pdf>.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Roger D. Colton, hereby state that the facts above set forth in my Direct Testimony, OCA Statement 4, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: August 9, 2023
*348462

Signature:



Roger D. Colton

Consultant Address: Fisher, Sheehan, & Colton
34 Warwick Road
Belmont, MA 02478

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket No.
	:	R-2023-3039920 (Water)
	:	R-2023-3039921 (Wastewater)
	:	R-2023-3039919 (Stormwater)
v.	:	
	:	
	:	
Pittsburgh Water and Sewer Authority	:	

DIRECT TESTIMONY

**BARBARA R. ALEXANDER
BARBARA ALEXANDER CONSULTING LLC**

ON BEHALF OF

OFFICE OF CONSUMER ADVOCATE

August 9, 2023

1 Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

2 A. My name is Barbara R. Alexander. I am the sole member manager of Barbara Alexander
3 Consulting LLC. My address is 44 Beech St., Hallowell, ME 04347. I appear in this case
4 as a witness on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

5 Q. WHAT IS YOUR BACKGROUND AND EXPERIENCE WITH RESPECT TO THE
6 ISSUES ON WHICH YOU ARE PROVIDING TESTIMONY IN THIS PROCEEDING?

7 A. I opened my consulting practice in March 1996, after nearly ten years as the Director of
8 the Consumer Assistance Division of the Maine Public Utilities Commission. While there,
9 I testified as an expert witness on consumer protection, customer service and low-income
10 issues in rate cases and other investigations before the Commission. My consulting practice
11 is directed to consumer protection, customer service and low-income programs and policies
12 relating to the regulation of the telephone, electric and gas industries. My practice has
13 included policy issues relating to the adoption of retail energy markets and the regulation
14 of public utility distribution service, particularly relating to reliability of service, rate
15 programs, customer service performance, as well as default service programs and policies.
16 I have appeared in over 30 U.S. and Canadian jurisdictions as an expert witness on behalf
17 of state utility consumer advocates and national and state non-profit consumer
18 organizations.

19 I am a graduate of the University of Michigan (B.A. 1968) and the University of Maine
20 School of Law (J.D. 1976).

21 I have appeared before the Pennsylvania Public Utility Commission (PUC or Commission)
22 many times on behalf of the OCA. I filed testimony on consumer education, consumer
23 protection, supplier licensing, customer enrollment, default service, and Code of Conduct

1 issues for the OCA in the Commission’s electric restructuring proceedings in 1997 and
2 1998, as well in all in the natural gas restructuring cases beginning in 1999. With respect
3 to issues relating to retail market competition policies, I have filed testimony on behalf of
4 the OCA on policies that should govern the planning and acquisition of Default Service for
5 residential customers and on proposals to adopt Purchase of Receivables (POR) programs,
6 Customer Referral Programs, and other “retail market enhancement” programs for electric
7 and natural gas utilities, including FirstEnergy distribution companies. I have provided
8 testimony submitted on behalf of the OCA on service quality and low-income program
9 issues associated with recent electric and natural gas distribution company mergers and base
10 rate cases for electric utilities, water and sewer utilities, and natural gas utilities as
11 documented in my CV with the specific identification of relevant proceedings attached as
12 Exhibit BA-1. In particular, I have testified on behalf of the OCA in the many proceedings
13 relating to the Commission’s assumption of jurisdiction over the Pittsburgh Water and
14 Sewer Authority to address recent compliance plan proceedings and base rate cases.

15
16 Q. DO YOU HAVE ADDITIONAL EXHIBITS ATTACHED TO THIS TESTIMONY?

17 A. Yes. In addition to my CV, I attach the following Exhibits:

18 Exhibit BA-2: PWSA Response to OCA-IV-2.

19 Exhibit BA-3: PWSA Response to OCA-IV-19.

20 Exhibit BA-4: PWSA Response to OCA-XVII-16.

21 Exhibit BA-5: PWSA Response to OCA-XVII-17 and attachment.

22

1 Q. PLEASE SUMMARIZE PITTSBURGH WATER AND SEWER AUTHORITY'S
2 PROPOSAL TO INCREASE RATES IN THIS PROCEEDING.

3 A. On May 9, 2023, the Pittsburgh Water and Sewer Authority (PWSA or the Authority) filed
4 a multi-year base rate increase request for water, wastewater conveyance, and stormwater
5 service over three years. PWSA is requesting a total increase of \$46.8 million or 22.5% to
6 be recovered in 2024; \$45.4 million or 17.8% to be recovered in 2025; and \$53.9 million
7 or 17.9% to be recovered in 2026. PWSA is also requesting approval of claimed
8 enhancements to its low income customer assistance programs, and a phase-out of the
9 minimum water and wastewater charges. Under the Authority's proposal, a typical bill of
10 a residential water, wastewater conveyance, and stormwater service customer using 3,000
11 gallons per month will increase from \$86.43 to \$103.41 per month or by 19.6% in 2024,
12 increase from \$103.41 to \$123.55 or by 19.5% in 2025, and increase from \$123.55 to
13 \$146.11 or by 18.3% in 2026.

14 Q. HOW DOES PWSA JUSTIFY ITS RATE INCREASE IN THIS PROCEEDING?

15 A. PWSA's justifications for these rate increases are based on funding for mandated
16 infrastructure improvements, the obligation to meet more stringent environmental and
17 regulatory requirements, and the need to reflect increasing operating costs related to
18 inflation in rates.

19 Q. WHAT ISSUES WILL YOU ADDRESS IN YOUR TESTIMONY?

20 A. I will address the following issues in this proceeding:
21 • Customer service, including the performance of the call center, billing, meter
22 reading, complaint handling, customer satisfaction survey results, and other metrics
23 tracked by the Commission.

1 • Consumer protection policies and programs, particularly those relating to Chapter
2 56 of the Commission’s regulations.

3 • PWSA’s proposal to charge residential customers a fee for paying the bill using a
4 credit card for PWSA’s service.

5 • PWSA’s proposal to contract for a third-party debt collection service for certain of
6 its overdue bills.

7 Q. IS YOUR TESTIMONY EXCLUSIVE ON THESE ISSUES?

8 A. No. While I am the primary witness on customer service and consumer protection policies
9 and programs, my testimony supplements and contributes to the overall recommendations
10 of the other OCA witnesses.

11 Q. WILL YOU PROPOSE CHANGES TO THE REVENUE REQUIREMENT OR RATES
12 PROPOSED BY PWSA?

13 A. Not directly. My testimony concerning customer service and reliability of service
14 performance is intended to provide context on the reasonableness of PWSA’s proposed
15 revenue requirement, as well as the adjustments made by other OCA witnesses.

16 Q. WHAT IS THE CONNECTION BETWEEN YOUR DISCUSSION OF SERVICE
17 QUALITY AND CUSTOMER SERVICE PERFORMANCE AND THE RATE
18 INCREASE PROPOSED BY PWSA?

19 A. Any public utility must justify its rates in part based on its ability to perform its essential
20 quality of service and customer service functions at a reasonable performance level. It is
21 appropriate to compare the performance of the utility seeking a significant rate increase to
22 other Pennsylvania utilities, particularly where, as here, the Authority has only recently
23 come under the Commission’s jurisdiction and a lengthy proceeding has been held that sets

1 forth PWSA’s obligations to conform to that authority. Finally, PWSA is not a typical
2 public utility regulated by the Commission. Unlike the vast majority of the electric, gas,
3 and water utilities regulated by the Commission, PWSA has no shareholders and there is
4 no “return on equity” as that aspect of rate regulation is applicable to investor-owned
5 utilities who are allowed an opportunity for a reasonable profit on their investments.

6 Q. HOW SHOULD THE COMMISSION CONSIDER PWSA’S QUALITY OF SERVICE
7 AND CUSTOMER SERVICE PERFORMANCE IN LIGHT OF THIS DISTINCTION?

8 A. The consideration of quality of service and customer service performance performs a
9 somewhat different function for PWSA compared to most other public utilities owned by
10 private investors and shareholders. First, my analysis and findings should inform the
11 Commission on the reasonableness of PWSA’s significant rate increase proposals. In other
12 words, if PWSA seeks a rate increase but there are deficiencies in its customer service
13 performance, the Commission should order improvements in specific areas as a condition
14 of any rate increase or consider reducing the rate increase until reforms have been adopted.
15 This approach is mandated by the statutory guidelines governing public utility rate cases
16 in which the Commission must evaluate the “efficiency, effectiveness, and adequacy of
17 service.”¹ Even more important here, PWSA has proposed a multi-year rate increase
18 without any proposals to meet essential customer service performance requirements.

19 Q. PLEASE SUMMARIZE YOUR OVERALL CONCLUSION AND
20 RECOMMENDATION.

21 A. My primary recommendation is that PWSA’s proposal for a multi-year rate increase not be

¹ 66 Pa. C.S. 523.

1 approved. While other OCA witnesses identify many reasons for their comparable
2 conclusion, the basis for my recommendation is that PWSA has not provided any
3 meaningful assurance or mechanism to meet reasonable customer service and service
4 quality performance. A three-year rate adjustment would set in motion the potential for
5 deterioration in service quality and customer service during a period with rate increases
6 that reflect certain costs and expenses but does not include any evaluation of service quality
7 or customer service performance. While the Authority states that this rate increase and
8 multi-year rate increases will support improved performance, there is no actual mechanism
9 in place to assure customers that increased rates will result in improved service quality and
10 customer service. According to PWSA's primary witness, William Pickering, Chief
11 Executive Officer:

12 Provided that PWSA's obtains approval for the necessary rate relief, PWSA will be
13 in a solid position to continue making progress toward enhancing the quality and
14 effectiveness of customer service, providing responsible and responsive operations
15 service, improving infrastructure reliability, and maintaining regulatory
16 compliance. While PWSA has completed a number of construction projects that
17 are designed to provide more reliable service to customers, meet stricter water
18 quality standards and improve stormwater management, we need to continue these
19 efforts so that we are a utility of the future that delivers the highest possible quality
20 of services to our customers.²
21

22 When asked to identify any performance standards associated with its proposal for a multi-
23 year rate plan, the Authority responded that "PWSA does not propose any additional
24 performance standards tied to the current rate case due to having the following, robust
25 standards in place:

- 26 • Headwaters Metrics
- 27 • PUC Compliance Plan Stage 1 Commitments
- 28 • PUC Compliance Plan Stage 2 Commitments

² PWSA St. No. 1, page 27.

1 • _PUC Management and Operational Audit Implementation Plan”³
2

3 PWSA’s response did not identify the specific content of these documents or any
4 “performance standards” that are applicable to PWSA’s commitments. The documents
5 listed in PWSA’s response reference reporting requirements, updated internal PWSA
6 policies to comply with Chapter 56, PWSA internal training materials, call center
7 performance, low income customer billing metrics, and operating metrics. Most of these
8 obligations are reflected in PWSA’s Compliance Plan Quarterly Update Reports, the most
9 recent was filed on April 27, 2023, for the 1st Quarter 2023.⁴ However, my main concern
10 is that none of these listed “metrics” or “commitments” link any specific level of
11 performance to the multi-year rate increases proposed in this proceeding. In fact, the only
12 consequence for not meeting any of these internal standards is “a recognition that PWSA
13 is not meeting its internal goal and potential negative impact on the public’s trust of
14 PWSA.”⁵ The lack of any commitment to maintain or improve customer service while rates
15 are increasing based on investments and expenses alleged to be required to provide
16 adequate service is not a reasonable bargain for customers.

17 Q. PLEASE SUMMARIZE YOUR OTHER RECOMMENDATIONS:

18 A. As stated above, my primary recommendation is to reject PWSA’s proposal for a multi-
19 year rate increase due, in part, to the lack of any specific performance standards or
20 consequences for the failure to meet reasonable performance standards. Merely reporting

³ PWSA Response to OCA-IV-1.

⁴ These quarterly reports are filed in Pittsburgh Water and Sewer Authority Quarterly Compliance Plan Progress Report Consolidated Docket Numbers: M-2018-2640802 (water), M-2018-2640803 (wastewater), P-2018-3005039 (wastewater)

⁵ PWSA Response to OCA-XVII-1.

1 performance without any consequence for deterioration in performance or the failure to
2 meet PWSA's own internal objectives is not a reasonable bargain for consumers. In
3 addition, any decision to increase base rates in this proceeding should be accompanied by
4 requirements that PWSA meet its own specific performance standards. Based on my
5 evaluation of certain other PWSA proposals and service quality performance, I recommend
6 the following requirements that should be imposed if any rates are increased:

7 • PWSA's Call Center should meet its internal standards of an average answer time
8 of 1 minute and an abandonment rate of 3% or less for all its customer queues each quarter.

9 • PWSA's "root cause" analysis of customer complaints failed to meet the
10 requirements of its prior commitment due to the failure to include informal and formal BCS
11 complaints. PWSA's should be required to conduct the required complaint analysis at no
12 additional cost to customers or ratepayers and report the results within 6 months.

13 • PWSA's proposal to impose a transaction fee for payment by credit and/or debit
14 cards by residential customers should be rejected.

15 • PWSA's intent to hire a third party debt collection agency should not be approved
16 at this time or prior to a demonstration that any such proposal will be cost effective
17 compared to internal debt collection and lien authority or that any such proposal will ensure
18 a reduction in collection costs or debt collection efficiency.

19 Q. PLEASE SUMMARIZE THE CUSTOMER SERVICE PERFORMANCE METRICS
20 MONITORED BY THE COMMISSION.

21 A. The Commission publishes annual reports on customer service performance for the call
22 center, meter reading, billing timeliness, customer satisfaction survey responses, and

1 response to customer disputes.⁶ These reports compare the performance of Pennsylvania's
2 largest electric and natural gas distribution companies but do not include performance for
3 water and sewer utilities. Therefore, I obtained PWSA's historical and recent results via
4 discovery in this proceeding, including PWSA's Quarterly Compliance Plan Reports. In
5 addition, the Commission publishes a quarterly UCARE report (Utility Customer
6 Activities Report and Evaluation) that presents data on complaints and payment
7 arrangements handled by the Commission's Bureau of Consumer Services for electric,
8 natural gas, and water and sewer utilities, including PWSA. The most recent reports reflect
9 four quarters of 2022 activities and the First Quarter of 2023.⁷

10 Q. PLEASE DISCUSS PWSA'S CALL CENTER PERFORMANCE.

11 A. PWSA relies on a customer call center as the main method by which customers can
12 communicate individually with PWSA. While PWSA has one office in downtown
13 Pittsburgh, that office is not intended to provide a widely accessible means of allowing its
14 approximately 110,000 customers to report an outage, talk about their bill, file a complaint,
15 ask for a payment plan, or respond to a termination notice. PWSA tracks the standard
16 performance metrics for a large call center, including the average speed of answering a call
17 that is transferred to a live customer service representative and the abandonment rate, the
18 percentage of calls in which customers hang up or abandon their call due to a long wait
19 time. PWSA's call center exceeded the Authority's internal target goals of 1 minute
20 average speed of answer and 3% abandonment rate from August 2022 through February

⁶ <https://www.puc.pa.gov/filing-resources/reports/customer-service-performance-reports/>

⁷ <https://www.puc.pa.gov/filing-resources/reports/consumer-activities-report-evaluation/>

1 2023. The following graphs⁸ plot the significant rise in average speed of answer and
2 abandonment rates in September through December 2022.



3
4

⁸ These graphs were included in PWSA’s Direct Testimony, St. No. 6, pages 9-10.



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The updated information through early June 2023⁹ reflects improvement compared to 2022 in several areas but documents a relatively high abandonment rate of 3% or more for calls that reflect the most common call purposes, including billing and metering and stormwater issues. For example, as reflected below, the abandonment rate exceeds 3% for the period of January 1, 2023 through early June 2023 for customer calls directed to the following queues: general, dispatch, billing and metering, permits, and stormwater

⁹ PWSA Response to OCA-IV-2.

1 issues:

Queue Group Performance by Queue											
1 - All Queues											
1/1/2023 - 6/12/2023 - 00:00 - 24:00											
Created on 6/12/2023 4:56:40 PM by Tishlalones											
ACD queue	ACD queue name	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Average speed of answer (h:mm:ss)	Average delay to abandon (h:mm:ss)	Average delay to interflow (h:mm:ss)	Average ACD handling time (h:mm:ss)	Abandon %	Service level %
P001	General	40,142	38,213	94	1,250	00:01:36	00:01:45	00:03:25	00:06:09	3.1%	73.5%
P004	Dispatch	15,914	15,359	291	555	00:00:36	00:01:32	00:00:00	00:02:00	3.5%	93.9%
P003	Billing and Metering	4,649	4,428	17	144	00:01:33	00:03:11	00:03:57	00:05:47	3.1%	73.8%
P006	AMI 8920	7,481	4,234	104	35	00:00:08	00:00:13	00:00:13	00:04:09	0.5%	100.0%
P002	Collections	4,004	3,756	10	97	00:01:42	00:02:39	00:03:38	00:06:41	2.4%	70.1%
P005	AMR	2,374	2,339	5	35	00:00:41	00:01:32	00:00:00	00:04:04	1.5%	90.1%
P008	Permits	988	847	11	34	00:00:15	00:00:18	00:00:56	00:02:30	3.4%	100.0%
P009	Stormwater	711	664	5	29	00:01:37	00:03:01	00:04:27	00:07:44	4.1%	72.9%
Totals		76,263	69,840	537	2,179	00:01:15	00:01:47	00:00:58	00:05:01	2.9%	81.1%

2

3 Q. AS A RESULT OF THIS PERFORMANCE, WHAT DO YOU RECOMMEND?

4 A. As documented in the charts above and in PWSA’s Quarterly Compliance Plan Reports,
5 PWSA has an internal performance objective for its call center to answer customer calls
6 with a representative within 60 seconds (1 minute) and to meet a call abandonment rate of
7 3% or less. I do not object to these performance objectives. However, PWSA does not
8 link meeting these internal standards to its request for a significant rate increase in this
9 proceeding. I recommend that as a condition of any rate increase adopted by the
10 Commission, that PWSA be required to conform to its own internal quarterly call center
11 performance standards of a call answering rate of 1 minute (60 seconds) or less and an
12 abandonment rate of 3% or less for each of its call center queues, particularly those queues
13 that relate to billing, metering, collection, and stormwater issues. Furthermore, the lack of
14 any recommendation for linking customer service and call center performance to the
15 implementation of its multi-year rate plan is a serious defect. The fact that PWSA has
16 internal performance standard goals is insufficient to justify any rate increase because there
17 is no consequence for the Authority’s failure to achieve these objectives.

1 Q. TURNING TO THE BCS REPORTS CONCERNING COMPLAINTS AND PAYMENT
2 ARRANGEMENT DISPUTES THAT REQUIRE FURTHER INVESTIGATION, WHAT
3 IS PWSA’S RECENT PERFORMANCE?

4 A. Every Pennsylvania public utility is required to educate customers about how to register
5 informal and formal complaints, the former resolved by the Commission’s Bureau of
6 Consumer Services because of a customer’s dissatisfaction with the utility’s response and
7 the latter handled as a formal matter by the Commission because of a formal filing by the
8 customer or group of customers. Utilities also receive “disputes” directly from customers
9 and are obligated to investigate and respond to those issues or indications of dissatisfaction.
10 Customer complaints typically form a hierarchy or pyramid from a large volume of
11 disputes to a smaller group of informal complaints to the BCS and a relatively small
12 number of formal complaints filed with the Commission. Tracking and evaluating disputes
13 and informal or formal complaints are key to ensuring ongoing improvements in customer
14 service because that evaluation is likely to spot the “red flag” that indicates a systemic issue
15 or concern that requires management’s attention and, in some cases, a change in policy or
16 procedure. In addition, of course, this type of evaluation may also identify violations of
17 the Commission’s regulations.

18 BCS reports on the frequency and trends associated with informal complaints filed
19 by residential customers who are dissatisfied with their initial resolution by the public
20 utility. In addition, BCS reports identify complaints “needing further investigation,”
21 meaning that the informal customer complaint requires BCS to further investigate the
22 complaint and that it is not summarily dismissed due to lack of jurisdiction or that the
23 customer failed to first contact the utility prior to filing their complaint with BCS.

1 Comparing 2021 to 2022, PWSA had a 3% decrease in informal residential water consumer
2 complaints and a 30% increase in residential sewer consumer complaints that “need further
3 investigation” (NFI) and a 26% increase in residential water payment arrangement
4 disputes. The January through March 2023 data indicates significant increases in
5 residential water (88%) and sewer (20%) complaints that “need further investigation,” but
6 an overall 8% decrease in residential payment arrangement requests. The BCS data also
7 reflects a significant reduction (74%) in “first contact resolution” complaints in 2023
8 compared to 2022. BCS does not include “justified”¹⁰ complaints or “verified
9 infractions”¹¹ for PWSA in its public reports, an omission that should be corrected in the
10 future due to the Commission’s jurisdiction over PWSA for Chapter 56 and 52 related
11 complaints.

12 Q. PLEASE PROVIDE YOUR ANALYSIS OF HOW PWSA CONDUCTS ANY
13 ANALYSIS OF ITS CUSTOMER COMPLAINTS.

14 A. In the last base rate case PWSA agreed to conduct a root cause analysis of its customer
15 complaints and identify the causes and reforms to respond to that analysis. PWSA’s
16 consultant submitted their report in March 2022.¹² The report focused on PWSA’s internal
17 complaint handling processes and did not review or evaluate complaints filed with BCS or
18 any BCS findings with regard to infractions or potential rule violations. According to
19 PWSA, “The purpose of that analysis was to decrease the overall number of disputes and

¹⁰ Defined by BCS as: A consumer complaint case where, prior to BCS intervention, the company did not comply with Commission Orders, policies, regulations, reports, Secretarial Letters, tariffs, or guidelines when the consumer brought the complaint to the company’s attention.

¹¹ Defined by BCS as: A misapplication or infringement of a Commission regulation, particularly the standards and billing practices for residential utility service.

¹² PWSA Response to OCA-IV-4.

1 complaints received, and details related to infractions identified after a complaint had
2 already been initiated were not pertinent information to the consultant’s analysis.”¹³ The
3 consultant’s recommendations are in the process of being implemented so it is not clear
4 what impact these changes will have on customer satisfaction with the initial interaction
5 with PWSA.¹⁴ However, my major concern is the lack of any analysis and underlying
6 causes associated with the increase in residential customer complaints needing further
7 investigation as noted above in the 1st Quarter 2023 UCARE Report and BCS’s
8 notifications to PWSA about infractions identified in customer complaints filed with BCS.

9 Q. PLEASE EXPLAIN PWSA’S RESPONSE TO COMPLAINTS NEEDING FURTHER
10 INVESTIGATION AS REPORTED IN THE UCARE REPORT.

11 A. When asked to respond to the significant increases in customer complaints needing further
12 investigation by BCS, PWSA identified several factors, including the implementation of
13 their new SAP system, the issuance of friendly reminder notices began in November 2022,
14 and the issuance of 10-day termination notices began in February 2023, lingering COVID-
15 19 protocols, and consumption related disputes that were higher in 2023 compared to
16 2022.¹⁵ According to this same Response, PWSA has taken steps to mitigate the complaint
17 volume, but these “steps” are not reflective of any affirmative action by PWSA to evaluate
18 these findings and adopt affirmative reforms (SAP stabilization, resumption of collection
19 activities and lifting all COVID-19 protocols) with the exception of more training related
20 to meter testing that occurred in March and April 2023. The subsequent 2023 UCARE

¹³ PWSA Response to OCA-XVII-15.

¹⁴ PWSA St. No. 6, page 39-45.

¹⁵ PWSA Response to OCA-IV-19.

1 quarterly reports will provide more information on the trends in these complaint statistics,
2 and I will update this aspect of my testimony during the pendency of this proceeding.

3 Q. PLEASE EXPLAIN PWSA'S RESPONSE TO POTENTIAL INFRACTIONS AS
4 DETERMINED BY BCS IN REVIEWING CERTAIN CUSTOMER COMPLAINTS
5 AFTER THEY ARE CLOSED.

6 A. These infractions are identified to PWSA and provided in a Confidential Attachment.¹⁶
7 This Attachment identifies BCS findings as "investigator's infractions," and "informally
8 verified infractions." When asked about the meaning of these terms, PWSA stated that
9 "investigator's infractions" are those identified by BCS at the closing of the complaint
10 investigation and reflect "infractions or violations that they believe were present" and that
11 "informally verified infractions" are "justified infractions that the PUC Policy Division of
12 BCS identifies during their review."¹⁷ PWSA has not conducted an analysis of trends or
13 causes of the infractions as recorded. Rather, PWSA response is to handle each of these
14 infractions on a case-by-case basis and treat each of these instances as a failure of an
15 individual employee.¹⁸ This approach is not reasonable and fails to identify themes and
16 root causes of these more serious complaint findings. I conclude that PWSA's evaluation
17 of its customer complaints has failed to include or evaluate the root cause of complaints
18 filed with BCS and resulting infractions.

¹⁶ PWSA Response to OCA-IV-20, CONFIDENTIAL attachment.

¹⁷ PWSA Response to OCA-XVII-14.

¹⁸ PWSA Response to OCA-XVII-16.

1 Q. WAS PWSA REQUIRED TO “UNDERTAKE A ROOT CAUSE ANALYSIS OF
2 INFORMAL AND FORMAL COMPLAINTS AND IDENTIFY AND ADOPT
3 REFORMS TO REDUCE FORMAL COMPLAINTS, VERIFIED COMPLAINTS AND
4 JUSTIFIED COMPLAINTS?”

5 A. Yes.¹⁹ As a result, PWSA’s implementation of this directive focused solely on internal
6 disputes from its customers and the report did not evaluate or identify the root cause(s) of
7 informal complaints, formal complaints or verified infractions as determined by BCS.

8 Q. WHAT IS YOUR RECOMMENDATION IN LIGHT OF PWSA’S FAILURE TO
9 IMPLEMENT THE REQUIRED ROOT CAUSE REPORT?

10 A. I recommend that PWSA be required to conduct the required root cause analysis of all
11 customer complaints, including those informally or informally appealed to the Commission
12 and BCS findings about potential infractions within 6 months at no additional cost to
13 customers. This revised and corrected root cause analysis should be reviewed with
14 stakeholders and possible reforms implemented promptly.

15 Q. TURNING TO PWSA’S PROPOSAL TO CHANGE ITS PRIOR AGREEMENT TO
16 ELIMINATE CREDIT CARD FEES AND RESUME CHARGING SUCH FEES TO
17 RESIDENTIAL CUSTOMERS, DO YOU AGREE WITH THIS RECOMMENDATION?

18 A. No. As a part of the Settlement of its 2021 base rate proceeding, PWSA agreed to eliminate
19 merchant fees for residential customers to make Interactive Voice Response and on-line
20 payments as part of its 2020 rate case settlement.²⁰ Beginning in January 2022, PWSA

¹⁹ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021 adopting Recommended Decision dated October 6, 2021 at p. 27 Section 9, E,8,c.*

²⁰ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2020-3017951 (water) and R-2020-3017970 (wastewater) Final Order entered December 3, 2020 (approving*

1 eliminated these payment fees for residential customers. Now, however, PWSA is
2 proposing to reverse that agreement and charge residential customers \$1.95 per transaction
3 for paying their PWSA bill via credit or debit card, stating:

4 As a cash flow municipal authority, PWSA's agreement to change historical
5 practices resulted in other ratepayers paying the cost. The cost impact of this is
6 discussed more fully by Mr. Barca. By returning the payment responsibility solely
7 to the customer electing the option, PWSA is mitigating the cost impact of this
8 decision for other ratepayers. Given the relaxing of the COVID-19 pandemic and
9 the overall rate request here, as well as the build out of options available to our
10 customers to make payments to us, the return to a requirement that customers
11 incurring a third party fee fully pay that fee is a reasonable approach.²¹
12

13 Q. HAS THE VOLUME OF CUSTOMER USE OF THE CREDIT CARD FORM OF
14 PAYMENT INCREASED AS A RESULT OF ELIMINATING FEES IN 2022?

15 A. No. The historical percentage of customers who make use of the credit/debit card to pay
16 their PWSA bill has remained constant at approximately 32%-33% throughout 2022, a
17 level that was in effect prior to eliminating the fee.²² As a result, there is no indication that
18 the costs associated with eliminating credit/debit card fees has increased compared to the
19 level in effect at the time PWSA agreed to make this change. PWSA understood at the
20 time of this agreement to change its fee policy that the costs of handling credit card
21 payments would be included in the revenue requirement for all customers, similar to the
22 costs associated with other payment options available to its residential customers.

Settlement Section III.G.2).

²¹ PWSA St. No. 6, page

²² PWSA Response to OCA-XVII-11.

1 Q. IS THERE EVIDENCE THAT THE IMPOSITION OF THIS FEE WILL ADVERSELY
2 IMPACT CUSTOMERS WHO ARE FACING TERMINATION OF SERVICE?

3 A. Yes. While PWSA has not done an analysis of the timing in the collection or billing cycle
4 to determine how or when customers use the one-time credit/debit card payment²³, the
5 Authority did examine the payments by credit/debit card for customers facing termination
6 of service in April 2023. Of those 788 accounts, 230 set up an installment payment plan,
7 103 accounts (13%) made one or more credit/debit card payments, and 67 accounts made
8 an ACH (checking account) web-based one-time payment.²⁴ This information, while only
9 a reflection of one month, indicates that customers who face termination of service make
10 use of the credit/debit card payment option to avoid further or more serious collection
11 penalties. Imposing a fee on these vulnerable customers after agreeing to eliminate these
12 fees only one year ago is unreasonable. Furthermore, the reversal of this agreed upon
13 policy is likely to adversely impact lower income and fixed income customers who will
14 see the higher bills and payment difficulties if this significant rate increase is approved.

15 Q. WHAT IS YOUR RECOMMENDATION WITH REGARD TO PWSA'S PROPOSAL
16 TO REINSTATE FEES FOR PAYMENT BY CREDIT/DEBIT CARD FOR
17 RESIDENTIAL CUSTOMERS?

18 A. I recommend that the Commission reject this change that was only recently agreed to in
19 PWSA's prior rate case settlement on the grounds that the proposal is unjustified and
20 harmful to vulnerable customers who seek to avoid termination of service and other
21 nonpayment scenarios. Customers using a credit or debit card for payment of essential

²³ PWSA Response to OCA-IV-15.

²⁴ PWSA Response to OCA-IV-16.

1 water, sewer, and stormwater charges should be provided with the same expectation as
2 using their card to pay for food, medical services, and other consumer goods where extra
3 fees to use a credit/debit card are not imposed.

4 Q. PWSA DISCUSSES ITS ONGOING EFFORT TO DEVELOP AND IMPLEMENT A
5 CONTRACT FOR A THIRD-PARTY DEBT COLLECTOR IN ITS TESTIMONY.
6 PLEASE DISCUSS YOUR RESPONSE.

7 A. PWSA seeks to develop an RFP that would solicit bids to provide debt collection services:

8 PWSA's goal in partnering with potentially more than one debt collector is to
9 increase PWSA's monthly collection rate by 10%. The scope includes debt
10 collection services for unpaid water, wastewater, and stormwater charges that are:

- 11 • Over \$1,000
 - 12 • Past due for ≥ 180 days
 - 13 • Final bills past due ≥ 30 days
 - 14 • Active accounts where 1) a tenant payment is received, or 2) a curb stop
15 is unable to be located and/or operated
 - 16 • Inactive accounts where 1) PWSA has ceased to provide service, or 2) a
17 previous customer has moved out.²⁵
- 18

19 The reference to the development of an RFP has not yet resulted in a formal submission in
20 this proceeding. Any such proposal raises serious concerns about the application and
21 implementation of essential Chapter 56 rights that are not the typical qualifications for
22 private debt collection agencies and many of these criteria listed above will include
23 customers and situations in which Chapter 56 will be applicable. I note that there is no
24 obligation for PWSA to implement a third-party debt collection program based on prior
25 Compliance Plan commitments. The Authority has also failed to document how any such
26 private agency could achieve a 10% increase in its monthly collection rate compared to the

²⁵ PWSA St. No. 6, page _____.

1 ongoing collection activities that could or should be implemented by PWSA employees or
2 more targeted outreach and collection activities by individuals working under PWSA direct
3 supervision. This concern is particularly relevant to PWSA since the Authority can initiate
4 a lien on a nonpaying customer's property to collect overdue bills, an option that, coupled
5 with its Chapter 56 rights, provides a greater flexibility to collect overdue bills compared
6 to other investor-owned water, gas, and electric utilities in Pennsylvania.

7 Q. DOES PWSA ROUTINELY MAKE USE OF ITS LIEN AUTHORITY TO COLLECT
8 OVERDUE BILLS?

9 A. Yes. In 2022 PWSA issued 1,904 "intent to lien" notices and filed 1,083 liens against
10 residential customers. This debt collection tool has resulted in significant payments from
11 residential customer as well as other customers.²⁶

12 Q. WHAT IS YOUR CURRENT RECOMMENDATION WITH REGARD TO PWSA'S
13 INTENT TO SOLICIT THE SERVICES OF A THIRD-PARTY DEBT COLLECTION
14 AGENCY?

15 A. I reserve the right to file supplemental direct testimony when PWSA submits the finalized
16 RFP and scope of services.

²⁶ PWSA Response to OCA-XVII-17 identifies residential revenue associated with issuing lien notices as \$7,398,803.

1 Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

2 A. Yes. However, I reserve the right to supplement this testimony if additional relevant

3 information is received.

Exhibit BA-1

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Recent Clients:

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Delaware Division of Public Advocate
Maryland Office of People's Counsel

Areas of Expertise:

- Default Service, Consumer Protection, Service Quality, and Universal Service policies and programs associated with the alternative rate plans and mergers;
- Consumer Protection and Service Quality policies and programs associated with the regulation of competitive energy and telecommunications providers;
- The regulatory policies associated with the regulation of Credit, Collection, Consumer Protection, Low Income, and Service Quality programs and policies for public utilities;
- Customer Education and Rate design and pricing policies applicable to residential customers; and
- Advanced Metering Infrastructure and Grid Modernization costs and benefits, time-based pricing proposals, and performance standards.

Prior Employment

DIRECTOR

Consumer Assistance Division

1986-96

Maine Public Utilities Commission

Augusta, Maine

One of five division directors appointed by a three-member regulatory commission and part of commission management team. Direct supervision of 10 employees, oversight of public utility consumer complaint function, appearance as an expert witness on customer services, consumer protection, service quality and low income policy issues before the PUC. Chair, NARUC Staff Subcommittee on Consumer Affairs.

SUPERINTENDENT

1979-83

*Bureau of Consumer Credit Protection
Department of Professional and Financial Regulation*

Augusta, Maine

Director of an independent regulatory agency charged with the implementation of Maine Consumer Credit Code and Truth in Lending Act. Investigations and audits of financial institutions and retail creditors, enforcement activities, testimony before Maine Legislature and U.S. Congress.

Education

JURIS DOCTOR

1973-76

University of Maine School of Law

Portland, Maine

Admitted to the Bar of the State of Maine, September 1976. Currently registered as “inactive.”

B.A. (WITH DISTINCTION) IN POLITICAL SCIENCE
University of Michigan

1964-68

Ann Arbor, Michigan

Boards and Commissions

Councilor, Winthrop (ME) City Council

2020-2022

Member, Board of Trustees, University of Maine System

May 2022

Publications and Testimony

“How to Construct a Service Quality Index in Performance-Based Ratemaking”, The Electricity Journal, April, 1996

“The Consumer Protection Agenda in the Electric Restructuring Debate”, William A. Spratley & Associates, May, 1996

Direct Testimony on behalf of the Telecommunications Workers Union, Telecom Public Notice 96-8, Price Cap Regulation and Related Issues, Canadian Radio-Television and Telecommunications Commission, September, 1996. [Analysis of and recommendations concerning the need to regulate service quality in move to price cap regulation]

Direct Testimony on behalf of Public Counsel Section, Office of Attorney General, Docket No. UE-960195, Application by Puget Sound Power and Light Co. And Washington Natural Gas Co. For Approval of Merger), Washington Utilities and

Transportation Commission, September, 1996 [Need for and design of a Service Quality Index for both electric and gas business units as part of a multi-year rate plan]

Consumer Protection Proposals for Retail Electric Competition: Model Legislation and Regulations”, Regulatory Assistance Project, Gardiner, ME, October, 1996

Direct and Rebuttal Testimony on behalf of the Citizens Utility Board (IL), Docket 96-0178, Illinois Commerce Commission, CUB v. Illinois Bell Telephone Co., January 22, 1997; July, 1997. [Analysis of recent service quality performance and recommendations for changes in current service quality performance plan]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate, Restructuring Proceedings before the Pennsylvania PUC: PECO Energy; Pennsylvania Power and Light Co.; GPU Energy; Duquesne Light Co.; West Penn Power Co., UGI-Electric, Pennsylvania Power Co., Pike County Light and Power Co. (1997 and 1998). [Specific consumer protection, consumer education and supplier-utility-customer interactions necessary for move to electric restructuring]

“The Transition to Local Telecommunications Competition: A New Challenge for Consumer Protection”, Public Counsel Section, Washington Attorney General, October, 1997. [Reprinted in part in NRRI Quarterly Bulletin, Vol. 19, N0.1, Spring, 1998]

Direct and Surrebuttal Testimony on behalf of the New Jersey Division of Ratepayer Advocate, Restructuring Proceedings before the New Jersey Board of Public Utilities: Public Service Electric and Gas, Jersey Central (GPU), Rockland Electric Co., Atlantic Electric Co., March-April, 1998. [Phase-in and customer enrollment, Code of Conduct, consumer protections associated with the provision of Provider of Last Resort service]

Oppenheim, Gerald (NCLC) and Alexander, Barbara, Model Electricity Consumer Protection Disclosures, A Report to the National Council on Competition and the Electric Industry, April 1998.

Direct and Reply Testimony on behalf of the Maryland Office of People’s Counsel, Investigation into Certain Unauthorized Practices (Slamming and Cramming), Case. No. 8776, before the Maryland Public Service Commission, 1998 and 1999.

Direct Testimony on behalf of the Maryland Office of People’s Counsel, Universal Service Issues, Case No. 8745, before the Maryland Public Service Commission, November 20, 1998.

“Cramming is the Last Straw: A Proposal to Prevent and Discourage the Use of the Local Telephone Bill to Commit Fraud,” NRRI Quarterly Bulletin, Fall. 1998.

Alexander, Barbara, Retail Electric Competition: A Blueprint for Consumer Protection, U.S. Department of Energy, Office of Energy and Renewable Energy, Washington, D.C., October 1998.

Alexander, Barbara, “Consumer Protection Issues in Electric Restructuring for Colorado: A Report to the Colorado Electricity Advisory Panel,” on behalf of the Colorado Office of Consumer Counsel, February 1999.

Testimony on Proposed Interim Rules (Consumer Protection, Customer Enrollment, Code of Conduct, Supplier Licensing) on behalf of the New Jersey Division of Ratepayer Advocate before the New Jersey BPU, May 1999.

Direct Testimony on behalf of AARP, West Virginia PUC Investigation into Retail Electric Competition (consumer protection, universal service, Code of Conduct), June 15, 1999.

Direct and Surrebuttal Testimony on behalf of the Pennsylvania OCA, Natural Gas Restructuring proceedings (8 natural gas utilities): consumer protection; consumer education; code of conduct, before the Pennsylvania PUC, October 1999-April 2000.

Comments on Draft Rules addressing Slamming and Cramming (Docket No. RMU-99-7) on behalf of the Iowa Office of Consumer Advocate, before the Iowa Utilities Board, October 1999.

Alexander, Barbara, "Door to Door Sales of Competitive Energy Services," LEAP Letter, January-February 2000 [Wm. A. Spratley & Associates, Columbus, OH]

Direct Testimony on behalf of the Maine Office of Public Advocate, Central Maine Power Company Alternative Regulation Plan [Docket 99-666] on service quality issues, before the Maine PUC, May 2000.

Direct Testimony on behalf of AARP, Universal Service Programs and Funding of low-income programs for electric and natural gas service, before the New Jersey Board of Public Utilities, Docket No. EX000200091, July, 2000.

Comments (on behalf of NASUCA and AARP) on Uniform Business Practices Reports, May and September 2000.

Direct Testimony on behalf of the Pennsylvania OCA, Verizon-Pennsylvania Structural Separation Plan on service quality, customer service and consumer protection issues [Docket No. M-00001353] before the Pennsylvania PUC, October 2000.

Direct and Rebuttal Testimony on behalf of the Maine Office of Public Advocate, Verizon-Maine Alternative Form of Regulation on service quality issues [Docket No. 99-851] before the Maine PUC, January and February 2001.

Direct and Rebuttal Testimony on behalf of the Citizens Utility Board, Nicor Gas Customer Select Pilot Program, on consumer protection and regulation of competitive natural gas suppliers [Docket Nos. 00-0620 and 00-0621] before the Illinois Commerce Commission, December 2000 and February 2001.

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate on consumer protection and service quality issues associated with the pending merger between GPU Energy and FirstEnergy, before the Pennsylvania PUC, Docket Nos. A-110300F0095 and A-110400F.0040 (February and March, 2001)

Direct and Surrebuttal Testimony on behalf of the New Jersey Division of Ratepayer Advocate on consumer protection, service quality, and universal service issues associated with the pending merger between GPU Energy and FirstEnergy, before the New Jersey Board of Public Utilities, Docket No. EM00110870 (April 2001).

Alexander, Barbara, "Default Service: What Should be Done When the Experiment Goes Awry?" (April 2001)

Responsive Testimony on behalf of the New Jersey Division of Ratepayer Advocate on service quality issues associated with a Plan for Alternative Regulation by Verizon-New Jersey, before the New Jersey Board of Public Utilities, Docket No. To01020095 (May 2001).

Direct and Surrebuttal Testimony on behalf of the New Jersey Division of Ratepayer Advocate on service quality, consumer protection, and universal service issues associated with the pending merger between Conectiv and Pepco, before the New Jersey Board of Public Utilities, BPU Docket No. EM101050308 (September and November 2001).

Direct Testimony on behalf of the Public Interest Advocacy Centre (and others) on service quality regulation in the context of price cap rate plans, before the Canadian Radio-Television and Telecommunications Commission, Docket No. CRTC 2001-37 (August 2001).

Alexander, Barbara, "Default Service: What Should be Done when the Experiment Goes Awry?" An Update to the April 2001 paper (October 2001).

Expert Witness Report, Sparks v. AT&T and Lucent Technologies, October 2001 [National class action lawsuit concerning the leasing of residential telephones]

Expert Witness Report, Brown v. Reliant Energy, November 2001 [Claim of negligence in death of elderly resident after disconnection of electric service]

Comments on behalf of the Pennsylvania Office of Consumer Advocate on consumer protection, disclosure, and education program Guidelines applicable to local exchange telephone competition, before the Pennsylvania PUC, January 2002.

Alexander, Barbara, "Default Service for Retail Electric Competition: Can Residential and Low-Income Customers be Protected When the Experiment Goes Awry?" (April 2002) Available at www.ncat.org/liheap/pubs/barbadefault3.doc

Comments on behalf of AARP before the California PUC on CARE (low income program) concerning Rapid Deployment, Rulemaking 01-08-027 (2001 and 2002).

Comments on behalf of Citizens Utility Board before the Illinois Commerce Commission on Proposed Rule to Allow the Use of Credit Scoring to Determine When a Deposit May be Required, ICC Docket No. 01-0644, June 24, 2002.

Comments on behalf of Consumer Groups before the Texas PUC on Rulemaking Proceeding to Amend Requirements for Provider of Last Resort Service, Docket No. 25360, June 28, 2002.

Direct Testimony on behalf of the New Jersey Division of Ratepayer Advocate before the Board of Public Utilities on Joint Petition of New Jersey-American Water Co. and Thames Water Aqua Holding for Approval of a Change in Control of New Jersey-American Water Co., Docket No. WM01120833, July 18, 2002.

Alexander, Barbara, Consumer Education Programs to Accompany the Move to Retail Electric Competition, prepared for the National Association of State Utility Consumer Advocates (NASUCA), July 2002. Available at www.nasuca.org

Direct Testimony on behalf of New Jersey Division of Ratepayer Advocate before the Board of Public Utilities on Petition of NUI Utilities d/b/a Elizabethtown Gas Co. for Approval of Increased Base Tariff Rates and Charges for Gas Service, Docket No. GR02040245, September 6, 2002.

Alexander, Barbara, An Analysis of Residential Energy Markets in Georgia, Massachusetts, Ohio, New York, and Texas, prepared for the National Energy Affordability and Accessibility Project, National Center for Appropriate Technology, September 2002. Available at www.ncat.org/neaap

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC on Philadelphia Gas Works' Gas Restructuring Filing, Docket No. M-00021612, September 2002 and November 2002.

Direct Testimony on behalf of Consumer Groups before the Texas PUC on Notice and Request of Mutual Energy CPL and Mutual Energy WTU for Approval of Changes in Ownership and Affiliation, Docket No. 25957, October 15, 2002.

Comments on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Advanced Notice of Proposed Rulemaking for Revision of Chapter 54 Pertaining to Electric Generation Supplier Licensing, Docket No. L-00020158, March 5, 2003.

Direct and Surrebuttal Testimony on behalf of the New Jersey Division of Ratepayer Advocate before the New Jersey BPU on Jersey Central Power & Light's base rate case proceeding (service quality and reliability of service), Docket No. ER02080506, ERT02080507, and ER02070417, December 2002 and February 2003.

Alexander, Barbara, "Managing Default Service To Provide Consumer Benefits In Restructured States: Avoiding Short-Term Price Volatility" (National Center for Appropriate Technology, June 2003). Available at: <http://neaap.ncat.org/experts/defservintro.htm>

Comments and Reply Comments on behalf of New Jersey AARP before the New Jersey Board of Public Utilities on Basic Generation Service, Docket No. EO03050394 (August and September 2003).

Direct and Surrebuttal Testimony on behalf of the New Jersey Division of the Ratepayer Advocate before the New Jersey BPU on rate case proceedings for New Jersey-American Water Co., Elizabethtown Water Co., and Mt. Holly Water Co. (service quality and low-income programs and policies), Dockets Nos. WR03070509-WR03070511 (December 2003).

Comments on behalf of the Texas Legal Services Center and other Consumer Groups before the Public Utility Commission of Texas, Proposed Revisions to Chapter 25, Substantive Rules Applicable to Electric Service Providers, Project No. 27084 (December 2003).

Alexander, Barbara, "Natural Gas Price Volatility: Regulatory Policies to Assure Affordable and Stable Gas Supply Prices for Residential Customers," (2004), available at <http://www.ncat.org/liheap/news/Feb04/gaspricevol.htm>

Alexander, Barbara, "Montana's Universal Systems Benefit Programs and Funding for Low Income Programs: Recommendations for Reform: A Report to AARP" (January 2004).

Comments and Reply Comments on behalf of the Colorado Office of Consumer Counsel before the Public Utilities Commission of Colorado, In the Matter of the Proposed Repeal and Reenactment of all Rules Regulating Gas Utilities (Docket No. 03R-520G) and Electric Utilities (Docket No. 03R-519E) (February and September 2004).

Direct, Rebuttal, and Supplemental Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Petition of Duquesne Light Co. for Approval of Plan for Post-Transition Period POLR Services, Docket No. P-00032071 (February-April 2004).

Comments on behalf of AARP before the California PUC, Order Instituting Rulemaking on the Commission's Own Motion to Establish Consumer Rights and Consumer Protection Rules Applicable to All Telecommunications Utilities, R. 00-02-004 (March 2004).

Comments and Reply Comments on behalf of AARP before the Maine PUC, Inquiry into Standard Offer Supply Procurement for Residential and Small Commercial Customers, Docket No. 2004-147 (April 2004).

Comments on behalf of Wisconsin Citizens' Utility Board before the Wisconsin Public Service Commission's Gas Service Standards, Docket No. 1-AC-210 (July 2004).

Comments on behalf of the Colorado Office of Consumer Counsel before the Public Utilities Commission of Colorado, In the Matter of the Proposed Repeal and Reenactment of all Rules Regulating Telephone Utilities and Providers (Docket No. 03R-524T) (September 2004).

Direct Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Investigation of Metropolitan Edison Co., Pennsylvania Electric Co. and Pennsylvania Power Co. Reliability Performance, Docket no. I-00040102, [customer service and reliability performance] (June 2004).

Direct and Surrebuttal Testimony on behalf of the Vermont Department of Public Service before the Vermont Board of Public Utilities, Investigation into Successor Alternative Regulatory Plan for Verizon Vermont, Docket 6959 [Service Quality] (November 2004 and March 2005).

Alexander, Barbara, "Vermont Energy Programs for Low-Income Electric And Gas Customers: Filling The Gap" (November 2004), Prepared for AARP Vermont.

Direct and Surrebuttal Testimony on behalf of Wisconsin Citizens' Utility Board before the Wisconsin Public Service Commission, Application of Wisconsin Power and Light Co. for Authority to Increase Retail Electric, Natural Gas and Ripon Water Rates, Docket No. 6680-UR-114 [customer service, credit and collection programs and expenses, low income programs, fixed bill program] (April 2005).

Comments on behalf of the Maine Office of Public Advocate before the Maine Public Utilities Commission, Inquiry into Revisions to Chapter 81, Residential Utility Service Standards for Credit and Collection Programs, and Chapter 86, Disconnection and Deposit Regulations for Nonresidential Utility Service, Docket No. 2005-005 (April and May 2005).

Direct and Rebuttal Testimony on behalf of AARP Montana before the Montana Public Service Commission, Northwestern Energy Electric Cost Tracker, Docket No. D2004.6.90 [Default Service cost recovery policies and integration with low income programs] (December 2004 and July 2005).

Direct Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utilities Commission, Joint Application of PECO Energy Co. and Public Service Electric and Gas Co. for Approval of the Merger of Public Service Enterprise Group, Inc. with and into Exelon Corporation, Docket No. A-110550F0160 [customer service, reliability of service, low income programs] (June 2005).

Direct Testimony on behalf of Illinois Citizens' Utility Board, City of Chicago, and Community Action for Fair Utility Practice, before the Illinois Commerce Commission, Petition to Initiate Rulemaking with Notice and Comment for Approval of Certain Amendments to Illinois Administrative Code Part 280 Concerning Deposit Requests and Deposit Refunds by Utilities, Docket No. 05-0237 (June 2005).

Direct Testimony on behalf of The Utility Reform Network (TURN) before the California Public Utilities Commission, Order Instituting Rulemaking on the Commission's Own Motion to Establish Consumer Rights and Consumer Protection Rules Applicable to All Telecommunications Utilities, Docket R-00-02-004 (August 2005).

Alexander, Barbara, Red Flags for Consumer Protection Policies Governing Essential Electric and Gas Utility Services: How to Avoid Adverse Impacts on Low-Income Consumers, prepared under contract with Oak Ridge National Laboratory Energy Division (October 2005).

Comments on behalf of Texas Office of Public Utility Counsel, Texas Legal Services Center, Texas Ratepayers' Organization to Save Energy and AARP Texas, before the Texas PUC, Evaluation of Default Service for Residential Customers and Review of Rules Relating to the Price to Beat and Provider of Last Resort, Project No. 31416 (March 2006) [Default service policies]

Rebuttal and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, In the Matter of the Petition of the Pennsylvania Power Co. for Approval of an Interim Provider of Last Resort Supply Plan, Docket No. P-00052188 [Default Service policies] (December 2005 and January 2006).

Direct and Rebuttal Testimony on behalf of the Maine Office of Public Advocate before the Maine PUC, Investigation into Verizon Maine's Alternative Form of Regulation, Docket No. 2005-155 [Retail Service Quality] (January and May 2006).

Alexander, Barbara, "State Developments Changing for Default/Standard Retail Electric Service," Natural Gas & Electricity, September 2006.

Direct and Rebuttal Testimony on behalf of the Government and Consumer Parties (CUB, Attorney General of Illinois) before the Illinois Commerce Commission, Petition to Initiate Rulemaking with Notice and Comment for Approval of Certain Amendments to Illinois Administrative Code Part 280, Docket No. 06-0379 (May and September 2006). [Consumer Protection rules]

Direct Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, In Re Application of UGI Utilities, Inc., UGI Utilities Newco, Inc., and Southern Union Co., Docket Nos. A-120011F2000, A-125146, A-125146F5000 (June 2006). [Customer Service, Service Quality, and Universal Services]

Direct and Rebuttal Testimony on behalf of the Maryland Office of People's Counsel before the Maryland PSC, In The Competitive Selection of Electricity Supplier/Standard Offer or Default Service for Investor-Owned Utility Small Commercial Customers and, Delmarva Power and Light and Potomac Electric Power Residential Customers, Case No. 9064 (August and September 2006). [Default Service policies]

Direct and Rebuttal Testimony on behalf of the Maryland Office of People's Counsel before the Maryland PSC, In The Matter of the Optimal Structure of the Electric Industry of Maryland, Case No. 9063 (October and November 2006). [Default service policies]

Comments on behalf of AARP Maine before the Maine PUC on various dockets and notices concerning the implementation of Standard Offer Service for residential customers, Docket Nos. 2006-314, 2006-557, and 2006-411 (July-November 2006). [Default service policies]

Comments on behalf of AARP District of Columbia before the District of Columbia PSC, In the Matter of the Development and Designation of Standard Offer Service in the District of Columbia, Case No. 1017 (2006). [Default service policies]

Comments on behalf of AARP New Jersey before the New Jersey Board of Public Utilities, In the Matter of the Establishment of a Universal Service Fund Pursuant to Section 12 of the Electric Discount and Energy Competition Act of 1999, Docket No. EX00020091 (August 2006) [Recommendations for USF program changes]

Direct and Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Joint Application of Equitable Resources, Inc. and the People's Natural Gas Co., d/b/a Dominion Peoples, for Approval of the Transfer of All Stock Rights of the Latter to the Former and for the Approval of the Transfer of All Stock of Hope Gas, Inc., d/b/a/ Dominion Hope to Equitable Resources, Inc., Docket No. A-122250F5000 (September and October 2006). [Customer Service, Service Quality, and Universal Service issues]

Direct Testimony on behalf of Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Pennsylvania PUC v. Natural Fuel Gas Distribution Corp., Docket No. R-00061493 (September 2006) [Supplier Purchase of Receivables Program]

Direct Testimony on behalf of AARP Montana before the Montana Public Service Commission, Joint Application of NorthWestern Energy and BBI to purchase NorthWestern Energy, Docket No. 2006.6.82 [December 2006] [Conditions for approval of merger; low income and customer service programs]

Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Petition by PPL Electric Utilities Corp. for Approval of a Competitive Bridge Plan, Docket No. P-00062227 (December 2006) [Default Service policies]

Direct and Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Application of Duquesne Light Company for a Certificate of Public Convenience Under Section 1102(a)(3) of the Public Utility Code Approving the Acquisition of Duquesne Light Holding, Inc. by Merger, Docket A-110150F0035 (December 2006 and January 2007) [Conditions for approval of merger; low income and customer service programs]

Testimony before the House Least Cost Power Procurement Committee, Illinois General Assembly, on HB 1510, on behalf of AARP [March 22, 2007]

Rebuttal and Surrebuttal Testimony on behalf of Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Petition of Duquesne Light Co. for Approval of Default Service Plan for January 1, 2008 to December 31, 2010, Docket No. P-00072247 [April 2007] [Default Service policies]

Comments and Reply Comments on behalf of AARP New Jersey before the Board of Public Utilities BGS Working Group concerning BGS procurement policies and proposed demand response program, (March-May 2007) [Default Service policies]

Comments on behalf of AARP New Jersey to the New Jersey BPU Staff on draft proposed USF regulations (May 2007) [Low income program design and implementation]

Alexander, Barbara, Smart Meters, Real Time Pricing, And Demand Response Programs: Implications For Low Income Electric Customers (May 2007)

Direct and Surrebuttal Testimony on behalf of Maine Office of Public Advocate before the Maine Public Utilities Commission, Re: Joint Application for Approvals Related to Verizon's Transfer of Property and Customer Relations to Company to be Merged with and into FairPoint Communications, Inc., Docket 2007-67 (July and September 2007) [Service Quality and Customer Service Conditions for Merger]

Testimony on behalf of AARP Montana before the Montana Public Service Commission, In the Matter of Montana Dakota Utilities Co., Public Service Commission Investigation and Direction on Electric and Natural Gas Universal System Benefits, Docket No. D2006.1.2 (July 30, 2007) [Design and funding for low income programs]

Direct and Surrebuttal Testimony on behalf of Maine Office of Public Advocate before the Maine Public Utilities Commission, Central Maine Power Co. Chapter 120 Information (Post ARP 2000) Transmission and Distribution Utility Revenue Requirement and Rate Design And Request for Alternative Rate Plan, Docket No. 2007-215 (August 30, 2007 and February 2008) [AMI deployment]

Direct and Reply Testimony on behalf of AARP Maryland before the Maryland Public Service Commission, In the Matter of the Commission's Investigation of Investor-Owned Electric Companies' Standard Offer Service for Residential and Small Commercial Customers in Maryland, Case No. 9117, Phase I and II (September 2007) [Default Service policies]

Testimony on behalf of AARP Maryland before the Maryland Public Service Commission, In the Matter of the Commission's Investigation of Advanced Metering Technical Standards, Demand Side Management Competitive Neutrality, and Recovery of Costs of Advanced Meters and Demand Side Management Programs, Case 9111 (November 2, 2007) [Default Service policies; AMI deployment]

Comments on behalf of AARP District of Columbia before the D.C. Public Service Commission, In the Matter of The Application Of Potomac Electric Power Co. For Authorization to Establish A Demand Side Management Surcharge and an Advanced Metering Infrastructure Surcharge And to Establish a DSM Collaborative and an AMI Advisory Group, Formal Case No. 1056 (August 10, September 10, November 13, 2007, April 2008) [Default Service policies; AMI deployment]

Comments on behalf of AARP District of Columbia before the D. C. Public Service Commission, Re: The Petition of the Office of the People's Counsel for the District of Columbia for an Investigation into the Structure of the Procurement Process for Standard Offer Service, Formal Case No. 1047 (November 2007) [Default Service policies]

Direct, Rebuttal and Surrebuttal testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Petition of the West Penn Power Co. d/b/a Allegheny Power for Approval of its Retail Electric Default Service Program and Competitive Procurement Plan for Service at the Conclusion of the Restructuring Transition Period, Docket No. P-00072342 (February-March 2008) {Default service procurement policies]

Testimony on behalf of AARP before the Virginia Commission on Electric Utility Restructuring in the General Assembly on HB 1523 and SB 311 (January 2007) [Electric Utility Integrated Resource Planning]

Testimony on behalf of AARP before the Ohio House of Representatives on SB 221 (February 2008) [Default Service procurement policies for post-transition period]

Alexander, Barbara, The Federalization Of Energy Prices: How Policies Adopted By The Federal Energy Regulatory Commission Impact Electricity Prices For Residential Customers: A Plain Language Primer (March 2008)

Comments on behalf of AARP before the New Jersey Board of Public Utilities, In the Matter of the Universal Service Fund, Docket Nos. EO07110888 and EX00020091 (April 2008) [low income program; automatic enrollment]

Direct and Surrebuttal testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, PUC v. Columbia Gas of Pennsylvania, Inc., Docket No. R-2008-2011621 (May and June 2008) [rate case: retail gas competition and Purchase of Receivables program]

Direct Testimony on behalf of Public Counsel and the Energy Project before the Washington Utilities and Transportation Commission, WUTC v. Puget Sound Energy, Inc., Docket Nos. UE-072300 and UG-072301 (May 2008) [revisions to Service Quality Index; storm cost recovery; fixed customer charge; low income program funding]

Direct Testimony on behalf of Public Counsel and the Energy Project before the Washington Utilities and Transportation Commission, In the matter of the Application of Puget Holdings LLC and Puget Sound Energy for an Order Authorizing Transaction, Docket No. U-072375 (June 2008) [Conditions for Sale: customer service; low income programs]

Direct Testimony on behalf of Local 223, UWUA before the Michigan Public Service Commission, In the Matter of the application of Detroit Edison Co. for authority to increase its rates, Case No. U-15244 (July 2008) [Customer Service standards; Advanced Metering proposal]

Reply Testimony on behalf of AARP before the Mississippi Public Service Commission, Proceeding to Review Statewide Energy Generation Needs, Docket No. 2008-AD-158 (August 2008) [Integrated Resource Planning]

Comments on behalf of Local 223, UWUA before the Michigan Public Service Commission, In the matter, on the Commission's own Motion, to investigate the development of minimum functionality standards and criteria for advanced metering infrastructure (AMI), Case No. U-15620 {August 2008} [Advanced Metering policies and standards]

Direct and Rebuttal Testimony on behalf of Illinois Citizens Utility Board and AARP before the Illinois Commerce Commission, Citizens Utility Board, Citizens Action/Illinois and AARP vs. Illinois Energy Savings Corp. d/b/a U.S. Energy Savings Corp., Complaint pursuant to 220 ILCS 5/19-110 or 19-115, Docket 08-0175. (August and November 2008) [Investigation of marketing activities and licensing conditions of an alternative gas supplier]

Direct Testimony on behalf of Ohio Partners for Affordable Energy before the Public Utilities Commission of Ohio on filings by electric utilities pursuant to SB 221: Market Rate Option plan filed by FirstEnergy (Case No. 08-936-EL-SSO), Electric Security Plan filed by FirstEnergy (Case No. 08-935-EL-SSO), and Electric Security Plan filed by AEP Ohio (Case No.08-917-EL-SSO & Case No. 08-918-EL-SSO) (September-November 2008) [Default Service procurement policies; energy efficiency and smart meter proposals]

Reply, Surrebuttal, and Supplemental Testimony on behalf of Maryland Office of People's Counsel before the Maryland Public Service Commission, In the Matter of Appropriate Forms of Regulating Telephone Companies, Case No. 9133 (August and October 2008; July 2009) [service quality performance conditions for alternative rate regulation of Verizon-MD]

Comments on behalf of AARP before the Idaho Public Utilities Commission, In the Matter of the Application Of Idaho Power Co. for a Certificate of Public Convenience and Necessity to Install Advanced Metering Infrastructure ("AMI") Technology Throughout its Service Territory, Case No. IPC-E-08-16 (December 2008) [Smart Meter costs and benefits]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Joint Application for the Authority and Necessary Certificates of Public Convenience to Transfer all of the Issued and Outstanding Shares of Capital Stock of the Peoples Natural Gas Co. d/b/a Dominion Peoples, Currently owned by Dominion Resources, Inc. to Peoples Hope Gas Companies LLC, an Indirect Subsidiary of Babcock & Brown Infrastructure Fund North America LP, and to Approve the Resulting Change in Control of the Peoples Natural Gas Co. d/b/a Dominion Peoples, Docket No. A-2008-2063737 (December 2008 and July 2009) [Proposed conditions relating to Service Quality and Universal Service programs]

Rebuttal Testimony on behalf of Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Petition of PPL Electric Utilities Corp. for Approval of a Default Service Program and Procurement Plan, Docket No. P-2008-2060309 (January 2009) [Retail Market Programs]

Rebuttal Testimony on behalf of Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Petition of PECO Energy Co. for Approval of its Default Service Program and Rate Mitigation Plan, Docket No. P-2008-2062739 (January 2009) [Retail Market Programs]

Comments on behalf of AARP before the Mississippi Public Service Commission, In Re: Order Establishing Docket to Consider standards established by the Energy Independence and Security Act of 2007, Docket No. 2008-ad-477 (February 2009) [PURPA Policies; Integrated Resource Planning; Time-Based Pricing]

Co-Author of Comments on behalf of The Utility Reform Network (TURN) before the California Public Utilities Commission, Order Instituting Rulemaking to consider Smart Grid Technologies Pursuant to Federal Legislation and on the Commission's own Motion to Actively Guide Policy in California's Development of a Smart Grid System, Docket R. 08-12-009 (2009 and 2010) [Smart Grid policies]

Direct and Rebuttal Testimony on behalf of the Attorney General of the Commonwealth of Massachusetts before the Department of Public Utilities, Investigation by the Department of Public Utilities on its Own Motion into the Preparation and Response on Fitchburg Gas & Electric Co. d/b/a Unitil to the December 12, 2008 Winter Storm, D.P.U. 09-01-A (March and April 2009) [Investigation of storm restoration practices]

Testimony on behalf of UWUA Local 132 before the California Public Utilities Commission, Southern California Gas Co. Advanced Metering Infrastructure, Docket No. A.08-09-023 (April 2009) [Advanced metering deployment]

Direct and Rebuttal Testimony on behalf of the Delaware Public Service Commission Staff before the Delaware Public Service Commission, In the Matter of the Investigation into the Business and Marketing Practices of Horizon Power and Light, LLC, Docket No. 355-08 (April and June 2009) [Investigation into marketing and contract practices of licensed electricity supplier]

Testimony on behalf of AARP before the District of Columbia Public Service Commission, In the Matter of the Application of Potomac Electric Power Co. for Authority to Establish a Demand Side Management Surcharge and an Advanced Metering Infrastructure Surcharge and to Establish a DSM Collaborative and an AMI Advisory Group, Formal Case No. 1056 (June 2009) [Advanced Metering proposal]

Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of Metropolitan Edison Co. and Pennsylvania Electric Co. for Approval of its Default Service Program, Docket Nos. P-2009-2093053 and P-2009-2093054 (June 2009) [Default Service policies]

Alexander, Barbara, with the Assistance of Mitchell, Cynthia and Court, Gill, Renewable Energy Mandates: An Analysis Of Promises Made And Implications For Low Income Customers, Prepared under contract with Oak Ridge National Laboratory UT-Battelle, LLC, Purchase Order No. 4000091296 (June 2009).

Direct Testimony on behalf of the People of the State of Illinois and AARP before the Illinois Commerce Commission, Petition of Commonwealth Edison Co. to Approve and Advanced Metering Infrastructure Pilot, Docket No. 09-0263 (July 2009). [Advanced Metering pilot design and scope]

Direct Testimony on behalf of the Attorney General of the Commonwealth of Massachusetts before the Massachusetts Department of Public Utilities, Massachusetts Electric Company & Nantucket Electric Company d/b/a National Grid, Smart Grid Pilot Proposal, Docket No. 09-32 (August 2009) [Advanced Metering pilot design]

Direct Testimony on behalf of the Attorney General of the Commonwealth of Massachusetts before the Massachusetts Department of Public Utilities, Fitchburg Gas and Electric Co., d/b/a/ Unitil, Smart Grid Pilot Proposal, Docket No. 09-31 (August 2009) [Advanced Metering pilot design]

Direct Testimony on behalf of AARP before the Maryland Public Service Commission, In the Matter of Potomac Electric Power Company and Delmarva Power and Light Company Request for the Deployment of Advanced Meter Infrastructure, Case No. 9207 (October 2009) [Advanced Metering deployment costs and benefits; dynamic pricing proposals]

Direct Testimony on behalf of AARP before the Maryland Public Service Commission, Application of Baltimore Gas and Electric Company for Authorization to Deploy A Smart Grid Initiative and to Establish a Tracker Mechanism For the Recovery of Costs, Case No. 9208 (October 2009) [Advanced Metering deployment costs and benefits; dynamic pricing proposals]

Direct Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania PUC, Petition of PPL Electric Utilities Corporation Requesting Approval of a Voluntary Purchase of Accounts Receivables Program and Merchant Function Charge, Docket No.P-2009-2129502 (October 2009) [Retail competition policies: purchase of receivables programs]

Direct and Cross Reply Testimony on behalf of The Energy Project (Washington) before the Washington Utilities and Transportation Commission, In the Matter of the Petition of Avista Corporation, D/B/A Avista Utilities, For an Order Authorizing Implementation of a Natural Gas Decoupling Mechanism and to Record Accounting Entries Associated With the Mechanism. Docket No. UG-060518 (*consolidated*) (August and September 2009) [Natural gas decoupling proposal; impact on low income customers]

Direct Testimony on behalf of the Attorney General of the Commonwealth of Massachusetts before the Massachusetts Department of Public Utilities, NSTAR Electric Co. Smart Grid Pilot Proposal, Docket No. 09-33 (November 2009) [Advanced Metering pilot design]

Direct Testimony on behalf of Public Counsel Section, Attorney General of Washington, before the Washington Utilities and Transportation Commission, In the Matter of the Joint Application of Verizon Communications Inc. and Frontier Communications Corporation For an Order Declining to Assert Jurisdiction Over, or, in the Alternative, Approving the Indirect Transfer of Control of Verizon Northwest Inc., Docket No. UT-090842 (November 2009) [Service Quality Conditions]

Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania PUC, Petition of Duquesne Light Company for Approval of Default Service Plan for the Period January 1, 2011 through May 31, 2011, Docket No. P-2009-2135500 (January 2010) [Retail Competition policies]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of The Citizens Utility Board (CUB), The City Of Chicago, and The People Of The State Of Illinois (Attorney General), before the Illinois Commerce Commission, Revision of 83 Ill. Adm. Code 280, Docket No. 06-0703 (January 2010, October 2010, February 2011) [Consumer Protection policies governing electric, natural gas, and water utility service]

Direct and Surrebuttal Testimony on behalf of Maine Office of Consumer Advocate, before the Maine PUC, Central Maine Power Co., Petition Requesting That the Commission Issue an Order to Modify CMP's Service Quality Indicators by Eliminating Or Changing the Current MPUC Complaint Ratio and to Waive Penalties, Docket No. 2009-217 (February and July 2010) [Evaluation of Request for Waiver of Penalty]

Direct, Rebuttal and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania PUC, Petition of UGI Utilities, Inc.—Gas Division for Approval to Voluntarily Implement a Purchase of Receivables Program and Merchant Function Charge And Of a Potential Affiliated Interest Agreement Between UGI Utilities, Inc.—Gas Division And Affiliated Entities, Docket No. P-2009-2145498 (April and May 2010) [Purchase of Receivables Program Conditions]

Direct Testimony on behalf of the Massachusetts Attorney General, before the Massachusetts Department of Public Utilities, Western Massachusetts Electric Co. Smart Grid Pilot Proposal, Docket D.P.U. 09-34 (May 2010) [Smart Meter and Pricing Pilot evaluation and conditions]

Direct, Rebuttal and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania PUC, Petition of PECO Energy Company for Approval of its Natural Gas Supplier Purchase of Receivables Program, Docket No. P-2009-2143588 (March, April, and May 2010) [Purchase of Receivables Program Conditions]

Direct and Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania PUC, Petition of Columbia Gas of Pennsylvania, Inc. for Approval to Voluntarily Implement a Modified Purchase of Receivables Program Pursuant to SEARCH Filing Requirement and Interim Purchase of Receivables Guidelines, Docket No. P-2009-2099333 (February and March 2010) [Purchase of Receivables Program Conditions]

Direct, Rebuttal and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania PUC, Petition of PECO Energy Company for Approval of its Revised Electric Purchase of Receivables Program, Docket No. P-2009-2143607 (February and March 2010) [Purchase of Receivables Program Conditions]

Alexander, Barbara, "Dynamic Pricing? Not So Fast. A Residential Consumer Perspective," The Electricity Journal (July 2010) (<http://dx.doi.org/10.1016/j.tej.2010.05.014>) [Opposition to Mandatory Time-Based Pricing for residential customers]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania PUC, Joint Application of West Penn Power Company doing business as Allegheny Power Company, Trans-Allegheny Interstate Line Company and FirstEnergy Corporation for a Certificate of Public Convenience Under Section 1102(A)(3) of the Public Utility Code Approving a Change of Control of West Penn Power Company and Trans-Allegheny Interstate Line Company, Docket Nos. A-2010-2176520 and A-2010-2176732 (August, September and October 2010) [Service Quality, Customer Service, and Universal Service Program Conditions]

Direct Testimony on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania PUC, Petition of T.W. Phillips Gas and Oil Co. for Approval of Purchase of Receivables Program, Docket No. P-2009-2099192 (August 2010) [Purchase of Receivables Program Conditions]

Direct Testimony on behalf of AARP, before the Maryland PSC, Application of Baltimore Gas and Electric Company for Authorization to Deploy a Smart Grid Initiative and to Establish a Tracker Mechanism and For the Recovery of Costs, [Petition for Rehearing] Case No. 9208 (August 2010) [Smart Meter Costs and Benefits; Consumer Protections]

Alexander, Barbara, Who Owns And Can Monetize The Greenhouse Gas Emission Reductions That Result From the DOE Low-Income Weatherization Assistance Program? Prepared under contract with Oak Ridge National Laboratory UT-Battelle, LLC, Purchase Order No. 4000091296 (September 2010)

Direct Testimony on behalf of Consumer Advocate Division before the Public Service Commission of West Virginia, Monongahela Power Co. and the Potomac Edison Co., both doing business as Allegheny Power Co., and FirstEnergy Corp. and Trans-Allegheny Interstate Line, Case No. 10-0713-E-PC (October 14, 2010) [Merger: Service Quality, Customer Service, and Universal Service Program Conditions]

Rebuttal Testimony on behalf of the Office of People's Counsel, before the Maryland Public Service Commission, In the Matter of the Merger of FirstEnergy Corp. and Allegheny Energy, Case No. 9233 (October 22, 2010) [Default Service Policies]

Direct Testimony on behalf of Consumer Advocate Division before the Public Service Commission of West Virginia, Appalachian Power Co. and Wheeling Power Co., Case No. 10-0699-E-42T (November 10, 2010) [Base Rate Case: reforms to ameliorate rate impacts on low income customers; remote disconnection tariff proposal]

Direct and Rebuttal Testimony on behalf of AARP, before the Illinois Commerce Commission, Commonwealth Edison Co. Petition for Approval of an Alternative Rate Regulation Plan, Docket No. 10-0257 (November and December 2010) [Analysis of consumer protections and risks in alternative rate plan]

Rebuttal Testimony on behalf of the Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Pennsylvania PUC v. Peoples Natural Gas Co., LLC 2010 Base Rate Proceeding, Docket No. R-20102201702 (February 23, 2011) [Purchase of Receivables program]

Expert Report of Barbara Alexander on Behalf of Plaintiffs, Benjamin Berger, individually and on behalf of all other similarly situated and the general public, vs. The Home Depot USA, Inc, U.S. District Court, Central District of California, Western Division, Case SACV 10-678 SJO (PLAX), March 1, 2011 (Negative Option Sales Method for “tool rental protection”)

Direct Testimony on behalf of the Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Joint Application for all the Authority and the Necessary Certificates of Public Convenience to Transfer All of the Issued and Outstanding Shares of Capital Stock of T.W. Phillips Gas and Oil Co., currently owned by TWP, Inc., to LDC Holdings II LLC, an indirect Subsidiary of SteelRiver Infrastructure Fund North America LP, and to Approve the Resulting Change in Control of T.W. Phillips Gas and Oil Co., Docket No. A-2010-2210326 (March 31, 2011) [Service Quality, Customer Service, and Universal Service Program Conditions]

Comments on behalf of AARP before the Public Service Commission of the District of Columbia, Pepco’s Proposed AMI Consumer Education Plan, Formal Case No. 1056 (March 30, 2011)

Comments on behalf of AARP before the Public Service Commission of the District of Columbia, Notice of Proposed Rulemaking, Reliability of Service, Formal Case No. 766, 982, 991, and 1002 (April 11, 2011) [Restoration of Service for Major Outage Events]

Direct and Rebuttal testimony on behalf of the Attorney General of Arkansas before the Arkansas Public Service Commission, In The Matter Of The Application Of Oklahoma Gas And Electric Company For Approval Of The Deployment Of Smart Grid Technology In Arkansas And Authorization Of A Recovery Rider And Regulatory Asset, Docket No. 10-109-U (May and June 2011) (Smart Grid costs and benefits; cost recovery; conditions)

Alexander, Barbara, “Retail Electric Competition: Default Service Policies and Residential Customer Migration,” Report to AARP (May 2011).

Direct Testimony on behalf of AARP before the Maryland Public Service Commission, In the Matter of Potomac Electric Power Co and Delmarva Power and Light Co. Request for the Deployment of Advanced Meter Infrastructure, Case No. 9207 (June 16, 2011) (Analysis of amended AMI business case; costs and benefits; conditions)

Direct and Reply Comments on behalf of Citizens Utility Board of Oregon before the Public Utility Commission of Oregon, Docket No. UM 1415 (September and October 2011) (Rate Design; time-varying rates)

Alexander Barbara, “The Status of AMI and Dynamic Pricing Programs In Georgia, Alabama, Arkansas, Florida, Louisiana, And Mississippi,” Report for AARP (October 2011).

Direct Testimony on behalf of AARP before the Oklahoma Corporation Commission, In The Matter Of The Application of Oklahoma Gas And Electric Company, For An Order Of The Commission Authorizing Applicant To Modify Its Rates, Charges, And Tariffs For Retail Electric Service In Oklahoma, Cause No. PUD 201100087 (November 9, 2011 and November 16, 2011) (revenue requirement and rate design)

Comments on behalf of AARP before the Maryland Public Service Commission, Proposed Revisions to Reliability and Customer Service Regulations, RM 43 (November 16, 2011) (reliability performance standards and customer call center standards)

Direct Testimony on behalf of AARP before the Public Service Commission of the District of Columbia, In the Matter of The Application for Potomac Electric Power Co. for Authority to Increase Existing Retail Rates and Charges for Electric

Distribution Service, Formal Case No. 1087 (December 14, 2011) (AMI cost recovery, Reliability Infrastructure Mechanism surcharge, customer care costs)

Direct Testimony on behalf of AARP and the People of the State of Illinois before the Illinois Commerce Commission, Commonwealth Edison Company, Approval of Multi-Year Performance Metrics Pursuant to Section 16-108(f) and (f-5) of the Public Utilities Act, Docket No. 11-0772 (January 30, 2012) (Performance Metrics relating to AMI deployment; remote disconnection of service)

Direct, Rebuttal, and Surrebuttal Testimony on behalf of Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, West Penn Power Company, Approval of Default Service Programs, Docket Nos. P-2011-2273650, et al. (February, March and April 2012) (Retail Opt-in Auction, Customer Referral Programs)

Direct Testimony on behalf of the Massachusetts Office of the Attorney General before the Massachusetts Department of Public Utilities, Western Massachusetts Electric Co. 2011 Winter Storm Investigation, Docket No. D.P.U. 11-119-C (March 9, 2012) (Analysis of communications with customers and state and local officials in storm restoration)

Direct Testimony on behalf of AARP and the People of the State of Illinois before the Illinois Commerce Commission, Ameren Utilities, Approval of Multi-Year Performance Metrics Pursuant to Section 16-108(f) and (f-5) of the Public Utilities Act, Docket No. 12-0089 (March 19, 2012) (Performance Metrics for AMI Deployment; remote disconnection of service)

Direct and Rebuttal Testimony on behalf of the Massachusetts Office of the Attorney General before the Massachusetts Department of Public Utilities, National Grid 2012 Smart Grid Pilot Proposal, Docket No. D.P.U. 11-129 (April and May 2012) [Analysis of proposed smart meter and dynamic pricing pilot proposal]

Comments on behalf of AARP before the Maryland Public Service Commission, Dynamic Pricing Implementation Working Group Report, Case Nos. 9207 and 9208 (May 14, 2012) [Design and implementation of Peak Time Rebate programs for Pepco and BGE]

Comments on behalf of AARP before the Public Service Commission of the District of Columbia, Notice of Proposed Rulemaking, Major Event Outage Restoration Plans, Formal Case No. 766, 982, 991, and 1002 (May 29, 2012) [Regulatory reporting requirements for major event outage restoration plans]

Direct Testimony on behalf of The Utility Reform Network (TURN) before the Public Utilities Commission of the State of California, In the Matter of the Application of Pacific Gas and Electric Company Smart Grid Pilot Deployment Project, Application 11-11-017 (May 16, 2012) [Analysis of proposed customer education pilot]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of PECO Energy Co. for Approval of its Default Service Program, Docket No. P-2012-2283641 (April and May 2012) [Retail Opt-In Auction and Customer Referral Programs]

Direct and Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Equitable Gas Co. Request for Approval of Tariffs, Docket Nos. R-2012-2304727, R-2012-2304731, and R-2012-2304735 (July 25, 2012) [Purchase of Receivables Program]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of PPL Electric Utilities, Inc. for Approval of a Default Service Program and Procurement Plan for the Period June 1, 2013 through May 31, 2015, Docket No. P-2012-2302074 (July and August 2012) [Retail Opt-In Auction and Customer Referral Programs]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of Duquesne Light Co. for Approval of Default Service Plan for the Period

June 1, 2013 through May 31, 2015, Docket No. P-2012-2301664 (July, August, and September 2012) [Retail Opt-In Auction and Customer Referral Programs]

Affidavit and Expert Report on behalf of Plaintiffs, *Bellermann v. Fitchburg Gas & Electric Co.*, Commonwealth of Massachusetts, Civil Action No. 09-00023 (August 23, 2012) [Analysis of utility storm restoration response]

Direct Testimony on behalf of the Public Utility Law Project (New York) before the New York State Public Service Commission, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation For Electric and Gas Service, Case No. 12-E-0201 and 12-G-0202 (August 31, 2012) [Rate case: low income programs, credit and collection policies, service quality]

Comments on behalf of AARP before the Maryland Public Service Commission, In the Matter of the Electric Service Interruptions in the State of Maryland due to the June 29, 2012 Derecho Storm, Case No. 9298 (September 10, 2012) [Analysis of customer communications in major storm restoration for Pepco and BGE]

Comments on behalf of the Ohio Partners for Affordable Energy before the Ohio Public Utility Commission, In the Matter of the Commission's Review of its Rules for Competitive Retail Natural Gas Service, Case No. 12-925-GA-ORD, and In the Matter of the Commission's Review of its Rules for Competitive Retail Electric Service, Case No. 12-1924-EL-ORD (January 2013) [retail market regulations, consumer protections, licensing, disclosures]

Direct and Cross Rebuttal Testimony on behalf of Texas Legal Services Center and Texas Ratepayers' Organization to Save Energy before the Public Utility Commission of Texas, Petition by Homeowners United for Rate Fairness to Review Austin Rate Ordinance No. 20120607-055, PUC Docket No. 40627 (February 2013) [low income programs]

Testimony on behalf of AARP before the Connecticut Senate Finance Revenue and Bonding Committee in opposition to proposal for auction of electric customers to retail suppliers, SB 843 (March 4, 2013)

Comments and Reply Comments on behalf of AARP before the Ohio Public Utility Commission, In the Matter of the Commission's Investigation of the Retail Electric Service Market, Case No. 12-3151-EL-COI (March and April 2013) [retail market reforms, default service, and consumer protections]

Direct Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of UGI Utilities, Inc.—Electric Division for Approval of a Default Service Plan and Retail Market Enhancement Programs for 2014-2017, Docket Nos. P-2013-235703 (June 2013) [Retail Market Enhancement programs; referral program]

Direct Testimony on behalf of the Government of the District of Columbia before the District of Columbia Public Service Commission, In the Matter of the Application of the Potomac Electric Power Co. for Authority to Increase Existing Retail Rates and Charges for Electric Distribution Service, Formal Case No. 1103 (August 2013) [low income discount program]

Comments and Reply Comments on behalf of AARP before the Arizona Corporation Commission, Generic, In The Matter of The Commission's Inquiry Into Retail Electric Competition, Docket No. E-00000W-13-0135 (July and August 2013) [implementation of retail electric competition]

Comments on behalf of AARP before the Delaware Public Service Commission, Rulemaking for Retail Electric Competition, PSC Regulation Docket No. 49 (September 2013) [consumer protection regulations for retail electric competition]

Direct Testimony on behalf of AARP before the New Jersey Board of Public Service, In the Matter of the Petition of Public Service Electric and Gas Co. for Approval of the Energy Strong Program, Docket No. EO13020155 and GO13020156 (October 2013) [reliability programs; cost recovery mechanism]

Direct Testimony on behalf of Canadian Office and Professional Employee's Union, Local 378, before the British Columbia Utilities Commission, Re: Fortis BC Energy, Inc. Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018, Project No. 3698719 (December 2013) [Service Quality Index]

Direct Testimony on behalf of Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of PPL Electric Corp. for Approval of a New Pilot Time-of-Use Program, Docket No. P-2013-2389572 (January 2014) [Design of pilot TOU program; bid out to competitive energy supplier]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of FirstEnergy Companies (Met-Ed, Penelec, Penn Power, and West Penn) for Approval of a Default Service Programs, Docket Nos. P-2013-2391368, et al. (January-March 2014) [Retail market enhancement programs, referral program]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of PPL Electric Utilities for Approval of a Default Service Program and Procurement Plan for June 2013-May 2015, Docket No. P-2013-2389572 (January-May 2014) [Retail market enhancement programs, referral program]

Direct and Rebuttal Testimony on behalf of AARP before the Corporation Commission of Oklahoma, Application of Public Service Company of Oklahoma for Adjustment to Rates and Charges and Terms and Conditions of Service for Electric Service in the State of Oklahoma, Cause No. PUD-201300217 (March and May 2014) [AMI cost/benefit analysis and cost recovery; riders and surcharges; customer charge; low income program]

Direct and Reply Testimony on behalf of the District of Columbia Government through its Department of Environment before the Public Service Commission of the District of Columbia, In the Matter into the Investigation into the Issues Regarding the Implementation of Dynamic Pricing in the District of Columbia, Formal Case No. 1114 (April and May 2014) [Dynamic pricing policies and programs for residential customers]

Comments on behalf of AARP before the Delaware Public Service Commission, Rulemaking for Retail Electric Competition, PSC Regulation Docket No. 49 (Revised) (June 2, 2014) [consumer protection regulations for retail electric competition]

Direct and Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of Duquesne Light Company for Approval of Default Service Plan For the Period June 1, 2015 through May 31, 2017, Docket No. P-2014-2418242 (July and August 2014) [retail market enhancement programs, referral program]

Direct and Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of PECO Energy Co. for Approval of its Default Service Plan for the Period June 1, 2015 through May 31, 2017, Docket No. P-2014-2409362 (June 2014) [retail market enhancement programs, referral program]

Alexander, Barbara, "An Analysis of State Renewable Energy and Distributed Generation Mandates on Low Income Consumers: Recommendations for Reform" (Oak Ridge National Laboratory, DOE, September 2014)

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Pennsylvania PUC v. West Penn Power, Metropolitan Edison, Penn Power, and Penelec, Dockets Nos. R-2014-2428742-24287245 (November 2014 and January 2015) [FirstEnergy rate cases: customer service; reliability of service; estimated billing protocols; proposed Storm Damage Expense Rider; tariff revisions]

Comments on behalf of Delaware Division of the Public Advocate before the Delaware Public Service Commission, Rulemaking for Retail Electric Competition, PSC Regulation Docket No. 49 (Revised) (January 2015) [consumer protection regulations for retail electric competition]

Reply Testimony of Barbara Alexander before the Public Service Commission of Maryland, In the Matter of the Investigation into the Marketing, Advertising and Trade Practices of Major Energy Electric Services, LLC and Major Energy Services, LLC, Case No. 9346(b) (March 2015) [unfair and deceptive practices; compliance with MD statutes and regulations for electric generation supplier]

Reply Testimony of Barbara Alexander before the Public Service Commission of Maryland, In the Matter of the Investigation into the Marketing, Advertising and Trade Practices of XOOM Energy Maryland LLC, Case No. 9346(a) (March 2015) [unfair and deceptive practices; compliance with MD statutes and regulations for electric generation supplier]

Direct, Surrebuttal and Supplemental Surrebutal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Commonwealth of Pennsylvania by Attorney General Kathleen Kate, through the Bureau of Consumer Protection and Tanya McCloskey, Acting Consumer Advocate v. Respond Power, Docket No. C-2014-2427659 (May-October 2015) [unfair and deceptive practices; compliance with PA statutes and regulations for electric generation supplier]

Direct Testimony of Barbara Alexander before the Pennsylvania Public Utility Commission, on behalf of the Pennsylvania Office of Consumer Advocate and Bureau of Consumer Protection, Attorney General, Commonwealth of Pennsylvania by Attorney General Kathleen Kate, through the Bureau of Consumer Protection and Tanya McCloskey, Acting Consumer Advocate v. IDT Energy, Inc., Docket No. C-2014-2427657 (April 2015) [unfair and deceptive practices; compliance with PA statutes and regulations for electric generation supplier]

Affidavit of Barbara Alexander before the Pennsylvania Public Utility Commission, on behalf of the Pennsylvania Office of Consumer Advocate and Bureau of Consumer Protection, Attorney General, Commonwealth of Pennsylvania by Attorney General Kathleen Kate, through the Bureau of Consumer Protection and Tanya McCloskey, Acting Consumer Advocate v. Blue Pilot Energy, LLC, Docket No. C-2014- 2427655 (June 2015) [unfair and deceptive practices; compliance with PA statutes and regulations for electric generation supplier]

Direct Testimony of Barbara Alexander before the Pennsylvania Public Utility Commission, on behalf of the Pennsylvania Office of Consumer Advocate and Bureau of Consumer Protection, Attorney General, Commonwealth of Pennsylvania by Attorney General Kathleen Kate, through the Bureau of Consumer Protection and Tanya McCloskey, Acting Consumer Advocate v. Blue Pilot Energy, LLC, Docket No. C-2014- 2427655 (September 2015) [unfair and deceptive practices; compliance with PA statutes and regulations for electric generation supplier]

Reply Testimony of Barbara Alexander before the Public Service Commission of Maryland, In the Matter of the Investigation into the Marketing, Advertising and Trade Practices of Blue Pilot Energy, Case No. 9346(c) (July 31, 2015) [unfair and deceptive practices; compliance with MD statutes and regulations for electric generation supplier]

Direct Testimony of Barbara Alexander before the Washington Utilities and Transportation Commission, on behalf of Public Counsel and the Energy Project, WUTC v. Avista Utilities, Dockets UE-150204 and UG-150205, (July 2015) [Analysis of request for smart meter (AMI) deployment and business case.]

Direct, Rebuttal, and Surrebuttal Testimony of Barbara Alexander before the Pennsylvania Public Utility Commission on behalf of the Office of Consumer Advocate, Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Co., Pennsylvania Power Co., and West Penn Power Co. [FirstEnergy] for Approval of their Default Service Program and Procurement Plan for the Period June 1,2017 through May 31, 2019, Docket Nos. P-2015-2511333, et. al. (January-February 2016) [Retail Market Enhancement Programs: standard offer program and shopping for low income customers]

Alexander, Barbara and Briesemeister, Janee, Solar Power on the Roof and in the Neighborhood: Recommendations for Consumer Protection Policies (March 2016).

Direct, Rebuttal, and Surrebuttal Testimony of Barbara Alexander before the Pennsylvania Public Utility Commission on behalf of the Office of Consumer Advocate, Petition of PPL Electric Utilities Corp. for Approval of a Default Service

Program and Procurement Plan for the Period June 1, 2017 through May 31, 2021, Docket No. P-2015-2526627 (April-May 2016) [Retail Market Enhancement Programs: standard offer program and shopping for low income customers]

Direct, Rebuttal, and Surrebuttal Testimony of Barbara Alexander before the Pennsylvania Public Utility Commission on behalf of the Office of Consumer Advocate, Petition of PECO Energy Co. for Approval of its Default Service Program for the Period from June 1, 2017 through May 31, 2019, Docket No. P-2016-2534980 (June-July 2016) [Retail Market Enhancement Programs: standard offer program and shopping for low income customers]

Direct, Rebuttal Testimony of Barbara Alexander before the Pennsylvania Public Utility Commission on behalf of the Office of Consumer Advocate, Petition of Duquesne Light Co. for Approval of Default Service Plan for the Period June 1, 2017 through May 31, 2021, Docket No. P-2016-2543140 (July-August 2016) [Retail Market Enhancement Programs: standard offer program and shopping for low income customers]

Briesemeister, Janee and Alexander, Barbara, Residential Consumers and the Electric Utility of the Future, American Public Power Association (June 2016)

Direct Testimony of Barbara Alexander before the Washington Utilities and Transportation Commission on behalf of the Public Counsel and The Energy Project, Washington UTC v. Avista Corp. d/b/a Avista Utilities, Dockets UE-160228 and UG-160229 (August 2016) [Base Rate Case and AMI Project analysis of costs and benefits]

Alexander, Barbara, *Analysis of Public Service Co. of Colorado's "Our Energy Future" Initiative: Consumer Concerns and Recommendations*, AARP White Paper (December 2016), attached to the Direct Testimony of Corey Skluzak on behalf of the Colorado Office of Consumer Counsel, Docket No. 16A-0588E (Exhibit CWS-35).

Direct Testimony of Barbara Alexander before the Public Utilities Commission of Ohio on behalf of the Office of Consumer Counsel, In the Matter of the Application of Ohio Power Co. for Authority to Establish a Standard Service Offer Pursuant to R.C. 4928.143, in the Form of an Electric Security Plan, Case No. 16-1852-EL-SSO (May 2017) [Response to proposal for new surcharge for certain distribution grid investments]

Alexander, Barbara, Analysis and Evaluation of PEPCO's Root-Cause Analysis Report: District of Columbia Customer Satisfaction, prepared for the District of Columbia Office of People's Counsel and submitted to the D.C. Public Service Commission in Formal Case No. 1119 (May 2017)

Direct Testimony of Barbara Alexander before the Arkansas Public Service Commission on behalf of the Attorney General of Arkansas, Application of Entergy Arkansas, Inc. for an Order to find Advanced Metering Infrastructure to be in the Public Interest, Docket No. 16-06-U (June 2017) [Analysis of AMI business case; consumer protection policies]

Rebuttal Testimony of Barbara Alexander before the Pennsylvania Public Utilities Commission on behalf of the Office of Consumer Advocate, Pennsylvania PUC, et al., v. Philadelphia Gas Works, Docket No. R-2017-2586783 (June 2017) [Purchase of Receivables Program, customer shopping issues]

Direct and Surrebuttal Testimony of Barbara Alexander before the Maryland Public Service Commission on behalf of the Office of People's Counsel, In the Matter of the Application of Potomac Electric Power Co. for Adjustments to its Retail Rates for the Distribution of Electric Energy, Case No. 9443 (June and August 2017) [Service Quality and Reliability of Service]

Direct Testimony of Barbara Alexander before the Washington Utilities and Transportation Commission, on behalf of the Washington State Office of Attorney General, Public Counsel Unit, W.U.T.C. v. Puget Sound Energy, Dockets UE-170033 and UG_170034 (June 2017) [Base Rate Case: Service Quality Index; customer services]

Direct and Surrebuttal Testimony of Barbara Alexander before the Maryland Public Service Commission on behalf of the Office of Peoples Counsel, In the Matter of the Merger of AltaGas Ltd. And WGL Holdings, Inc., Case No. 9449 (August and September 2017) [Merger: conditions for service quality and reliability of service]

Supplemental Testimony in Opposition to Joint Stipulation and Recommendations of Barbara Alexander before the Public Utilities Commission of Ohio on behalf of the Office of Consumer Counsel, In the Matter of the Application of Ohio Power Co. for Authority to Establish a Standard Service Offer Pursuant to R.C. 4928.143, in the Form of an Electric Security Plan, Case No. 16-1852-EL-SSO (October 11, 2017) [Response to Stipulation approving new surcharge for certain distribution grid investments]

Direct and Rebuttal Testimony of Barbara Alexander on behalf of The Public Utility Project of New York, before the New York Public Service Commission, Case 15-M-0127 In the Matter of Eligibility Criteria for Energy Service Companies, Case 12-M-0476 Proceeding on Motion of the Commission to Assess Certain Aspects of the Residential and Small Non-residential Retail Energy Markets in New York State, and Case 98-M-1343 In the Matter of Retail Access Business Rules (November and December 2017) [Analysis of New York retail energy market for residential customers; recommendations for reform]

Comments of Barbara Alexander before the Delaware Public Service Commission, on behalf of the Delaware Division of the Public Advocate, In the Matter of the Review of Customer Choice in the State of Delaware, Docket No. 15-1693 (December 22, 2017) [Proposals for retail market enhancement programs]

Alexander, Barbara, Analysis and Evaluation of PEPCO's Supplemental Root-Cause Analysis Report: District of Columbia Customer Satisfaction prepared for the District of Columbia Office of People's Counsel and submitted to the D.C. Public Service Commission in Formal Case No. 1119 (January 2018)

Direct, Rebuttal, and Surrebuttal Testimony of Barbara Alexander on behalf of the Office of Consumer Advocate, before the Pennsylvania Utility Commission, Joint Petition of Metropolitan Edison Company Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company For Approval of their Default Service Program and Procurement Plan for the Period June 1, 2019 Through May 31, 2023, Docket Nos. P-2017-2637855, et seq. (February, March, and April 2018) [Retail Market Enhancement Programs in a default service proceeding]

Direct Testimony of Barbara Alexander on behalf of the Arizona Corporation Commission Staff, before the Arizona Corporation Commission, In the Matter of the Application of Brooke Water, LCC for increase in water rates, Docket No. W-03039A-17-0295 (May 15, 2018) [Analysis of customer service, call center performance, and compliance with prior Commission orders]

Alexander, Barbara, "Residential Demand Charges: A Consumer Perspective," EUCI Conference, Nashville, TN (May 2018)

Direct Testimony of Barbara Alexander in Opposition to the Joint Stipulation and Recommendation on behalf of the Office of the Ohio Consumers' Counsel, before the Public Utility Commission of Ohio, Case No. 17-0032-EL-AIR et seq. (June 15, 2018) [Analysis of the prudence of Duke Energy Ohio's Advanced Metering Infrastructure Deployment and request for inclusion of costs in rate base]

Alexander, Barbara, "Time to End the Retail Energy Market Experiment for Residential Customers," Harvard Electricity Policy Group (June 2018)

Rebuttal Testimony of Barbara Alexander on behalf of the Office of Consumer Advocate, before the Pennsylvania Public Utility Commission, PUC v. Columbia Gas of Pennsylvania, Inc., Docket No. R-2018-2647577 (July 3, 2018) [Analysis of gas utility billing policies for non-commodity services and retail natural gas suppliers]

Direct Testimony of Barbara Alexander on behalf of TURN and Center for Accessible Technology before the California Public Utility Commission, 2018 Rate Design Window, Docket No. A.17-12-011, et al. (October 26, 2018) [Consumer Protections to Accompany the Transition to Default Time of Use Rates for residential customers; analysis of customer education and messaging]

Direct and Surrebuttal Testimony of Barbara Alexander on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Utility Commission, PUC vs. Pittsburgh Water and Sewer Authority, Docket Nos. R-2018-3002645, R-2018-3002647 (September and October 2018) [Analysis of compliance with Pennsylvania consumer protection and service quality performance of a large water and sewer utility; base rate case]

Direct Testimony of Barbara Alexander on behalf of TURN before the California Public Utility Commission, Southern California Edison Charge Ready 2 Infrastructure and Market Education Programs, Docket No. A.18-06-015 (November 30, 2018) [Analysis of proposed mass market customer education proposal]

Direct, Surrebuttal and Supplemental Surrebuttal Testimony of Barbara Alexander on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Implementation of Chapter 32 of The Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 1, Docket Nos. M-2018-2640802 and M-2018-2640803 (April, May and August 2019) [Analysis of consumer protection, customer service, and customer education programs of large water and wastewater utility]

Direct, Rebuttal, and Surrebuttal Testimony of Barbara Alexander on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Application of Aqua America, Inc., Aqua Pennsylvania, Inc., Aqua Pennsylvania Wastewater, Inc., Peoples Natural Gas Company, LLC and Peoples Gas Company, LLC for all of the Authority and the Necessary Certificates of Public Convenience to Approve a Change in Control of Peoples Natural Gas Company, LLC and Peoples Gas Company LLC by Way of the Purchase of All of LDC Funding, LLC's Membership Interests by Aqua America, Inc., Docket Nos. A-2018-3006061, A-2018-3006062, and A-2018-3006063 (April and May 2019) [Customer Service, Consumer Protection, and Universal Service conditions for merger]

Testimony in Opposition to Settlement on behalf of The Office of the Ohio Consumers' Council, before the Ohio Public Utilities Commission, In the Matter of the Commission's Investigation of PALMco Power OH, LLC dba Indra Energy and PALMco Energy OH, LLC dba Indra Energy, Case No. 19-957-GE-COI (September 4, 2019) [Analysis of proposed settlement for consumer protections and customer remedies]

Testimony in Opposition to Settlement on behalf of The Office of the Ohio Consumers' Council, before the Ohio Public Utilities Commission, In the Matter of the Commission's Investigation of Verde Energy USA Ohio LLC, Case No. 19-0958-GE-COI (October 2, 2019) [Analysis of proposed settlement for consumer protections and customer remedies]

Direct Testimony and Supplemental Direct Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Joint Petition of Metropolitan Edison Co., Pennsylvania Electric Co., Pennsylvania Power Co. and West Penn Power Co. for Approval of Their Involuntary Remote Disconnect Procedures, Docket No. P-2019-3013979 et al. (March 20, 2020 and July 15, 2022) [Criteria for remote disconnection of service with AMI]

Rebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Interstate Gas Supply, Inc., Direct Energy Services LLC and Shipley Choice LLC v. Metropolitan Edison Co., Pennsylvania Electric Co., Pennsylvania Power Co., West Penn Power Co., Docket Nos. C-2019-30138-5 et al. (May 2020) [Complaint by retail suppliers seeking to bill non-basic services on utility bill]

Alexander, Barbara, "An Evaluation of Arizona Public Service Company's Customer Education Plan and its Implementation," prepared on behalf of the Staff of the Arizona Corporation Commission, Docket Nos. E-01345A-19-0236 and E-01345A-19-0003 (May 15, 2020)

Direct and Supplemental Testimony, Rebuttal Testimony, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of PPL Electric Utilities Corporation for Approval of a Default Service Program for the Period of June 1, 2021 through May 31, 2025, Docket No. P-2020-3019356 (June-August 2020) [Standard Offer Program and low income shopping program for retail market programs]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of PECO Energy for Approval of Default Service Program for the Period June 1, 2021 through May 31, 2025, Docket No. P-2020-3019290 (June-July 2020),) [Standard Offer Program and low income shopping program for retail market programs]

Direct, Rebuttal, and Surrebuttal Testimony, on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Petition of Duquesne Light Co. for Approval of Default Service Program for the Period June 1, 2021 through May 31, 2025, Docket No. P-2020-3019522 (July-September 2020), [Standard Offer Program and low income shopping program for retail market programs]

Direct and Surrebuttal Testimony, on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2020-3017951 (water), C-2020-3019348, R-2020-3017970 (wastewater), C-2020-3019349 (July-September 2020) [Base rate case; analysis of customer service and consumer protection programs and policies]

Affidavit of Barbara R. Alexander, Analysis of Washington Gas Light Co. Root Cause Analysis Report, on behalf of the Office of the People’s Counsel of the District of Columbia, submitted to the Public Service Commission in Formal Case No. 1142 (October 2020).

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Pennsylvania Public Utility Commission v. Pennsylvania American Water Co, Docket R-2020-3019369, et al., (September-October 2020) [Base rate case; analysis of customer service and consumer protection programs and policies]

Direct and Surrebuttal Testimony, on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2021-3024773, et al. (July-September 2021) [Base rate case; analysis of customer service and consumer protection programs and policies]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc, Docket Nos. R-2021-3027385 et al. (November-December 2021) [Base rate case; analysis of customer service and consumer protection programs and policies]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Joint Petition of Metropolitan Edison Co., Pennsylvania Electric Co., Pennsylvania Power Co. and West Penn Power Co. for Approval of their Default Service Programs, Docket Nos. P-2021-3030012 et al. (February, March, and April 2022) [Standard Offer program; retail market policies; Time of Use rate option; low income consumer protections]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Pennsylvania American Water Co., Docket Nos. R-2022-3031672, et al (July and September 2022) [Base rate case: analysis of customer service and consumer protection performance]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, York Water Company base rate increase, Docket Nos. R-2022-3031340, R-2022-3032806 (August and September 2022) [Base rate case: analysis of customer service and consumer protection performance]

Direct, Rebuttal and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission, Columbia Gas of Pennsylvania Proposal for Green Path Tariff, Docket Nos. R-2022-3032167 and C-2022-3032404 (December 2022 and January and February 2023) [Proposal to offer an optional “green” product to residential customers with Renewable Natural Gas and Carbon Offsets]

Direct, Rebuttal, and Surrebuttal Testimony on behalf of AARP Maine before the Maine Public Utilities Commission, Central Maine Power Company Request for Distribution Rate Increase and Rate Design Changes, Docket No. 2022-00152 (December 2022, March and April 2023) [Rate impacts; multi-year rate plan; rate design]

Direct and Surrebuttal Testimony on behalf of AARP Maine before the Maine Public Utilities Commission, Versant Power Request for Approval of Rate Change, Docket No. 2022-00255 (January and April 2023) [Rate impacts, AMI costs and benefits]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utilities Commission, Application of Manwalamink Water and Sewer and NextEra Water Pennsylvania, Docket Nos. A-2022-3035298, et al. (January and March 2023) [consumer protection; service quality; acquisition of small water and sewer utility]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utilities Commission, National Fuel Gas Distribution Corp. Base Rate Case, Docket No. R-2022-3035730 (January and March 2023) [analysis of consumer protection and service quality performance in base rate case]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utilities Commission, Philadelphia Gas Works Base Rate Case, Docket No. R-2023-3037933 (May and July 2023) [analysis of consumer protection and service quality performance in base rate case]

Direct and Surrebuttal Testimony on behalf of the Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utilities Commission, FirstEnergy Pennsylvania Electric Distribution Companies Application for Merger, Docket No. A-2023-3038771 et.al (June and August 2023) [analysis of implication of proposed merger for customer service performance and low income programs]

Presentations and Training Programs:

- Presentation on Consumer Protection Policies for Solar Providers, New Mexico Public Regulatory Commission, Santa Fe, NM, January 2017
- Presentation on Residential Rate Design Policies, National Energy Affordability and Energy Conference, Denver, CO., June 2016
- Presentation on “Regulatory-Market Arbitrage: From Rate Base to Market and Back Again,” before the Harvard Electricity Policy Group, Washington, D.C., March 2016.
- Presentation on Residential Rate Design and Demand Charges, NASUCA, November 2015.
- Alexander, Barbara, “Residential Demand Charges: A Consumer Perspective,” presentation for Harvard Electricity Policy Group, Washington, D.C., June 2015.
- Presentation on “Future Utility Models: A Consumer Perspective,” for Kleinman Center for Energy Policy, U. of Pennsylvania, August 2015.
- Presentation, EUCI Workshop on Demand Rates for Residential Customers, Denver, CO [May 2015]
- Presentation, Smart Grid Future, Brookings Institute, Washington, DC [July 2010]
- Participant, Fair Pricing Conference, Rutgers Business School, New Jersey [April 2010]
- Presentation on Smart Metering, National Regulatory Conference, Williamsburg, VA [May 2010]
- Presentation on Smart Metering, Energy Bar Association Annual Meeting, Washington, DC [November 2009]
- Presentation at Workshop on Smart Grid policies, California PUC [July 2009]
- National Energy Affordability and Energy Conference (NEAUC) Annual Conference
- NARUC annual and regional meetings
- NASUCA annual and regional meetings
- National Community Action Foundation’s Annual Energy and Community Economic Development Partnerships Conference
- Testimony and Presentations to State Legislatures: Virginia, New Jersey, Texas, Kentucky, Illinois, and Maine

- Training Programs for State Regulatory Commissions: Pennsylvania, Georgia, Kentucky, Illinois, New Jersey
- DOE-NARUC National Electricity Forum
- AIC Conference on Reliability of Electric Service
- Institute of Public Utilities, MSU (Camp NARUC) [Instructor 1996-2006]
- Training Programs on customer service and service quality regulation for international regulators (India and Brazil) on behalf of Regulatory Assistance Project
- Georgia Natural Gas Deregulation Task Force [December 2001]
- Mid Atlantic Assoc. of Regulatory Utility Commissioners [July 2003]
- Illinois Commerce Commission's Post 2006 Initiative [April 2004]
- Delaware Public Service Commission's Workshop on Standard Offer Service [August 2004]

Exhibit BA-2

Request: OCA-IV-2 Please provide the monthly and annual average results for the call center for the calendar year 2022 and 2023 to date:

- a. The wait time between when the customer selects the option to speak to a representative and the call being answered;
- b. Abandonment Rate
- c. Busy Out rate
- d. Percentage of calls answered within 30 seconds; 60 seconds; 90 seconds; more than 90 seconds.

Response:

a.

Queue Group Performance by Queue												
1 - All Queues												
1/1/2023 - 6/12/2023 - 00:00 - 24:00												
Created on 6/12/2023 4:56:40 PM by Tishlalones												
ACD queue	ACD queue name	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Average speed of answer (hh:mm:ss)	Average delay to abandon (hh:mm:ss)	Average delay to interflow (hh:mm:ss)	Average ACD handling time (hh:mm:ss)	Abandon %	Service level %	Answer %
P001	General	40,142	38,213	94	1,250	00:01:36	00:01:45	00:03:25	00:06:09	3.1%	73.5%	95.2%
P004	Dispatch	15,914	15,359	291	555	00:00:36	00:01:32	00:00:00	00:02:00	3.5%	93.9%	96.5%
P003	Billing and Metering	4,649	4,423	17	144	00:01:33	00:03:11	00:03:57	00:05:47	3.1%	73.8%	95.2%
P006	AMI 8920	7,481	4,234	104	35	00:00:08	00:00:13	00:00:13	00:04:09	0.5%	100.0%	56.6%
P002	Collections	4,004	3,756	10	97	00:01:42	00:02:39	00:03:38	00:06:41	2.4%	70.1%	93.8%
P005	AMI	2,374	2,339	5	35	00:00:41	00:01:32	00:00:00	00:04:04	1.5%	90.1%	98.5%
P008	Permits	988	847	11	34	00:00:15	00:00:18	00:00:56	00:02:30	3.4%	100.0%	85.7%
P009	Stormwater	711	664	5	29	00:01:37	00:03:01	00:04:27	00:07:44	4.1%	72.9%	93.4%
Totals		76,263	69,840	537	2,179	00:01:15	00:01:47	00:00:58	00:05:01	2.9%	81.1%	91.6%

2023 - Average speed to answer 1 min 15 seconds

Queue Group Performance by Queue														
1 - All Queues														
1/1/2022 - 12/31/2022 - 00:00 - 24:00														
Created on 6/12/2023 4:55:16 PM by Tishlalones														
ACD queue	ACD queue name	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Calls interflowed	Calls requested	Queue unavailable	Average speed of answer (hh:mm:ss)	Average delay to abandon (hh:mm:ss)	Average ACD handling time (hh:mm:ss)	Abandon %	Service level %	Answer %
P001	General	96,467	87,894	176	8,571	2	12,319	-	00:03:39	00:03:05	00:06:31	8.9%	60.9%	91.1%
P004	Dispatch	36,796	35,674	562	1,122	-	302	65	00:00:22	00:03:16	00:01:49	3.0%	96.4%	97.0%
P002	Collections	12,495	12,000	22	495	-	1,622	-	00:01:57	00:05:03	00:07:05	4.0%	70.8%	96.0%
P003	Billing and Metering	11,981	10,915	31	1,066	-	1,568	-	00:03:48	00:06:13	00:05:59	8.9%	57.5%	91.1%
P005	AMI	6,822	6,710	15	112	-	1,016	-	00:00:40	00:01:37	00:04:04	1.6%	90.1%	98.4%
P006	AMI 8920	7,837	4,528	117	41	3,268	-	636	00:00:08	00:00:11	00:04:19	0.5%	100.0%	57.8%
P009	Stormwater	3,179	2,733	9	446	-	426	-	00:02:24	00:04:09	00:07:24	14.0%	64.0%	86.0%
P008	Permits	3,039	2,667	40	103	269	496	-	00:00:15	00:00:26	00:02:34	3.4%	100.0%	87.8%
Totals		178,616	163,121	972	11,956	3,539	17,751	701	00:02:31	00:03:27	00:05:17	6.7%	72.2%	91.3%

2022 - Average speed to answer 2 min 31 seconds

- b. 2023
 - i. 76,263 Calls Offered
 - ii. 69,840 Calls Handled
 - iii.

Queue Group Performance by Queue												
1 - All Queues												
1/1/2023 - 6/12/2023 - 00:00 - 24:00												
Created on 6/12/2023 4:56:40 PM by TishiaJones												
ACD queue	ACD queue name	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Average speed of answer (hh:mm:ss)	Average delay to abandon (hh:mm:ss)	Average delay to interflow (hh:mm:ss)	Average ACD handling time (hh:mm:ss)	Abandon %	Service level %	Answer %
P001	General	40,142	38,213	94	1,250	00:01:36	00:01:45	00:03:25	00:06:09	3.1%	73.5%	95.2%
P004	Dispatch	15,914	15,359	291	555	00:00:36	00:01:32	00:00:00	00:02:00	3.5%	93.9%	96.5%
P003	Billing and Metering	4,649	4,428	17	144	00:01:33	00:03:11	00:03:57	00:05:47	3.1%	73.8%	95.2%
P006	AMI 8920	7,481	4,234	104	35	00:00:08	00:00:13	00:00:13	00:04:09	0.5%	100.0%	56.6%
P002	Collections	4,004	3,756	10	97	00:01:42	00:03:39	00:03:38	00:06:41	2.4%	70.1%	93.8%
P005	AMI	2,374	2,339	5	35	00:00:41	00:01:32	00:00:00	00:04:04	1.5%	90.1%	98.5%
P008	Permits	988	847	11	34	00:00:15	00:00:18	00:00:56	00:02:30	3.4%	100.0%	85.7%
P009	Stormwater	711	664	5	29	00:01:37	00:03:01	00:04:27	00:07:44	4.1%	72.9%	93.4%
Totals		76,263	69,840	537	2,179	00:01:15	00:01:47	00:00:58	00:05:01	2.9%	81.1%	91.6%

2.9% ABR from 01/01/23 - 06/12/23

2022

- i. 178,616 Calls Offered
- ii. 163,121 Calls Handled
- iii.

Queue Group Performance by Queue														
1 - All Queues														
1/1/2022 - 12/31/2022 - 00:00 - 24:00														
Created on 6/12/2023 4:55:16 PM by TishiaJones														
ACD queue	ACD queue name	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Calls interflowed	Calls requested	Queue unavailable	Average speed of answer (hh:mm:ss)	Average delay to abandon (hh:mm:ss)	Average ACD handling time (hh:mm:ss)	Abandon %	Service level %	Answer %
P001	General	96,467	87,894	176	8,571	2	12,319	-	00:03:39	00:03:05	00:06:31	8.9%	60.9%	91.1%
P004	Dispatch	36,796	35,674	562	1,122	-	302	65	00:00:22	00:03:16	00:01:49	3.0%	96.4%	97.0%
P002	Collections	12,495	12,000	22	495	-	1,622	-	00:01:57	00:05:03	00:07:05	4.0%	70.8%	96.0%
P003	Billing and Metering	11,981	10,915	31	1,066	-	1,568	-	00:03:48	00:06:13	00:05:59	8.9%	57.5%	91.1%
P005	AMI	6,822	6,710	15	112	-	1,018	-	00:00:40	00:01:37	00:04:04	1.6%	90.1%	98.4%
P006	AMI 8920	7,637	4,528	117	41	3,268	-	636	00:00:00	00:00:11	00:04:19	0.5%	100.0%	57.8%
P009	Stormwater	3,179	2,733	9	446	-	426	-	00:02:24	00:04:09	00:07:34	14.0%	64.0%	86.0%
P008	Permits	3,039	2,867	40	103	269	496	-	00:00:15	00:00:26	00:02:34	3.4%	100.0%	87.8%
Totals		178,616	163,121	972	11,556	3,539	17,751	701	00:02:31	00:03:27	00:05:17	6.7%	72.2%	91.3%

6.7% ABR from 01/01/22 - 12/31/22

- c. See PWSA Exhibit OCA-IV-2.c. Any call waiting for more than 20 seconds indicates that there are no available agents logged into the queue.

d. 2022

- i. 106,418 calls answered within 30 Seconds
- ii. 116,198 calls answered within 60 seconds
- iii. 127,513 calls answered within 120 seconds

Queue Group Answer Spectrum by Queue														
1 - All Queues														
1/1/2022 - 12/31/2022 - 00:00 - 24:00														
Created on 6/14/2023 12:50:40 PM by TishiaJones														
Reporting	Full name	% of contacts opened	Spectrum interval 5 30 seconds	% of contacts opened	Spectrum interval 6 40 seconds	% of contacts opened	Spectrum interval 7 60 seconds	% of contacts opened	Spectrum interval 8 90 seconds	% of contacts opened	Spectrum interval 9 120 seconds	% of contacts opened	> Spectrum interval 10 120 seconds	% of contacts opened
P001	General	43.0%	43,666	46.4%	46,565	49.5%	49,712	52.8%	52,996	55.7%	57,284	60.8%	36,862	39.2%
P004	Dispatch	91.9%	35,736	93.4%	36,054	94.30%	36,537	95.5%	36,888	96.4%	37,324	97.6%	927	2.4%
P002	Collections	50.8%	6,343	55.0%	7,428	58.9%	7,939	62.9%	8,334	66.1%	9,037	71.6%	3,560	28.4%
P003	Billing and Metering	42.1%	5,295	45.5%	5,666	48.7%	6,063	52.1%	6,407	55.1%	7,015	60.3%	4,623	39.7%
P005	AMI	65.1%	5,256	72.1%	5,583	76.6%	5,939	81.5%	6,214	85.3%	6,596	90.5%	693	9.5%
P006	AMI 8920	99.5%	5,448	100.0%	5,448	100.0%	5,449	100.0%	5,449	100.0%	5,449	100.0%	-	0.0%
P009	Stormwater	48.2%	1,487	51.6%	1,598	55.3%	1,705	58.5%	1,799	62.7%	1,943	67.8%	304	22.2%
P008	Permits	86.6%	2,587	90.3%	2,792	97.5%	2,854	99.6%	2,865	100.0%	2,865	100.0%	-	0.0%
Totals		57.2%	106,418	60.8%	111,134	63.5%	116,198	66.4%	120,352	68.2%	127,513	72.8%	47,609	27.2%

2023

- i. 49,229 calls answered within 30 Seconds
- ii. 53,189 calls answered within 60 seconds
- iii.

Queue Group Answer Spectrum by Queue														
1 - All Queues														
1/1/2023 - 6/14/2023 - 00:00 - 24:00														
Created on 6/14/2023 12:50:11 PM by Tishlakonez														
Reporting	Full name	% of contacts opened	Spectrum interval 5 30 seconds	% of contacts opened	Spectrum interval 6 40 seconds	% of contacts opened	Spectrum interval 7 60 seconds	% of contacts opened	Spectrum interval 8 80 seconds	% of contacts opened	Spectrum interval 9 120 seconds	% of contacts opened	> Spectrum interval 10 120 seconds	% of contacts opened
P001	General	56.3%	23,283	60.3%	24,629	63.8%	25,894	67.1%	26,999	70.0%	29,005	75.3%	9,584	24.8%
P004	Dispatch	88.0%	13,843	89.6%	13,996	90.9%	14,210	91.9%	14,355	92.9%	14,596	94.4%	862	5.6%
P003	Billing and Metering	57.0%	2,751	61.5%	2,920	65.3%	3,060	68.5%	3,173	71.0%	3,391	75.9%	1,079	24.1%
P006	AMI 9002	99.3%	4,399	100.0%	4,390	100.0%	4,290	100.0%	4,290	100.0%	4,290	100.0%	-	0.0%
P002	Collections	53.8%	2,202	57.6%	2,336	61.6%	2,504	65.5%	2,618	68.5%	2,816	73.6%	1,008	26.4%
P005	AMI	63.6%	1,679	71.1%	1,788	75.8%	1,909	80.9%	2,013	85.3%	2,140	90.7%	220	9.3%
P008	Permits	89.0%	776	90.0%	841	97.6%	859	99.7%	862	100.0%	862	100.0%	-	0.0%
P009	Stormwater	56.0%	406	60.4%	432	64.3%	463	68.8%	481	71.6%	510	75.8%	162	24.1%
Totals		66.4%	49,229	69.8%	51,252	72.2%	53,189	75.4%	54,791	77.2%	57,630	81.7%	12,915	18.3%

57,610 calls answered within 120 seconds

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: June 14, 2023

Exhibit BA-3

Request: OCA-IV-19 Please explain the reasons for the significant increases in residential customer complaints needing further investigation as set forth in the UCARE 1st Quarter 2023 report. In your response, please provide any analysis of the trend reflected in this report compared to 2022 and what steps PWSA has taken in response to this information.

Response: Based on PWSA’s analysis, the following factors influenced the increased complaint volume:

1. SAP Implementation
 - a. Increased billing/portal complaints
 - b. Friendly reminder notices began November 2022
 - c. 10-Day termination of service notices began February 2023
2. Lingering Covid-19 Protocols
 - a. Restarting of payment arrangements
 - b. Extensions were still being granted
3. Consumption related disputes
 - a. Higher percentage of consumption related complaints in 2023 as compared to in 2022

Municipal Water & Sewer Utilities

**Consumer Complaint, PAR (Payment Arrangement Request)
and FCR (First Contact Resolution) Statistics for Major Companies**

January through March 2022/2023

Company	Residential Consumer Complaints (NFIs*)			Residential PARs (NFIs*)			FCRs (Residential & Commercial)		
	2022	2023	Percent Change	2022	2023	Percent Change	2022	2023	Percent Change
PWSA-Water**	34	64	88%	8	8	0%	20	5	-75%
PWSA-Sewer**	5	6	20%	4	3	-25%	3	1	-67%
Total	39	70	79%	12	11	-8%	23	6	-74%

*Consumer complaints and PARs are classified as NFIs (Need Further Investigation) because they are cases that require further investigation.
**PWSA informal complaint data is designated as PWSA-Water or PWSA-Sewer based upon the nature of the complaint.

Steps taken by PWSA to mitigate complaint volume:

1. Billing and portal issues have stabilized.
2. Collection activity has resumed.
3. All Covid-19 protocols have been lifted.
4. Training related to meter testing were completed in late March 2023, and scripting training was completed as of April 2023.

Results:

After reviewing consumption-related disputes, which are driven by meter test requests, below is evidence of a noticeable decrease since March 2023.

Consumption-related dispute percentages by month in 2023:

January - 66%

February - 68%

March - 70%

April - 54%

May - 58%

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: June 14, 2023

Exhibit BA-4

Request: OCA-XVII-16 Has PWSA conducted any analysis of trends or underlying causes of the 2022 and 2023 data provided in response to OCA-IV-20? If so, provide any internal document that discusses analyzes, or responds to the BCS findings in this attachment (other than the information provided in the confidential attachment) and any internal action undertaken that made changes in training, compliance monitoring, or policy changes.

Response: PWSA has not conducted any analysis of trends or causes of the infractions as recorded. All infractions are addressed on a case by case basis with the employee(s) involved, and there is no documentation created in response to the BCS' findings, with the exception of coaching and/or disciplinary materials that are shared between PWSA Customer Service management, the employee(s), and PWSA Human Resources.

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: July 14, 2023

Exhibit BA-5
Attachment to PWSA
Response to OCA-XVII-17

Year	30-Day Intent to Lien Notices	Number of Liens Filed
2018		
2019	700	92
2020	4503	230
2021	3593	3421
2022	1904	1083
2023	1217	496

Customer Classification	Number of Liens Paid	Dollar Amounts Paid
Commercial	514	\$3,535,347.58
Residential	3586	\$3,863,455.46
Total	4100	\$7,398,803.04


BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039919 (SW)
v.	:	R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority	:	R-2023-3039921 (WW)

VERIFICATION

I, Barbara R. Alexander, hereby state that the facts set forth in my Direct Testimony, OCA Statement 5, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: August 9, 2023
*349635

Signature: 
Barbara R. Alexander

Consultant Address: Barbara Alexander Consulting, LLC
44 Beech Street
Hallowell, ME 04347

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	Docket No. R-2023-3039920 (Water)
	:	
	:	
v.	:	Docket No. R-2023-3039921 (Wastewater)
	:	
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	Docket No. R-2023-3039919 (Stormwater)
	:	

DIRECT TESTIMONY
OF
TERRY L. FOUGHT

ON BEHALF OF
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

August 9, 2023

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TABLE OF EXHIBITS

TLF EXHIBIT NO.	DESCRIPTION
Vita	VITA
1	FILING, IX.1 CONSENT ORDERS AND AGREEMENTS
2	UNACCOUNTED FOR WATER, PUC SECTION 500 METHOD
3	AWWA AUDIT METHOD WORKSHEET FOR 2021
4	AWWA AUDIT METHOD WORKSHEET FOR 2022
5	PUC AUDIT PWSC, NON-REVENUE WATER, 2017-2021
6	FILING, IX.2, WATER PRESSURE
7	PWSA 2020-2024 CIP, LOW PRESSURE AREA REMEDIATION
8	PWSA 2023-2027 CIP, LOW PRESSURE AREA REMEDIATION
9	PWSA RESPONSE TO OCA-V-12, ISOLATION VALVES
10	PWSA RESPONSE TO OCA-I-10, ISOLATION VALVES
11	SUMMARY VALVE INSPECTIONS & REPAIRS 2020-2023
12	PWSA 2023-2027 CIP, VALVE REPLACEMENT PROGRAM
13	PWSA RESPONSE TO OCA-I-13, CUSTOMER METERS
14	PWSA 2023-2027 CIP, CUSTOMER METER REPLACEMENT PROGRAM
15	PWSA RESPONSE TO OCA-V-22 & 23, DEAD-END WATER LINES
16	PWSA RESPONSE TO OCA-V-15 & 16, FIRE HYDRANTS
17	PWSA RESPONSE TO OCA-V-30, CUSTOMER COMPLAINT LOGS
18	PWSA COMPLAINT LOG SUMMARIES, 2020-2021 & 2018-2019
19	PWSA ST. 6-R, 2021 RATE CASE, CUSTOMER COMPLAINT LOG
20	PWSA 2020-2024 CIP, SURFACE RESTORATION
21	PWSA 5-YEAR LONG-TERM INFRASTRUCTURE PLAN, SURFACE RESTORATION
22	PWSA RESPONSE TO OCA-V-31, SURFACE RESTORATION
23	PWSA ST. NO. 2, PROPOSED SURFACE RESTORATION EXPENSES
24	PWSA RESPONSE TO OCA-XII-3, HIGHLAND 1 RESERVOIR & MICROFILTRATION TREATMENT PLANT

1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

3 A. Terry L. Fought, 780 Cardinal Drive, Harrisburg, Pennsylvania, 17111.

4

5 **Q BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am a self-employed consulting engineer retained by the Office of Consumer
7 Advocate (OCA) for the purposes of providing testimony in this proceeding.

8

9 **Q. PLEASE DESCRIBE YOUR BACKGROUND AND QUALIFICATIONS.**

10 A. Exhibit TLF-Vita which is attached to this testimony, describes my educational
11 background and applicable experience.

12

13 **Q. DID YOU PROVIDE TESTIMONY IN PREVIOUS PITTSBURGH WATER AND
14 SEWER AUTHORITY (PWSA) BASE RATE CASES?**

15 A. Yes. I provided testimony in PWSA's 2018, 2020 and 2021 base rate cases.¹

16

17 **Q. DID YOU PROVIDE TESTIMONY IN THE IMPLEMENTATION OF CHAPTER 32
18 OF THE PUBLIC UTILITY CODE PWSA – STAGE 1 PROCEEDING, DOCKET
19 NO. M-2018-2640802 (WATER) AND DOCKET NO. M-2018-2640803
20 (WASTEWATER)?**

¹ Docket Nos. R-2018-3002645 (Water), R-2018-3002647 (Wastewater); Docket Nos. R-2020-3017951 (Water), R-2020-3017970 (Wastewater); Docket Nos. R-2021-3024773 (Water), R-2021-3024774 (Wastewater) and R-2021-3024779 (Stormwater).

1 A. Yes.

2

3 **Q. WHAT ISSUES HAVE YOU BEEN ASKED TO INVESTIGATE REGARDING THE**
4 **PWSA RATE CASES?**

5 A. The OCA requested that: (1) I investigate quality of service related to PWSA's
6 water, wastewater and stormwater service and (2) comment on concerns of
7 applicable engineering issues.

8

9 **Q. WHAT DID YOUR INVESTIGATION CONSIST OF?**

10 A. In addition to reviewing portions of the last base rate case, my investigation
11 included: (1) reviewing portions of PWSA's filing applicable to Quality of Service;
12 (2) reviewing other customer complaints received by PWSA and OCA; (3)
13 reviewing applicable portions of the Direct Testimony of PWSA witnesses William
14 J. Pickering, PWSA St. No. 1, Edward Barca, PWSA St. No. 2, William J.
15 McFaddin, PWSA St. 3, Barry King, PE., PWSA St. No. 4, Tony Igwe, PWSA St.
16 No. 5, Julie A. Mechling, PWSA St. 6, and Keith Reading, PWSA St. No. 8; (4)
17 reviewing PWSA's responses to the OCA's Interrogatories regarding quality of
18 service issues; (5) an inspection of some facilities on July 25, 2023 and (6)
19 reviewing the available transcripts from and/or attending telephonically the four
20 Public Input Hearings held in this proceeding on July 25 and July 27, 2023 at 1
21 p.m. and 6 p.m. each day.

22

1 **Q. BEFORE THIS CASE, HAVE YOU PREVIOUSLY INSPECTED PWSA'S**
2 **FACILITIES?**

3 A. Yes. During the 2018 Rate Cases, I met with PWSA and inspected some of its
4 facilities on April 19, 2018 and June 22, 2018, and reviewed applicable DEP files
5 on June 23, 2018. The Covid-19 Pandemic prevented additional inspections until
6 a site inspection on July 25, 2023.

7
8 **WATER SYSTEM**

9 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF PWSA'S WATER SYSTEM.**

10 A. PWSA operates the largest combined water and sewer authority in Pennsylvania
11 producing an average of 70 million gallons of treated water daily and providing
12 service to more than 300,000 residents as well as up to 520,000 people during
13 working hours in total throughout the City of Pittsburgh and surrounding
14 communities.²

15 The water supply and distribution system consists of a 117 million gallon per day
16 conventional flocculation, sedimentation and rapid sand process treatment plant
17 which was placed in service in 1969, 964 miles of water mains plus more than
18 81,000 service lines, more than 25,900³ line valves, more than 7,300 fire hydrants,
19 one raw water pump station, ten finished water pump stations, one microfiltration
20 plant, four reservoirs, and ten storage tanks. The total storage capacity of the
21 reservoirs and tanks is approximately 455 million gallons. With consideration given
22 to the pressure requirements of the distribution system, and storage capacities in

² PWSA St. No. 1, pp. 18-19.

³ Revised to 19,371 PWSA valves & 4,163 Private valves, PWSA Response to OCA Set V-12.

1 each of the 15 pressure zones, PWSA stores enough finished water to provide
2 (with water use restrictions) a 3-day uninterrupted supply to all customers should
3 it temporarily be unable to treat additional water from the Allegheny River.⁴
4

5 **Q. IS PWSA UNDER ANY ORDERS FROM DEP OR USEPA TO MAKE**
6 **IMPROVEMENTS TO ITS WATER AND WASTEWATER SYSTEMS?**

7 A. Yes. According to PWSA's Filing Requirement, IX., Quality of Service⁵, PWSA is
8 currently under the following Consent Orders and Agreements (COAs). Note that
9 the MS 4 listing applies to PWSA's Wastewater System:

- 10 • November 17, 2017 – Corrosion Control and Lead Service Lines
- 11 • September 6, 2019 – Clearwell and Related Projects and Cross-
12 Connections
- 13 • May 7, 2021 – First Amendment to September 6, 2019 COA
- 14 • January 20, 2021 – NPDES MS 4 Compliance (USEPA)
- 15 • May 7, 2021 – Construction Prior to Authorization, Valve Pits, and Ferric
16 Chloride
- 17 • August 3, 2022 – Above Ground Storage Tanks at Three Chlorine Booster
18 Stations
- 19 • August 4, 2022 – Second Amendment to September 6, 2019 COA
20

21 For details on the above COAs, see Exhibit TLF-1.
22

23 **QUALITY OF SERVICE ISSUES - WATER SYSTEM**

24 **Q. WHAT QUALITY OF SERVICE ISSUES ARE INCLUDED IN YOUR TESTIMONY**
25 **CONCERNING PWSA'S WATER SYSTEM?**

26 A. In this section, I address (1) unaccounted for water (UFW); (2) pressure and
27 pressure surveys; (3) maintenance of isolation valves; (4) testing and replacing

⁴ PWSA St. No. 1, p. 19.

⁵ PWSA Rate Filing, Volume I, Filing Requirement, Tab 12, Filing Requirement IX, Quality of Service, IX.1.

1 customer meters (Meter Age); (5) flushing the distribution system; (6) minimum fire
2 hydrant flows; (7); and customer complaints logs.

3 4 **UNACCOUNTED FOR WATER**

5 **Q. WHAT IS MEANT BY THE TERM “UNACCOUNTED FOR WATER”?**

6 A. According to the PUC procedure, UFW is equal to “Total Water Delivered for
7 Distribution & Sale” minus “Total Sales” minus “Non-Revenue Usage and
8 Allowance.” “Non-Revenue Usage and Allowance” includes “Main Flushing,”
9 “Blow-off Use,” “Unavoidable Leakage,” “Located & Repaired Breaks in Mains &
10 Services” and “Other”. There are several different procedures for calculating
11 Unaccounted for Water. The PUC Method is shown on Section 500 of the PUC
12 Annual Report Form for Public Water Utilities.

13 14 **Q. WHY IS UFW IMPORTANT?**

15 A. Calculating the amount of UFW is a method of estimating the amount of non-
16 revenue water in a water distribution system due to leaks and inaccurate meter
17 readings. Reducing the non-revenue water saves money in chemical and power
18 costs and provides for important water conservation in areas that have limited
19 water supply sources. The accuracy of the UFW estimate depends on reliable
20 estimates of unavoidable non-metered water uses such as flushing the distribution
21 system, firefighting, normal pipe leakage, repaired main breaks, etc. Keeping track
22 of UFW gives a water utility an indication of the extent of unknown leaks in the
23 distribution system so that informed decisions can be made on the necessity of
24 finding and repairing leaks. The Water Audit methodology established by the

1 International Water Association (IWA) and the American Water Works Association
2 (AWWA) is generally becoming a more accepted method of identifying the
3 amounts of wasted water – Non-Revenue Water (NRW). Both the PUC and
4 AWWA Methods, if properly utilized, provide water utilities with information needed
5 to improve operational efficiency. According to 52 Pa. Code § 65.20(4), “Levels of
6 unaccounted-for water should be kept within reasonable amounts. Levels of UFW
7 above 20% have been considered by the Commission to be excessive.” The
8 Commission has not set similar standards for levels of NRW.

9
10 **Q. HAS PWSA PROVIDED INFORMATION ON HOW IT CALCULATES UFW?**

11 A. Yes. In response to OCA-V-3, the PWSA submitted PUC Section 500 Forms for
12 the calendar years 2021 and 2022. See Exhibit TLF-2. As shown on Exhibit TLF-
13 2, the UFW for 2021 and 2022 was 42.4 % and 53.6%, respectively. PWSA also
14 submitted AWWA Audits for 2021 and 2022. See Exhibits TLF-3 & 4 for worksheet
15 summaries. As shown on Exhibits TLF-3 & 4, the estimated NRW was 15,258,255
16 million gallons per year (MG/Yr) and 15,388,000 MG/Yr for 2021 and 2022,
17 respectively. This results in an NRW percentage for 2021 and 2022 equal to 68.6%
18 $[100 \times 15,258,255 / 22,239,025]$ and 68.2% $[100 \times 15,388,000 / 22,579,370]$,
19 respectively. For both the PUC Section 500 and AWWA Audit methods, PWSA
20 estimated volumes of water used for blow-offs, main flushing and firefighting were
21 based on AWWA’s Water Audit default values while the volume used for street
22 sweeping was metered and the volumes used for main breaks, reservoir and

1 pipeline draining and inspection and emergency filter backwash were estimated
2 specifically for PWSA's system.

3
4 **Q. DO YOU HAVE ANY COMMENTS ON THE UFW INFORMATION PROVIDED**
5 **BY PWSA?**

6 A. Yes. The PUC Bureau of Audits performed a Management and Operations Audit
7 on PWSA systems dated March 2023 and tabulated NRW estimates for the years
8 2017 through 2021. See Exhibit TLF-5. Comparing the NRW shown on Exhibit
9 TLF-6 with the AWWA Audit for 2022, it appears that the NRW has stabilized
10 during the past three years and is beginning to fluctuate with the amount of water
11 delivered to the distribution system. It should be noted that the volume of water
12 delivered to the distribution system was not totally based on meter readings as the
13 Rising Main 1 and 2 flow meters needed to be rehabilitated. As PWSA continues
14 to meter unmetered customers, test/replace existing meters, repair leaks and
15 replace old water lines, the estimated NRW should become more accurate and
16 also decrease.

17 Eventually, PWSA will have to reduce its reliance on AWWA Audit defaults and
18 estimate volumes of water used for blow-offs, main flushing and firefighting based
19 on the operation of its water system.

20
21 **PRESSURES AND PRESSURE SURVEYS**

22
23 **Q. WHAT ARE THE PUC'S REQUIREMENTS FOR PRESSURES AND PRESSURE**
24 **SURVEYS?**

1 A. According to 52 Pa. Code § 65.6. Pressures:

2 (a) *Variations in pressure.* The utility shall maintain normal operating pressures of
3 not less than 25 p.s.i.g. nor more than 125 p.s.i.g. at the main, except that during
4 periods of peak seasonal loads the pressures at the time of hourly maximum
5 demand may be not less than 20 p.s.i.g. nor more than 150 p.s.i.g. and that during
6 periods of hourly minimum demand the pressure may be not more than 150 p.s.i.g.
7 A utility may undertake to furnish a service which does not comply with the
8 foregoing specifications where compliance with such specifications would prevent
9 it from furnishing adequate service to any customer or where called for by good
10 engineering practices. The authority of the Commission to require service
11 improvements incorporating standards other than those set forth in this subsection
12 when, after investigation, it determines that such improvements are necessary is
13 not hereby restricted.

14 (b) *Pressure gauges.* Within 2 years after the effective date of this section, each
15 utility shall obtain one or more recording pressure gauges for each separately
16 operated pressure zone for the purpose of making pressure surveys as required
17 by this section. These gauges shall be able to record the pressure experienced on
18 the zones and shall be able to record a continuous 24-hour test. Each utility serving
19 1,000 or more customers or 1,000 or more customers in any separately operated
20 zone of a multi-zone utility shall maintain one or more of these recording pressure
21 gauges in service at some representative point or points in each of the pressure
22 zones of the utility.

23 (c) *Telemetry.* An utility may make the pressure surveys required by this
24 section by means of telemetered information electronically transferred to printed
25 copy instead of using recording pressure gauges.

26 (d) *Pressure surveys.* At regular intervals, but not less than once each year, each
27 utility shall make a survey of pressures in its distribution system of sufficient
28 magnitude to indicate the pressures maintained at representative points on its
29 system. The surveys should be made at or near periods of maximum and minimum
30 usage. Records of these surveys shall show the date and time of beginning and
31 end of the test and the location at which the test was made. Records of these
32 pressure surveys shall be maintained by the utility for a period of at least three
33 years and shall be made available to representatives, agents, or employees of the
34 Commission upon request.

35 **Notes of Decisions**

36 *Adequate Pressure*

37 The 25 p.s.i.g. minimum expressed in subsection (a) is not intended to restrict the
38 authority of the PUC to order improvements where service is inadequate;
39 therefore, the PUC has the power to order needed improvements notwithstanding

1 that the pressure in a utility's main meets the standard of the regulation. *Barone v.*
2 *Pennsylvania Public Utility Commission*, 485 A.2d 519 (Pa. Cmwlth. 1984).
3

4 **Q. WHAT ARE DEP'S REQUIREMENTS FOR SYSTEM PRESSURES?**

5 A. According to DEP's Public Water Supply Manual, Part II, Community System
6 Design Standards:

7 1. Pressure

8 All water mains, including those not designed to provide fire protection, shall be
9 sized after a hydraulic analysis based on flow demands and pressure
10 requirements. The pipe system and its appurtenances shall be designed to
11 maintain a minimum pressure of 20 pounds per square inch, gauge (psig) at
12 ground level at all points in the distribution system under all conditions of flow. The
13 normal working pressure in the distribution system should be approximately 60
14 psig.⁶
15
16

17 **Q. WHAT ARE THE DIFFERENCES BETWEEN THE PUC AND DEP PRESSURE**
18 **REQUIREMENTS?**

19 A. The PUC has a maximum and minimum pressure criterion while DEP has a
20 minimum and normal working pressure criterion. The PUC has a minimum
21 criterion of 25 psi at the main while DEP's minimum criteria is 20 psi at ground
22 level. Assuming the main is buried 4.5 feet below ground, DEP minimum criteria
23 is equivalent to 22 psi at the main.

24 Instead of having a pressure survey requirement for all water systems, DEP
25 imposes a pressure survey requirement on specific systems with known pressure
26 problems.
27

⁶ Public Water Supply Manual, Part II, Community System Design Standards, May 6, 2006, p. 186-187.

1 **Q. WHAT ARE THE REPRESENTATIVE POINTS ON THE SYSTEM WHERE**
2 **PRESSURE SURVEYS SHOULD BE CONDUCTED?**

3 A. In general, the representative points are highest and lowest ground elevations of
4 the distribution system in each pressure zone. Exceptions for low pressures
5 include areas served by long lengths of small diameter pipe.

6
7 **Q. HAS PWSA PROVIDED PRESSURE SURVEYS OF ITS DISTRIBUTION**
8 **SYSTEM**

9 A. No.

10

11 **Q. HAS THE OCA AGREED TO ACCEPT OTHER INFORMATION INSTEAD OF**
12 **PRSSURE SURVEYS UNDER CERTAIN CONDITIONS?**

13 A. Yes, when the water utility provides a complete complaint log that includes
14 pressure complaints. A satisfactory pressure survey can consist of only two
15 pressures (high and low) for each pressure zone taken at the two representative
16 points. I also note that the last revision of 52 Pa. Code § 65.6 occurred in 1983
17 prior to hydraulic computer models of water systems being common. For purposes
18 of evaluating utility system pressures, I have generally accepted utility statements
19 based on pressure information obtained from hydraulic computer models and
20 SCADA systems, when available, assuming that a complete complaint log is also
21 provided that includes all customer pressure complaints. The complaint log will
22 indicate if the pressure complaints are due to correctable Utility or customer

1 facilities or that the hydraulic computer model or SCADA system needs to be
2 modified.

3
4 **Q. DID PWSA PREVIOUSLY COMMIT TO TRACKING PRESSURE COMPLAINTS**
5 **AS PART OF A COMPLAINT LOG?**

6 A. Yes. In the Settlement of PWSA's 2021 base rate case⁷, PWSA committed to
7 ensuring that complaints received about pressure would be recorded and included
8 in its internal complaint log, but PWSA did not submit any information on pressure
9 complaints.

10
11 **Q. WHAT INFORMATION HAS PWSA PROVIDED ON SYSTEM PRESSURES?**

12 A. PWSA's response to Filing Requirement IX.2⁸ indicates that less than 5% of
13 PWSA's customers, or less than 3,774 customers [$0.05 \times (82,982 - 7,508)$]⁹ = 3,774],
14 have pressures higher or lower than the range allowed by 52 Pa. Code § 65.6.

15
16 **Q. HAS DEP ORDERED PWSA TO ADDRESS LOW PRESSURES?**

17 A. Yes. DEP's Administrative Order dated October 25, 2017¹⁰ requires PWSA to
18 identify critical low pressure points, install pressure sensors capable of reporting
19 pressure in "real time," and maintain records of pressure sensor data with the data
20 recorded at no less than fifteen minute intervals. Also, PWSA is required to notify

⁷ PWSA 2021 Settlement, Docket Nos. R-2021-3024773 et al), Section III(E)(8)(a).

⁸ PWSA Rate Filing, Volume I, Filing Requirement, Tab 12, Filing Requirement IX, Quality of Service, IX.2.

⁹ § 53.52(b) (Page 1 of 6), Total Water (Units & Sales) less Public Fire (Hydrants)

¹⁰ See DEP Administrative Order,

https://apps.pittsburghpa.gov/redtail/images/1005_PWSA%20Lead%20COA%2011172017%20final.pdf

1 DEP of a loss of a positive pressure and if any two consecutive fifteen minute
2 readings are less than 20 psi.

3 PWSA has installed 61 continuous “real time” pressure sensors at the critical low
4 pressure points and has reported low pressures to DEP.

5
6 **Q. HAS PWSA COMPLETED ANY PROJECTS THAT HAVE INCREASED**
7 **PRESSURES TO THE LOW PRESSURE AREAS?**

8 A. Not that I am aware of. In the 2020 Rate Case, PWSA’s budget for low pressure
9 remediation for FY 2020-2023 was \$2,293,358 (including \$100,000 spent prior to
10 FY 2021) but the proposed projects were not identified. See Exhibit TLF-7.

11 According to PWSA’s 2023-2027 Project Summary PWSA has budgeted a total of
12 \$1,696,441.49¹¹ to be used for low pressure area remediation. See Exhibit TLF-8
13 for a listing of the proposed projects for low pressure remediation and pressure
14 boundary adjustments.

15
16 **Q. HAS DEP ORDERED PWSA TO ADDRESS HIGH PRESSURES?**

17 A. No. DEP does not have any criteria for high pressure.

18
19 **Q. HAS PWSA DONE ANYTHING TO ADDRESS HIGH PRESSURES?**

20 A. Not that I am aware of.

21
22 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING HIGH PRESSURES?**

¹¹ 2023-2027 Project Summary, pg. 8, line 78.

1 A. PWSA should reduce normal operating pressures exceeding 125 psi in its mains
2 in order to protect customer service lines and inside plumbing. I made the same
3 recommendations in my testimony in the previous rate cases.¹² This may involve
4 adding pressure zones by using pressure reducing valves and/or distribution
5 storage tanks.

6

7 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING PRESSURES?**

8 A. Yes. PWSA should be required to submit pressure surveys for each pressure zone
9 in accordance with 52 Pa. Code § 65.6 until they provide a complete complaint log
10 that includes pressures.

11

12 **ISOLATION VALVES**

13 **Q. WHAT ARE ISOLATION VALVES?**

14 A. Isolation valves are installed on water mains so that the water can be shut off in
15 sections of the distribution system in case of a water main break or for main repairs
16 and replacements. Isolation valves are also used to separate different pressure
17 zones.

18

19 **Q. WHAT DOES IT MEAN TO EXERCISE ISOLATION VALVES?**

20 A. According to AWWA, "Each valve should be operated through a full cycle and
21 returned to its normal position on a schedule that is designed to prevent a buildup

¹² Docket Nos. R-2018-3002645, R-2020-3017951 & R-2021-3024773.

1 of tuberculation [rust formation in pipes as a result of corrosion] or other deposits
2 that could render the valve inoperable or prevent a tight shutoff.”

3 Exercising an isolation valve requires some effort even for a well-maintained valve
4 because the number of turns to fully open or close an isolation valve can vary from
5 12 turns for a 3-inch valve; and for larger valves the number of turns equal 3 times
6 the valve size plus 2 (i.e. 38 turns for a 12-inch valve, 110 turns for a 36-inch valve,
7 etc.).

8 **Q. WHY IS IT IMPORTANT TO EXERCISE ISOLATION VALVES?**

9 A. It is important to exercise isolation valves to prevent the valves from seizing up
10 and getting stuck from corrosion or other deposits adjacent to the valve. An
11 isolation valve that cannot be fully closed will increase the water loss during a water
12 main break and increase the number of customers affected.

13
14 **Q. WHAT HAPPENS IF AN ISOLATION VALVE BECOMES INOPERABLE DUE TO
15 LACK OF BEING EXERCISED?**

16 A. The valve either has to be repaired or replaced. Because isolation valves are
17 generally located underneath pavement, they can be very expensive to repair or
18 replace. Even repairing the valve requires that the valve be exposed so that
19 interior parts can be removed and replaced.

20
21 **Q. HOW OFTEN SHOULD AN ISOLATION VALVE BE EXERCISED?**

1 A. PUC auditors have recently encouraged water utilities to exercise critical valves
2 on a one-to three-year cycle and the remaining non-critical valves on a seven- to
3 ten-year cycle since AWWA's distribution valve exercising recommended
4 guidelines can be resource intensive. "Although not aligned with AWWA
5 standards, a one- to three-year schedule for critical valves provides the company
6 with a balance between resource management and appropriate maintenance."¹³

7

8 **Q. DO YOU AGREE WITH THE PUC AUDITORS' SCHEDULE?**

9 A. Yes, with the understanding if the utility's records do not indicate that all of the
10 system's the isolation valves have been exercised within the past ten years, then
11 all those unexercised valves should be exercised within the next five years on a
12 parallel schedule until all the valves have been exercised and are operable. Once
13 all of the utility's isolation valves have been exercised within ten years and are
14 operable, the PUC Auditors' schedule is reasonable and agreeable.

15 Previously, for those utilities that did not have records showing that all their
16 isolation valves have been regularly exercised, I recommended that they should
17 exercise all their isolation valves within 5-years and then set a schedule based on
18 their local experience.

19

20 **Q. WHAT INFORMATION DID PWSA PROVIDE REGARDING EXERCISING**
21 **ISOLATION VALVES?**

¹³ PAPUC PWSA Company Management & Operations Audit, March 2023, pp. 60,
<https://www.puc.pa.gov/pcdocs/1782123.pdf>

1 A. In its response to OCA-V-12, PWSA has 19,371 known PWSA-owned isolation
2 valves based on GIS mapping. There are 4,163 privately-owned valves that serve
3 commercial customers and/or function as isolation valves on private distribution
4 systems that are not part of the PWSA system. See Exhibit TLF-9.

5 In its responses to OCA-1-10, 11 & 12, PWSA addressed its responses to the
6 Settlement of its 2021 PWSA base rate case and included Confidential versions of
7 its 2021 and 2022 isolation valve inspection reports and a Confidential version of
8 the number of isolation valves that it replaced during 2020 through 2023 (to date).
9 See Exhibit TLF-10. A “non-confidential” summary of the valve inspection and
10 replacement reports is shown on Exhibit TLF-11¹⁴. It can be noted from Exhibit
11 TLF-11 that the 2021 and 2022 valve inspections found 1237 isolation valves
12 broken and that only 544 valves have been replaced during 2020 to date. The
13 2021 and 2022 inspections also noted that another 432 isolation valves needed to
14 be located.

15 According to PWSA’s response to OCA-I-11 (included in Exhibit TLF-10) PWSA
16 has identified, tested and inspected its critical isolation valves.

17 PWSA has allocated \$13,705,485 in its FY 2023-2027 Budget for Isolation Valve
18 Replacements. See Exhibit TLF-12.

19

¹⁴ PWSA has agreed that in summary form, the information presented in the Confidential response to OCA Set I-10, 11 and 12 does not need to be marked as Confidential.

1 **Q. DO YOU HAVE ANY COMMENTS REGARDING PWSA'S MAINTAINANCE OF**
2 **ISOLATION VALVES?**

3 A. Yes. In the Settlement of the 2020 rate case, PWSA committed to exercise 5,000
4 isolation valves per year and to repair the valves that are found to be inoperable.¹⁵
5 PWSA has set an internal goal to exercise 5,200 valves per year (1/5th of its
6 isolation valves). Since it has been determined that PWSA owns 19,371 isolation
7 valves (instead of 25,920), PWSA is on schedule for inspecting and exercising the
8 valves found during the 5-year period. As can be noticed from TLF-12, it appears
9 that inspecting and exercising some valves may occur after the 5-year period
10 (2026 & 2027) because of problems with replacing broken valves and locating
11 some valves.

12
13 **Q. DO YOU HAVE ANY RECOMMENDATIONS?**

14 A. Yes. In order to comply with the PUC Auditors' recent recommendations, PWSA
15 should: (1) exercise critical valves on a one- to three-year schedule; (2) exercise
16 non-critical valves on a seven- to ten-year schedule and (3) maintain useful
17 records of when each valve was exercised.

18 Also, if PWSA's records do not indicate that all the isolation valves have been
19 exercised within the past ten years, then I recommend that PWSA exercise all
20 those unexercised valves within the next five years on a parallel schedule until all
21 the isolation valves have been exercised and are operable.

22

¹⁵ R-2020-3017951, Settlement, para. III.H.2.

1 **TESTING AND REPLACING CUSTOMER METERS**

2
3 **Q. WHAT ARE THE PUC'S REQUIREMENTS FOR TESTING AND REPLACING**
4 **CUSTOMER METERS?**

5 A. The PUC requirements for testing and replacing meters according to 52 Pa. Code
6 § 65.8. Metered service are:

7 (a) *Allowable error.* No water meter which has an error in registration of more
8 than 2% may be placed in service, nor may a water meter which has an error in
9 registration of more than 4% be allowed to remain in service, when water is
10 passing through it at approximately the following rates of flow:

<i>Meter size (inches)</i>	<i>Gallons per minute</i>
5/8	6
3/4	10
1	20
1-1/2	30
2	50
3	90
4	180
6	300

11 (b) *Periodic tests.* No public utility furnishing metered water service may allow a
12 water meter of 1 inch or less nor a water meter of more than 1 inch to remain in
13 service for a period longer than 20 years and 8 years respectively without testing
14 it for accuracy and readjusting it if it is found to be incorrect beyond the limits
15 established in subsection (a). Upon a customer's request the public utilities shall
16 also perform a meter test without charge if a meter has been in service, and has
17 not been tested, for a period greater than that specified in the following table:

<i>Inch Meter</i>	<i>Years</i>
5/8	10
3/4	8
1	6
More than 1	4

1 (c) *Meter test records.* Whenever a water meter is tested, the original test record
2 should be kept indicating the information necessary for identifying the meter, the
3 reason for making the test, the reading of the meter before being disturbed, and
4 the accuracy of the meter together with data taken at the time of the test. This
5 record shall be sufficiently complete to permit the convenient checking of the
6 methods employed and the calculations made. A record shall also be kept,
7 preferably numerically arranged, indicating the date of meter purchase, name of
8 manufacturer, its size, its identification, its various places of installation with
9 dates of installation and removal, and the dates and general results of all tests.

10
11 **Q. HAS PWSA PROVIDED INFORMATION ON TESTING AND REPLACING**
12 **CUSTOMER METERS (METER AGE)?**

13 A. Yes. Prior to coming under the jurisdiction of the PUC, PWSA did not keep records
14 of where or when customer meters were installed. PWSA elected to replace all
15 the customer meters because it was cost-effective.

16 Mr. King previously testified that: (1) PWSA previously agreed to test or replace
17 10,000 meters per year until all undocumented meters are either tested or
18 replaced; (2) 10,290 meters were replaced in the calendar year 2019; (3) because
19 of issues with the COVID-19 pandemic, only 5,550 meters were replaced in 2020
20 and the goal for 2021 is 8,000 meters; and (4) they intend to replace 10,000 meters
21 in subsequent years.¹⁶

22 In response to OCA Set I-13, PWSA has replaced and documented a total of
23 20,248 customer meters from January 1, 2020 through May 2023. See Exhibit
24 TLF-13. Including the number of valves replaced during 2019, PWSA has
25 replaced/tested a total of 30,538¹⁷ meters between 2019 through May 2023.

¹⁶ Docket No. R-2021-3024773, PWSA St. No. 5, pp. 17 & 18.

¹⁷ 10,290+5273+6971+5845+2159=30,538.

1 For the FY 2023-2027, PWSA has budgeted \$487,923 for replacing customer
2 meters 1.5” to 2”; \$4,140,273 for annual replacement of meters larger than 1”; and
3 \$4,096,697 for annual replacement of meters sized 1” or less. See Exhibit TLF-14.
4

5 **Q. HAS PWSA PREVIOUSLY IDENTIFIED A TARGET FOR METER**
6 **REPLACEMENT?**

7 A. Yes. In the settlement of its 2021 base rate case, PWSA indicated that it would
8 “strive to test or replace 8,000 meters per calendar year beginning in 2022 until all
9 undocumented meters are either tested or replaced.”¹⁸
10

11 **Q. DID PWSA ACHIEVE ITS METER REPLACEMENT TARGET IN 2022?**

12 A. No. According to PWSA witness McFaddin, PWSA replaced 5,865 meters, and it
13 did not achieve the target because of delays associated with PWSA’s launch of
14 the ERP system, vendor turnover, and unexpected reductions in plumbing staff.¹⁹
15

16 **Q. DO YOU HAVE ANY RECOMMENDATIONS ON PWSA’S TESTING AND**
17 **REPLACEMENT OF CUSTOMER METERS?**

18 A. I continue to recommend that PWSA should test or replace 10,000 customer
19 meters per calendar year until all undocumented meters are either tested or
20 replaced. As it stands, PWSA has not been able to achieve a target of 8,000
21 meters, and therefore I also recommend that it address its software, vendor, and

¹⁸ PWSA 2021 Settlement, Docket Nos. R-2021-3024773 et al) Section III(E)(3)(a).

¹⁹ PWSA St. No.3, p. 8.

1 staffing issues that have curtailed its ability to meet the internal target of 8,000
2 meters.

3 4 **FLUSHING THE DISTRIBUTION SYSTEM**

5 **Q. WHY IS FLUSHING WATER MAINS IMPORTANT?**

6 A. Over time, sediments can build up in the pipes and could result in discolored water
7 during flow surges resulting from firefighting and main breaks. This especially
8 occurs in older mains. Too much sediment in the mains can also affect the taste,
9 clarity and color of water.

10 11 **Q. ARE YOU AWARE OF ANY PUC OR DEP REQUIREMENTS FOR MAIN 12 FLUSHING?**

13 A. No. However, most water utilities, especially the larger ones, consider it good
14 practice to flush the distribution system annually when possible.

15 16 **Q. DOES THE PWSA HAVE A PROGRAM FOR FLUSHING ITS DISTRIBUTION 17 SYSTEM?**

18 A. Yes. In previous years, PWSA flushed mains in localized areas where customers
19 complained of water quality. PWSA previously agreed to flush 1/3 of its distribution
20 system each year²⁰. As previously mentioned, PWSA has more than 7,300
21 hydrants. In a CONFIDENTIAL response to OCA Set I-14, PWSA provided details

²⁰ Docket No. R-2021-3024773, PWSA St. No. 5, p.18

1 of each hydrant that they inspected and flushed. A non-confidential summary of
2 PWSA's confidential response to OCA Set 1-14 indicates that 913, 2828, 3054 and
3 1155 hydrants in the years 2020, 2021, 2022 and 2023 to date, respectively²¹.
4 Therefore, PWSA has tested and flushed 7,037 hydrants during more than three
5 years which indicates that they are slightly behind in flushing the distribution
6 system.

7 I do not recommend any changes at this time.

8
9 **Q. DO YOU HAVE ANY CONCERNS REGARDING PWSA FLUSHING ITS**
10 **DISTRIBUTION SYSTEM?**

11 A. Yes, I have identified an issue concerning dead-end lines. PWSA indicates that it
12 does not separately identify dead-end lines in its GIS, making the number of them
13 eliminated in 2021, 2022, and 2023 "difficult to quantify." See Exhibit TLF-15.
14 Therefore, it appears that PWSA may not know where many of its dead-end lines
15 are located and if all of its dead-end lines have a blow-off valve or hydrant for
16 flushing. PWSA should make an effort to identify, locate, and track the dead-end
17 lines and make sure that they have a blow-off or hydrant so they can be flushed to
18 eliminate water quality problems.

19

²¹ PWSA has agreed that in summary form, the information presented in the Confidential response to OCA Set I-14 does not need to be marked as Confidential.

1 **FIRE HYDRANTS**

2 **Q. HOW MANY FIRE HYDRANTS ARE LOCATED IN PWSA’S WATER SYSTEM**
3 **THAT CANNOT PROVIDE A FIRE FLOW OF 500 GALLONS PER MINUTE AT**
4 **20 PSI?**

5 A. According to PWSA’s responses to OCA-V-15 & 16, there are about 374 public fire
6 hydrants that cannot provide the minimum fire flow of 500 gallons per minute (gpm)
7 at 20 pounds per square inch (psi) and 82 fire hydrants connected to a water main
8 of less than 6-inch diameter. See Exhibit TLF-16.

9 If any of the 82 fire hydrants connected to less than 6-inch mains can provide at
10 least 500 gpm at 20 psi, PWSA should indicated such and be prepared to provide
11 documentation.

12 Hydrants that cannot provide the minimum fire flow should be painted black or
13 otherwise marked to indicate that they should only be used for flushing and blow-
14 offs. PWSA should provide confirmation to the OCA and other parties when this
15 has been done.

16
17 **CUSTOMER COMPLAINTS LOGS (WATER)**

18 **Q. DID YOUR INVESTIGATION CONSIDER COMPLAINTS FROM WATER**
19 **CUSTOMERS?**

20 A. Yes. I have reviewed PWSA’s Confidential 2022-2023 Customer Complaint Logs
21 (PWSA refers to as Customer Inquiries) submitted in its response to OCA-V-30;
22 and other complaints received by OCA and the PUC together with PIH testimony.

23

1 **Q. WHAT DID YOUR REVIEW OF PWSA'S CONFIDENTIAL WATER CUSTOMER**
2 **COMPLAINT LOG CONSIST OF?**

3 A. I tabulated the two Confidential Excel spreadsheets that PWSA submitted in
4 response to OCA-V-30. See Exhibit TLF-17 for a copy of OCA-V-30 and a
5 summary of the number of complaints as categorized by PWSA²². I also compared
6 the Complaint Log shown of Exhibit TLF-17 with previously summaries of
7 Complaint Logs tabulated for 2018-2019 and 2020-2021. See Exhibit TLF-18.

8

9 **Q. DO YOU BELIEVE THAT PWSA SUBMITTED A COMPLETE COMPLAINT**
10 **LOG?**

11 A. No. There are many categories of complaints that are not included in the submitted
12 Complaint Logs for 2022-2023 that were included in the 2018-2019 Complaint Log.
13 The 2020-2021 Complaint Logs submitted in the last base rate case had the same
14 problem and PWSA indicated that they would be able to furnish a more complete
15 Complaint Log during future rate cases.

16

17 **Q. WHY IS PWSA UNABLE TO FURNISH A COMPLETE COMPLAINT LOG?**

18 A. Apparently, after providing a customer complaint log having many categories of
19 complaints for the 2018 Base Rate Case, PWSA purchased software that cannot
20 easily provide information on customer complaints because the complaints are

²² PWSA has agreed that in summary form, the information presented in the Confidential response to OCA Set V-30 does not need to be marked as Confidential.

1 filed as a note in each customer's account log. See Exhibit TLF-19 for a more
2 detailed explanation provided by Ms. Quigley's rebuttal testimony in the last
3 case.²³

4
5 **Q. IS THE COMPLAINT LOG SHOWN ON EXHIBIT TLF-17 ACCEPTABLE FOR**
6 **EVALUATION THE QUALITY OF THE WATER SERVICE PROVIDED BY**
7 **PWSA?**

8 A. No.

9
10 **Q. WHY IS AN ACCURATE CUSTOMER COMPLAINT LOG IMPORTANT DURING**
11 **A RATE CASE?**

12 A. Generally, it allows review by OCA and other parties of the utility's responses to
13 customer complaints regarding the quality of water, water pressure, property
14 damage by contractors, etc. A complete log will show how many customers are
15 complaining about the same complaint in the same area around the same time
16 and it can indicate if more information is required to evaluate the utility's response
17 to those complaints. Also, it is especially important in PWSA's case because many
18 needed construction improvements are expected to continue for many years.

19
20 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING CUSTOMER LOGS?**

21 A. Yes. PWSA should take the necessary steps to be able to provide a complete
22 customer complaint log. PWSA provided an acceptable log during the 2018 base

²³ Docket Nos. R-2021-3024773, R-201-3024774, R-201-3024779

1 rate case and then purchased software not suitable for providing oversight of
2 complaints. Other large water utilities under the jurisdiction of the PUC have been
3 providing acceptable complaint logs.

4
5 **WASTEWATER SYSTEM**

6 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF PWSA'S WASTEWATER**
7 **SYSTEM.**

8 A. The wastewater collection and conveyance system consists of approximately
9 1,220 miles of sanitary, storm and combined sewer lines, 29,000 manholes,
10 approximately 30,000 stormwater catch basins and inlets, 38 combined sewer
11 overflow outfalls, 185 storm outfalls and four pump stations which are designed to
12 carry both storm and sanitary flows. About 75% of the system is serviced by
13 combined sewers (both wastewater and stormwater are collected in one pipe) and
14 the remaining 25% are designed as separate sewage and stormwater piped
15 systems. The average age of the sewer lines is between 60 and 70 years old, with
16 some portions reaching nearly 150 years in age. The wastewater collection and
17 conveyance system discharges to a regional system that conveys sewer flows
18 through trunk sewers to deliver to a wastewater treatment which services eighty-
19 three cities, towns and boroughs in Allegheny County. The regional system is
20 owned and operated by the Allegheny County Sanitary Authority ("ALCOSAN")
21 which maintains interceptors along the rivers to deliver sewage to its Woods Run
22 Wastewater treatment plant prior to discharge in the Ohio River. Because the
23 current combined sewer systems contribute to the Allegheny Region's Combined
24 Sewer Overflow volume, state and federal water quality regulations apply,

1 including a regional Consent Decree involving ALCOSAN and the Pennsylvania
2 Department of Environmental Protection mandating a \$2 billion Combined Sewer
3 Overflow reduction program.²⁴

4 PWSA has two types of wastewater conveyance systems — a combined system
5 and separated sanitary and storm sewer systems. Stormwater is conveyed in
6 different ways by each type of system.

7 **IMPROVEMENTS (WASTEWATER)**

9 **Q. IS PWSA REQUIRED TO MAKE IMPROVEMENTS TO ITS WASTEWATER** 10 **SYSTEM?**

11 A. Yes. PWSA is required to reduce the amount of combined sewer overflows as part
12 of the USEPA, DEP and the Allegheny County Sanitary Authority (ALCOSAN)
13 Consent Degree. See Exhibit TLF-1 for more details.

15 **Q. WHAT WASTEWATER IMPROVEMENTS ARE BUDGETED THROUGH** 16 **FISCAL YEAR 2027?**

17 A. For the Fiscal Years 2023-2027, PWSA has budgeted the following wastewater
18 projects:²⁵

- 19 • 31st Ward Pump Station and Appurtenances – Phase 2 @ \$17,192,667.
- 20 • 6122 and 6150 Mifflin Road Demolition @ \$50,000.
- 21 • Browns Hill Road Sewer Pump Station Replacement @ 3,920,000.
- 22 • Large Diameter Sewer Rehabilitation Program @ \$29,891,724.
- 23 • M29 Outfall Improvements @ \$250,000.
- 24 • Maytide Storm and Sanitary Sewer Improvements @ \$6,102,309.
- 25 • Queenston Sewer Improvements @ \$2,453,753.

²⁴ PWSA St. No. 1, pp. 19-20.

²⁵ PWSA Exh. EB-4, pp. 94-104.

- Sewer Reconstruction Program @ \$10,889,557.
- Sewers Under Structures Program @ \$18,499,314.
- Small Diameter Sewer Rehabilitation Program @ \$121,066,569.

QUALITY OF SERVICE ISSUES (WASTEWATER)

Q. WHAT QUALITY OF SERVICE ISSUES ARE INCLUDED IN YOUR TESTIMONY CONCERNING THE PWSA'S WASTEWATER SYSTEM?

A. My testimony will address customer complaints concerning sewer backups and odors.

CUSTOMER COMPLAINT LOG (WASTEWATER)

Q. IS THE COMPLAINT LOG SHOWN ON EXHIBIT TLF-17 ACCEPTABLE FOR EVALUATION THE QUALITY OF THE WASTEWATER SERVICE PROVIDED BY PWSA?

A. No. The Complaint Log only addresses customer sewer backup and sewer smell and did not identify if the complaint concerned a combined or separate sewer. Regarding the number of "customer sewer backup" it is unclear if the log presents data on total backups and the numbers of backups that occurred on combined sewers or separate sewers.

SEWAGE BACKUPS

Q. DO YOU HAVE ANY SPECIFIC COMMENTS ABOUT CUSTOMER COMPLAINTS REGARDING SEWAGE BACKUPS?

A. Yes. According to Exhibit TLF-17, PWSA opened work orders to investigate 374 sewer backups during 2022 and 85 backups in 2023 through June 1. This is an

1 important issue as it is both costly and a health hazard. It is unclear how many of
2 these backups are caused by stormwater flooding the sewers or for other reasons.
3 PWSA is taking steps to reduce the sewer backups from stormwater runoff. The
4 following wastewater and stormwater projects that specifically address sewer
5 backups have been budgeted approximately \$20.4 million for FY 2023-2027:

- 6 • Maytide Storm and Sanitary Sewer System Improvements @ \$6,102,309.
 - 7 • Braywood Stormwater Improvements @ \$874,000.
 - 8 • Catch Basin and Inlet Replacement Program @ \$72,159,260.
 - 9 • Dragoon Way Stormwater Improvements @ \$1,078,625.
 - 10 • Fleury Way Stormwater Infrastructure Improvements @ \$476,212.
 - 11 • Haverhill Street Improvement Project @ \$1,108,400.
 - 12 • Maryland Avenue Stormwater Infrastructure Improvements @ \$6,925.
 - 13 • Stewart Avenue Stormwater Infrastructure Project @ \$3,809,833.
 - 14 • Volunteer's Field Stormwater Infrastructure Improvements @ \$413,125.
 - 15 • Woodland Road Stormwater Infrastructure Improvements @ \$245,256.
- 16
17

18 **SEWER SMELL**

19 **Q. DO YOU HAVE ANY COMMENTS ABOUT CUSTOMER COMPLAINTS**
20 **REGARDING SEWER SMELL?**

21 A. The "sewer smell" log indicates that PWSA response was adequate and
22 sometimes included using closed circuit tv to investigate the customer complaints.

23
24 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE WASTEWATER**
25 **CUSTOMER COMPLAINT LOGS?**

26 A. Yes. As previously mentioned for the water system, PWSA take the necessary
27 steps to be able to provide a complete customer complaint log.

28

29

1 **STORMWATER SYSTEM**

2 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF PWSA'S STORMWATER**
3 **SYSTEM.**

4 **A.** PWSA's overall wastewater conveyance system is composed of over 1,200 miles of sewer
5 lines, 4 pump stations, and approximately 25,000 catch basins. PWSA has two types of
6 wastewater conveyance systems – a combined system and separated sanitary and storm
7 sewer systems. Stormwater is conveyed in different ways by each type of system.

8 First, approximately 75% of the PWSA system, or approximately 900 miles of sewer lines,
9 is the combined sewer system. This is generally the older areas of the system here
10 wastewater and stormwater are conveyed in the same pipe. During times of dry weather,
11 all flow is conveyed to ALCOSAN for treatment. When it rains, the capacity of the system
12 to convey flow can be limited, which causes localized flooding, basement sewer backups,
13 and overflows to streams and rivers.²⁶

14 Second, newer, or more recently redeveloped communities have separated sanitary and
15 storm sewer systems. In a separated system, wastewater is conveyed to ALCOSAN for
16 treatment, and when it rains stormwater is discharged directly to a nearby stream or river.

17 The separate stormwater conveyance system ("MS4")²⁷ is not connected to either the
18 combined wastewater system or the sanitary sewer system, and only carries stormwater.

19 Approximately 25% of the PWSA system is separated. The separated system has
20 approximately 178 miles of sanitary sewer and 148 miles of stormwater pipes.²⁸

²⁶ PAWC St. No. 5, pp. 6.

²⁷ "MS4" stands for Municipal Separate Storm Sewer System. See 25 Pa. Code § 92a.2. Municipalities and other entities that meet certain standards must obtain National Pollutant Discharge Elimination System ("NPDES") permit coverage for discharges of storm water from their MS4s. See, e.g., the Storm Water Management Act, 32 P.S. §§ 680.1, et seq. See also 40 CFR 122.26(b) (relating to definitions).

²⁸ PAWC St. No. 5, pp. 7.

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IMPROVEMENTS (STORMWATER)

Q. WHAT STORMWATER IMPROVEMENTS ARE BUDGETED THROUGH FISCAL YEAR 2027?

A. PWSA has budgeted the following wastewater projects through 2027:²⁹

- Braywood Stormwater Improvements @ \$874,000.
- Bus Rapid Transit Phase 2 @ \$1,500,000.
- Bus Rapid Transit Stormwater Infrastructure Improvements @ \$1,560,654.
- Catch Basin and Inlet Replacement Program @ \$72,159,260.
- Dragoon Way Stormwater Improvements @ \$1,078,625.
- Fleury Way Stormwater Infrastructure Improvements @ \$476,212.
- Four Mile Run Stormwater Infrastructure Improvements @ \$20,040,792.
- Haverhill Street Improvement Project @ \$1,108,400.
- Lawn and Ophelia @ \$203,741.
- Martin Luther King Field Stormwater Infrastructure Improvements @ \$4,420,975.
- Maryland Avenue Stormwater Infrastructure Improvements @ \$6,925.
- MS4 Permit PRP Plan Sediment Reduction Project @ \$1,085,500.
- Saw Mill Run Municipal Separate Storm Sewer System Compliance @ \$3,500,000.
- Saw Mill Run Watershed Improvements @ \$1,000,000.
- Southside Flats Sewer Separation @ \$5,560,116.
- Southside Stormwater Infrastructure Improvements @ \$4,732,807.
- Stewart Avenue Stormwater Infrastructure Project @ \$3,809,833.
- Thomas and McPherson Stormwater Infrastructure Improvements @ \$854,905.
- Volunteer’s Field Stormwater Infrastructure Improvements @ \$413,125.
- Wet Weather Program Projects @ \$33,000,000.
- Wightman Park Phase 2 Project @ \$182,166.
- Woodland Road Stormwater Infrastructure Improvements @ \$245,256.
- Woods Run Stream Removal Stormwater Infrastructure Improvements @ \$3,569,058.

Q. WHAT QUALITY OF SERVICE ISSUES ARE INCLUDED IN YOUR TESTIMONY CONCERNING THE PWSA’S STORMWATER SYSTEM?

²⁹ PWSA Exh. EB-4, pp. 106-129.

1 A. None. My testimony usually addresses customer complaints about storm sewers
2 surcharging and maintenance issues; however, PWSA's complaint log for
3 stormwater only addressed missing lids.

4
5 **Q. IS THE COMPLAINT LOG SHOWN ON EXHIBIT TLF-17 ACCEPTABLE FOR**
6 **EVALUATION OF THE QUALITY OF THE STORMWATER SERVICE**
7 **PROVIDED BY PWSA?**

8 A. No. The stormwater complaint log only addressed missing or damaged lids of
9 stormwater grates and manholes.

10
11 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE STORMWATER**
12 **CUSTOMER COMPLAINT LOGS?**

13 A. Yes. As previously mentioned for the water and wastewater systems, PWSA
14 should take the necessary steps to be able to provide a complete customer
15 complaint log.

16
17 **ISSUES INVOLVING MORE THAN ONE SYSTEM**

18 **Q. ARE THERE ANY OTHER ISSUES THAT YOU WANT TO DISCUSS**
19 **THAT INVOLVE MORE THAN ONE SYSTEM?**

20 A. Yes. The cost sharing of surface restoration between PWSA and the City.
21 This is an issue that I discussed in the previous rate cases.

22

1 **Q. WHAT IS THE SURFACE RESTORATION ISSUE THAT YOU ARE**
2 **CONCERNED ABOUT?**

3 A. The surface restoration that is full lane or curb to curb paving, which is in
4 addition to the typical restoration of roadway pavement to its pre-existing
5 usable condition but would show where the trenches were excavated,
6 backfilled and repaved.

7
8 **Q. HOW MUCH MONEY HAS PWSA SPENT ON SURFACE**
9 **RESTORATION?**

10 A. I don't know the exact amount. However, PWSA's budget for FY 2019-2024
11 indicates that \$17,416,550 [$\$25,911,333 - (\$4,197,390 + \$4,297,393)$] was
12 proposed through FY 2022. Some of this amount may have been used for
13 other than full lane or curb to curb paving. See Exhibit TLF-20. More up to
14 date information is not available because PWSA no longer budgets surface
15 restoration as a separate item. After I made an issue about the lack of cost
16 sharing by the City in the 2020 base rate case, PWSA made surface
17 restoration a cost item in other contracts instead of a published separate
18 budget item.

19
20 **Q. WHY SHOULD THE CITY PAY FOR ANY PWSA PAVEMENT RESTORATION?**

21 A. There are at least three reasons why the City of Pittsburgh should pay for any
22 PWSA pavement restoration:

1 First, PWSA's 5-Year Long-Term Infrastructure Improvement Plan (LTIIP) requires
2 PWSA to coordinate its projects with the City's repaving plans to minimize
3 disruptions to the community and minimize surface restoration costs. See Exhibit
4 TLF-21.

5 Second, PWSA may jeopardize its DSIC and other funding for future projects if
6 money is wasted when the City repaves a street and a PWSA project repaves the
7 same street a short time later.

8 Third, PWSA is trying to correct problems to its water, wastewater, and stormwater
9 systems caused by the City prior to PWSA becoming a public utility under the
10 jurisdiction of the PUC.

11
12 **Q. HOW MUCH HAS THE CITY CONTRIBUTED TO PWSA'S SURFACE**
13 **RESTORATION COSTS?**

14 A. According to PWSA's response to OCA-V-31, starting in FY 2022, the City has
15 paid a total of \$252,597. See Exhibit TLF-22. The City paid nothing prior to FY
16 2022.

17
18 **Q. HAS PWSA CONSTRUCTED A PROJECT THAT REQUIRED SURFACE**
19 **RESTORATION ON A STREET RESURFACED BY THE CITY SINCE 2019?**

20 A. Not yet. See Exhibit TLF-22 for PWSA's response to OCA-V-31 g) & f) that
21 indicates that at least one will occur in the near future.

22

1 **Q. IS PWSA PROPOSING FUTURE PROJECTS THAT REQUIRE EXTENSIVE**
2 **SURFACE RESTORATION?**

3 A. Yes. Mr. King has testified in PWSA St. No. 2: (1) that in the implementing PWSA's
4 forthcoming wet weather consent decree, surface restoration is one of the main
5 drivers of costs; it is estimated that surface restoration will cost \$7,836,351,
6 \$8,306,532 and \$8,804,942 in FY 2024, FY 2025 and FY 2026, respectively. See
7 Exhibit TLF-23 for pages 15 thru 17 of Mr. Kings testimony that explains the
8 importance surface restoration in the wet weather projects.³⁰

9
10 **Q. PLEASE DISCUSS THE PROCEDURE OF HOW THE COSTS OF SURFACE**
11 **RESTORATION HAS BEEN DISTRIBUTED BETWEEN PWSA AND THE CITY?**

12 A. Presently, each year PWSA notifies the City where projects will be located during
13 the following three years and the City doesn't repave those streets until PWSA
14 complete construction (including surface restoration). As discussed above, that
15 method of coordination has not been very effective in sharing costs. What would
16 have been more effective is that once PWSA advises the City where its projects
17 will be located during the following three years, the City commits to provide an
18 agreeable amount as their share of the surface restoration costs of those PWSA
19 projects.

20
21 **Q. WHAT WOULD BE THE RESULT IF THE STATUS QUO CONTINUES?**

³⁰ PWSA St. No. 2, pp. 15-17.

1 A. Since PWSA has some of its water, wastewater or stormwater facilities located in
2 almost all of the City streets, PWSA customers will eventually pay for providing
3 surface restoration for almost all of the City streets – including those streets the
4 City has resurfaced since 2018.

5

6 **Q. WHAT DO YOU RECOMMEND?**

7 A. I recommend that the Cooperation Agreement between the City and PWSA be
8 amended and approved by the Commission prior to any PWSA rate increase after
9 January 1, 2025. This amendment is needed to indicate who is responsible for the
10 many cost items discussed in the existing Agreement after PWSA has sole
11 ownership of the systems.

12

13 **COST OF WATER TREATED AT THE MICROFILTRATION PLANT**

14 **Q. ARE THERE ANY OTHER COSTS THAT SHOULD BE CONSIDERED BY AN**
15 **AMENDED COOPERATION AGREEMENT?**

16 A. Yes. The City should pay for all water treated at the Microfiltration Treatment Plant
17 (MFP) or it should be considered as UFW/NRW.

18

19 **Q. PLEASE EXPLAIN.**

20 A. PWSA delivers treated water to the Highland 1 Reservoir (HR1). The main
21 purpose of determining UFW/NRW is to identify and reduce unnecessary costs of
22 treated water delivered to the customer. The MFP must treat all water from
23 Highland 1 Reservoir (HR1) even though it has been previously treated at the

1 Aspinwall Treatment Plant because HR1, an uncovered reservoir, allows the
2 previously treated water to become contaminated. See Exhibit TLF-24.

3 Previously, the Pennsylvania Department of Environment Protection (DEP)
4 required PWSA to either cover HR1 or retreat the water from the HR1 prior to
5 discharging the water into the Highland 1 distribution system. HR1 is an open
6 reservoir on top of a hill within a City park and the City did not want it to be lined
7 and covered like the other similar PWSA reservoirs (i.e. Lanpher, Highland 2, and
8 Herron Hill Reservoirs). PWSA elected to construct the Microfiltration Treatment
9 Plant (MFP) to re-treat the water from HR1 and allow HR1 to remain uncovered.

10 In order to determine the amount of water delivered to the Highland 1 distribution
11 system, PWSA has to meter water from two other metering stations near the MFP
12 in addition the amount metered and pumped from the MFP. Once the ongoing
13 construction of pumping facilities at Highland 2 Reservoir (HR2) are completed,
14 the Highland 1 distribution system can also be served from HR2 and the operation
15 of the MFP may not be necessary during normal conditions.

16 If the City is not willing to pay for the amount of water treated by the MFP, PWSA
17 should consider covering HR1 and reduce the operation of the MFP. It should be
18 noted that the relining of HR1 is budgeted for FY2026, and this would be the best
19 time to cover HR1 during the next twenty-five years (the expected useful life of the
20 relining). See Exhibit TLF-25.

1 **PUBLIC INPUT HEARING TESTIMONY**

2 **Q. WHAT QUALITY OF SERVICE ISSUES WERE RAISED AT THE PUBLIC**
3 **INPUT HEARINGS HELD ON JULY 25 AND 27, 2023?**

4 A. Based on the Transcripts for July 25 and 27, 2023, I noticed the following
5 testimony on quality of service (except for rates and billings) issues:

6 **Boil Water Advisory** – La'Tasha Mayes Tr. 67-72.

7 **Sewer Repair Construction** – Richard Marini Tr. 79-81.

8 **Unannounced Water Shut Offs** – Phyllis Hankins Tr. 139-143; Robert
9 Rubinstein Tr. 215.

10 **Rates Set By Meter Size** – Melissa McSwigan Tr 201-202; Caroline West
11 Tr. 253.

12 **Unrestored Property Damage** – Robert Rubinstein Tr 215.

13 **Charged for an Unfound Water Leak and Meter Replacement** – Kim
14 Williams Tr. 289 & 298.

15 **Brown Water** – Kim Williams, Tr. 290.

16
17 **Q. SHOULD THE AUTHORITY RESPOND TO THE ISSUES TESTIFIED AT**
18 **THE PIH?**

19 A. Yes. PWSA should include how they responded to these issues in their
20 rebuttal testimony.

21
22 **Q. DOES THIS COMPLETE YOUR WRITTEN DIRECT TESTIMONY?**

1 A. Yes. However, I reserve the right to supplement this testimony if additional
2 relevant information is received.

BACKGROUND AND QUALIFICATIONS

TERRY L. FOUGHT, P.E.

Education

Cleveland State University, Cleveland, Ohio, Bachelor of Civil Engineering, 1967

Professional Registrations

Professional Engineer, Pennsylvania, PE-023343-E, 1975

Professional Engineer, New Jersey, GE 25392, 1978 (Inactive)

Professional Engineer, Virginia, 10850, 1979 (Inactive)

Professional Land Surveyor, Pennsylvania, SU-000194-A, 1980 (Inactive)

Employment

From March 1983 to date, I have been a self-employed consulting engineer engaged in providing consulting engineering services to water and wastewater utilities, both private and municipal.

From May 1969 to March 1983, I was employed by E. H. Bourquard & Associates, Inc. as a project engineer to water and wastewater clients. At the time I left the firm I was a vice-president.

From 1962 to 1969, I was employed by the State of Ohio, Department of Highways and the Geauga County Ohio Sanitary Engineers Office as an engineer's assistant to assistant sanitary engineer with breaks in employment to attend college and 1½ years active duty military service.

Experience

I have prepared studies related to and designed water supply, treatment, transmission, distribution and storage facilities. I have provided services to the following private and municipal water suppliers: Amber Hill Mobile Home Park, Brockway Borough Municipal Authority, Dallas Water Company, Eastern Gas and Water Investment Company, Haddonfield Hills Development, Halifax Borough, Langhorne Spring Water Company, Mifflintown Municipal Authority, Neshaminy Water Resources Authority, Newberry Water Company, Pleasant View Mobil Home Park, H. B. Reese Candy Company, Shavertown Water Company, Smethport Water Company, Tunkhannock Water Company, and Watts Business Center.

I have prepared studies related to and designed wastewater collection and interceptor sewers, pumping stations and force mains, and treatment plants. I have provided services to the following private and municipal sewerage utilities: Brockway Glass Company, Central Dauphin School District, Clean Waste Technologies, Inc., Dauphin Borough, Dauphin Borough Municipal Authority, Halifax Area School District, Halifax Municipal Authority, Mercersburg Borough, Middle Paxton Township, Newberry Sewer Company, Newberry Township Municipal Authority, Park-a-way Park Family Campground, Reading Township Municipal Authority, Reynoldsville Borough, Saint Thomas Township, and Watts Business Center.

I have prepared over 100 stormwater management and drainage plans for land development and subdivision plans in Cumberland, Dauphin, and York Counties. Most of these plans included the design of storm sewer collection systems.

List of Public Utility cases which I have testified or provided substantial assistance:

NEW JERSEY BUREAU OF PUBLIC UTILITIES

<u>Docket Number</u>	<u>Company Name</u>
7712-1140	City of Trenton
787-847	Hackensack Water Company
814-119	City of Trenton
8310-862	City of Trenton

PENNSYLVANIA PUBLIC UTILITY COMMISSION

<u>Docket Number</u>	<u>Company Name</u>
C-2010-2175673	Pennsylvania-American Water Company
C-2011-2259004	Endsley v PAWC
C-2012-2332951	Tschachler v UGI
C-2014-2447138	Hidden Valley Utility Services - Water
C-2014-2447169	Hidden Valley Utility Services - Wastewater
C-2018-2644592	Winola Water Company
C-2020-3022354	McKercher v Borough of Hanover
F-2011-2280415	Lynette Lugo Lopez v PGW
F-2012-2311590	Belinda Lyles v Aqua
F-2012-2330753	Scott v PGW
I-840377	Pennsylvania Gas and Water Company
I-00050109	PAWC High Fluoride Incident
I-00072313	WP Water & Sewer Co.
I-2009-2109324	Clean Treatment Sewer Company
I-2016-2526085	Delaware Sewer Company
P-2008-2075142	Pennsylvania-American Water Company
P-2014-2404341	Delaware Sewer Company
P-2017-2584953	Aqua Pennsylvania, Inc.
P-2017-2594725	Newtown Artesian Water Company
P-2017-2585707	Pennsylvania-American Water Company
P-2017-2589724	Suez Water Pennsylvania, Inc.
P-2020-3020914	Twin Lakes Utilities, Inc.
R-00850174	Philadelphia Suburban Water Company
R-00932785	Meadows Water Company
R-00963708 (Sewer)	Wynnewood Water & Sewer Corporation
R-00963709 (Water)	Wynnewood Water & Sewer Corporation
R-00984257	Consumers Pa. Water Company
R-00984334	National Utilities, Inc.
R-00984375	City of Bethlehem
R-00994672	Superior Water Company
R-00005031	Penn Estates Utilities, Inc.
R-00005050	Emporium Water Company
R-00005212 (Sewer)	Pennsylvania-American Water Company
R-00005997	Jackson Sewer Corporation
R-00027982 (Sewer)	Pennsylvania-American Water Company
R-00049862	City of Lancaster – Sewer Fund
R-00050607	Glendale Yearound Sewer Co.
R-00050659	Wonderview Water Co.
R-00050673	Pocono Water Co.
R-00050678	Mesco, Inc.

PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)

<u>Docket Number</u>	<u>Company Name</u>
R-00050814	Marietta Gravity Water Co.
R-00051030	Aqua Pennsylvania, Inc.
R-00051167	City of Lancaster – Water Fund
R-00061297	Emporium Water Co.
R-00061492	Reynolds Disposal Co.
R-00061496	Columbia Water Co.
R-00061617	Allied Utilities Services
R-00061618	Imperial Point Water Co.
R-00061625	Phoenixville Sewer Fund
R-00061645	Eaton Water Co.
R-00062017	Borough of Ambler Water Department
R-00072074 (Sewer)	Aqua PA, Little Washington Division
R-00072075 (Sewer)	Aqua PA, Chesterdale/Williamstown Division
R-00072351	Village Water Company
R-00072491	Clarendon Water Company
R-00072492	City of Bethlehem, Bureau of Water
R-00072493 (Water)	Total Environmental Solutions, Inc., Treasure Lake
R-00072711	Aqua PA
R-2008-2020729	Blue Knob Water Company
R-2008-2020873	Warwick Drainage Company
R-2008-2020885	Warwick Water Works, Inc.
R-2008-2032689	PAWC Coatesville Wastewater Operations
R-2008-2039261	Superior Water Company
R-2008-2045157	Columbia Water Company
R-2008-2047291	Rock Spring Water Company
R-2008-2079310	AQUA, PA
R-2008-2081738	Little Washington Wastewater Company
R-09-2097323	Pennsylvania-American Water Company
R-2009-2102464	Reynoldsville Water Company
R-2009-2103937	PA Utility Company, Inc (Water)
R-2009-2103980	PA Utility Company, Inc (Sewer)
R-2009-2105601	Fryburg Water Company
R-2009-2110093	Birch Acres Water Company
R-2009-2115743	Lake Spangerberg Water Company
R-2009-2116908	Hanover Borough Water
R-2009-2117289	Utilities Inc, Westgate (Water)
R-2009-2117532	Penn Estates Utilities Inc (Water)
R-2009-2117750	Newtown Artesian Water Company
R-2009-2121928	Clean Treatment Sewage Company
R-2009-2122887	United Water Pennsylvania, Inc
R-2009-2132019	AQUA, PA
R-2010-2157062	Tri-Valley Water Supply Company, Inc
R-2010-2166208	Pennsylvania American Water Company (Wastewater)
R-2010-2171339	Reynolds Disposal Company
R-2010-2171918	TESI, Treasure Lake, Water Division
R-2010-2171924	TESI, Treasure Lake, Sewer Division
R-2010-2174643	City of Lock Haven
R-2010-2179103	City of Lancaster Water Department
R-2010-2191376	Superior Water Company
R-2010-2194499	Dear Haven Water Company
R-2010-2194577	Dear Haven Sewer Company

PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)

<u>Docket Number</u>	<u>Company Name</u>
R-2010-2207833	Little Washington Waste Water, Masthope Division
R-2010-2207853	Little Washington Waste Water, SE Consolidated Division
R-2011-2218562	CMV Sewage Company, Inc.
R-2011-2232243	Pennsylvania-American Water Company
R-2011-2232985	United Water Company
R-2011-2244756	City of Bethlehem- Bureau of Water
R-2011-2246415	Twin Lakes Utilities, Inc.
R-2011-2248531	Wonderview Sanitary Facilities
R-2011-2248937	Fairview Sanitation Company
R-2011-2251181	Borough of Quakertown, Water
R-2011-2255159	Penn Estates Utility Inc - Water
R-2012-2286118	Audubon Water Company
R-2012-2330887	North Heidelberg Sewer Company
R-2012-2310366	City of Lancaster Sewer Fund
R-2012-2311725	Borough of Hanover - Sewer
R-2012-2315536	Imperial Point Water Company
R-2012-2336662	Rock Springs Water Company
R-2013-2350509	City of DuBois, Bureau of Water
R-2013-2355276	Pennsylvania-American Water Company
R-2013-2360798	Columbia Water Company
R-2013-2370455	Penn Estates Utilities, Inc. - Sewer Division
R-2013-2367108	Fryburg Water Company
R-2013-2367125	Cooperstown Water Company
R-2013-2390244	City of Bethlehem – Bureau of Water
R-2014-2400003	Borough of Ambler – Water Department
R-2014-2420204	Pocono Waterworks Company, Inc. (Water)
R-2014-2420211	Pocono Waterworks Company, Inc. (Sewer)
R-2014-2402324	Emporium Water Company
R-2014-2430945	Plumer Water Company
R-2014-2428304	Borough of Hanover Water Department
R-2014-2410003	City of Lancaster-Bureau of Water
R-2014-2427035	Venango Water Company
R-2014-2427189	B E Rhodes Sewer Company
R-2014-2447138	Hidden Valley Utilities Services - Water
R-2014-2447169	Hidden Valley Utilities Services – Sewer
R-2014-2452705	Delaware Sewer Company
R-2015-2462723	United Water Pennsylvania
R-2015-2470184	Borough of Schuylkill Haven Water Department
R-2015-2479962	Corner Water Supply
R-2015-2506337	Twin Lakes Utilities, Inc.
R-2016-2538600	Community Utilities of Pennsylvania, Inc.
R-2016-2554150	City of DuBois – Bureau of Water
R-2017-2595853	Pennsylvania-American Water Company
R-2017-2598203	Columbia Water Company
R-2017-2631441	Reynolds Water Company
R-2018-3000022	York Water Company
R-2018-3000834	Suez Water Company
R-2018-3002645 (Water)	Pittsburgh Water & Sewer Authority
R-2018-3002645 (Sewer)	Pittsburgh Water & Sewer Authority
R-2018-3001306 (Water)	Hidden Valley Utility Services
R-2018-3001307 (Sewer)	Hidden Valley Utility Services

PENNSYLVANIA PUBLIC UTILITY COMMISSION (Continued)

<u>Docket Number</u>	<u>Company Name</u>
R-2019-3008947 (Water)	Community Utilities of PA
R-2019-3008948 (Sewer)	Community Utilities of PA
R-2019-3010955	City of Lancaster Sewer Fund
R-2019-3010958	Twin Lakes Utilities, Inc.
R-2020-3017951	Pittsburgh Water and Sewer Authority
R-2020-3017970	Pittsburgh Water and Sewer Authority
R-2020-3019369	Pennsylvania-American Water Company
R-2020-3020256	City of Bethlehem
R-2020-3020917	Audubon Water Company
R-2020-3026116	Hanover Borough Water Department
R-2021-3024773	Pittsburgh Water and Sewer Authority (W)
R-2020-3024774	Pittsburgh Water and Sewer Authority (WW)
R-2020-3024779	Pittsburgh Water and Sewer Authority (SW)
R-2021-3025206	Community Utilities of Pennsylvania, Inc. (W)
R-2021-3025207	Community Utilities of Pennsylvania, Inc. (WW)
R-2021-3026682	City of Lancaster Water Department
R-2021-3027385	Aqua Water Company (W) (WW)
R-2022-3031672&73	PAWC (W) (WW)
R-2022-3031340	York Water Company (W) (WW)
R-2022-3031734	Borough of Ambler (W)

Exhibit TLF – 1

IX. QUALITY OF SERVICE

IX.1. Indicate whether the company is in violation of any provision of the Pennsylvania Safe Drinking Water Act (SDWA) or any rule, regulation or order, or any condition of any permit, variance or exemption granted by the Pennsylvania Department of Environmental Protection (PA-DEP), or its predecessor.

a. Provide information indicating whether the company is in compliance with SDWA provisions at 25 Pa. Code § 109.407 regarding general public notification requirements:

(i) Provide a copy of each public notification given in accordance with this section, since the last rate proceeding.

(ii) Provide a detailed explanation of all actions taken to remedy an acute violation, and to comply with the requirements prescribed by a variance or exemption.

(iii) State whether any fines or penalties were assessed by PA-DEP, and indicate the amounts paid by the company.

b. Provide the most recent copies of all annual consumer confidence reports Issued pursuant to SDWA Amendments of 1996 since the last rate proceeding.

(i) Provide any annual consumer confidence reports which reflect violations of State and Federal safe drinking water requirements.

(ii) Explain how these violations were resolved.

RESPONSE:

PWSA is currently under the following Consent Orders and Agreements (COAs):

- November 17, 2017 – Corrosion Control and Lead Service Lines
- September 6, 2019 – Clearwell and Related Projects and Cross-Connections
- May 7, 2021 – First Amendment to September 6, 2019 COA
- January 20, 2021 – NPDES MS4 Compliance (USEPA)
- May 7, 2021 – Construction Prior to Authorization, Valve Pits, and Ferric Chloride
- August 3, 2022 – Aboveground Storage Tanks at Three Chlorine Booster Stations
- August 4, 2022 – Second Amendment to September 6, 2019 COA

November 17, 2017 COA – Corrosion Control and Lead Service Lines

IX. QUALITY OF SERVICE

PWSA received a COA for Violations of the Safe Drinking Water Act on November 17, 2017 relating to Lead Action Level Exceedances and Failure to Treat as Permitted. PWSA has introduced orthophosphate, a corrosion control treatment, for the system as well as implemented a successful lead service line replacement program.

Quarterly Status reports are being prepared and submitted to PA-DEP as required under the COA, with the most recent report submitted February 15, 2023.

PWSA has one remaining obligation under this COA: Within 30 days of the end of the second period of follow-up tap monitoring, PWSA shall submit a request for designation of optimal corrosion control treatment Water Quality Parameters. PWSA intends for the 2023a sampling event to be the second period of follow-up tap sampling after corrosion control treatment adjustments were made in June 2022. PWSA anticipates submitting the request for designation of optimal corrosion control Water Quality Parameters by July 30, 2023.

September 6, 2019 COA – Clearwell and Related Projects and Cross-Connections

May 7, 2021 – First Amendment to September 6, 2019 COA

August 4, 2022 – Second Amendment to September 6, 2019 COA

PWSA entered into the COA with the PA-DEP related to “Violations of the Pennsylvania Safe Drinking Water Act and the Rules and Regulations Promulgated Pursuant Thereto” for the Clearwell Response Projects on September 6, 2019 (hereto referenced as the 2019 COA). Under the 2019 COA, PWSA is required to construct a bypass system to enable the Authority to remove the existing single-cell clearwell from service and replace it with a new multi-celled clearwell. PWSA is obligated to submit a construction permit to PA-DEP on or before January 1, 2023 and to complete construction of a clearwell bypass system within two years of PA-DEP's issuance of a construction permit. As a result of the existing single-cell clearwell basin condition and design, a clearwell bypass system is essential to ensure uninterrupted water supply service should the existing clearwell should prematurely fail.

PWSA is also required by the 2019 COA to: (i) rehabilitate or replace Rising Main #3 (from the Breucken Pump Station) to PWSA's Highland 2 Reservoir; (ii) rehabilitate or replace Rising Main #4 (from the Breucken Pump Station) to PWSA's Highland 2 Reservoir; (iii) construct a new redundant rising main from the Aspinwall Pump Station to the Lanpher Reservoir to replace the existing 100 year old transmission main which has suffered 3 major failures in the past 5 years; (iv) replace the cover and liner of the Highland 2 Reservoir to comply with existing regulatory standards, and facilitate the clearwell bypass system construction; and (v) replace or rehabilitate the existing Aspinwall and Bruecken pump stations.

With respect to the completion of the clearwell bypass, acknowledging that PWSA submitted the construction permit application on September 30, 2021, and should the PA-DEP approve the construction permit on April 21, 2023 (an arbitrary date selected for schedule projection purposes

IX. QUALITY OF SERVICE

only), the resultant required construction completion deadline will be April 2026. Under this timing scenario, the clearwell bypass would be the last project to be completed prior to taking the existing clearwell offline for replacement.

On May 7, 2021 PWSA entered into the First Amendment to September 6, 2019 COA with PA-DEP, granting PWSA a 90-day extensions of the deadlines for submitting the requisite Construction Permit Applications for: Rising Main #3 Rehabilitation Project (which was due "on or before September 1, 2020", but with the 90 day extension, the revised date was "11/30/20" (which PWSA achieved, submitting on 11/30/2020)); for Aspinwall Pump Station to Lanpher Reservoir Rising Main Project (which as due "on or before December 30, 2020", but currently with the 90 day extension, the revised date is "3/31/21" (which PWSA achieved, submitting on 3/30/21); for the Aspinwall and Bruecken Pump Station Improvements Projects (which was due "on or before January 1, 2021", but with the 90 day extension, the revised date was "4/1/21", and with a second approved extension, are due on or before 9/31/21)); and for the Washout Disconnection (which was due "on or before June 1, 2020", but with the 90 day extension, the revised date was "8/31/20" (achieved, we submitted on 8/31/20).

On August 4, 2022 PWSA entered into the Second Amendment to September 6, 2019 COA with PA-DEP granting an extension to the completion of work associated with the reconstruction and rehabilitation of Rising Main 3 and installation of a new liner and cover for the Highland 2 Reservoir until December 31, 2022.

The Certificates of Construction completion were submitted for the reconstruction and rehabilitation of Rising Main 3 on November 7, 2022, and for the installation of a new liner and cover for the Highland 2 Reservoir on December 30, 2022. The PA-DEP Public Water Supply Operating Permits were received for Rising Main 3 on December 13, 2022 and for Highland 2 Reservoir on January 9, 2023.

PWSA is currently on schedule for all projects, having achieved all milestone deliverable dates thus far for the COA and COA amendment stated deadlines for the above referenced projects.

January 20, 2021 Administrative Order – NPDES MS4 Compliance (USEPA)

On January 26, 2021, PWSA and the City of Pittsburgh entered into a two-year Administrative Order on Consent with the United States Environmental Protection Agency (USEPA) to resolve violations related to the Municipal Separate Storm Sewer System (MS4) NPDES Permit #PA1136133. The Order required PWSA and the City to develop and implement a program for conducting inspections and enforcement of constructed erosion and sediment controls, and post-construction Best Management Practices (BMPs), including submission of an amended unified Stormwater Code to the City of Pittsburgh by July 1, 2021; in addition, the inspection and enforcement program must be fully implemented by March 31, 2022.

IX. QUALITY OF SERVICE

On January 7, 2022 an agreement between PWSA and the City of Pittsburgh was executed establishing roles and responsibilities as they relate to MS4 compliance within the City. The agreement specifies that the primary roles and responsibilities of PWSA's Stormwater Division include the planning, design, implementation, and maintenance of stormwater related Capital Projects that may reduce localized flooding and Combined Sewer System overflows at the rivers while improving the water quality health of streams and waterways.

PWSA and the City submitted quarterly reports to USEPA and PA-DEP on the status of compliance under the Administrative Order and have addressed the required items.

May 7, 2021 COA – Construction Prior to Authorization, Valve Pits, and Ferric Chloride

On May 7, 2021, the PWSA entered into a COA with the PA-DEP in the matter of “violations of the Pennsylvania Safe Drinking Water Act and the Rules and Regulations Promulgated Pursuant Thereto” and describes five violations related to the water system. After negotiation of these matters, the COA mandates, as ordered by the PA-DEP and agreed to by the PWSA, corrective actions as follows:

1. Submit a Corrective Action Plan (CAP), also called Permit CAP, by 7/7/2021, and implement the CAP after receiving approval of it from the PA-DEP.
2. Submit a plan and schedule, called a Meter and Valve Pit Inspection Plan, by 6/7/2021 and implement the Plan after receiving approval of it from the PA-DEP.
3. Conduct weekly monitoring of seven identified meter and valve pits and semi-annual monitoring of all other interconnect meter and valve pits.
4. Install barriers or other methods by 7/7/2021 to prevent future spills from entering meter or pump station valve pits.
5. Annual training about the Chemical Delivery Procedure Standard Operating Procedure.
6. Civil penalty settlement by 6/7/2021.
7. Submit a proposal for a Community Environmental Project by 7/7/2021.

The status of the above corrective actions are as follows. The PWSA has submitted the requirements of No.'s 1, 2, 6, and 7 to the PA-DEP by the due dates listed above. The PWSA is continuing the work for No. 3 and 5 as on-going activities. Work for No. 4 was completed and the civil penalty under No. 6 was satisfied. PWSA was unable to complete the Community Environmental Project under No. 7. PWSA notified PA-DEP of delays and cost increases beyond the Authority's control related to completion of the project by others. The completion of the project was going to be beyond the stipulated deadline in the COA and PA-DEP requested PWSA pay the stipulated penalty by May 31, 2022. PWSA paid the penalty and submitted documentation to PA-DEP on May 24, 2022.

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August 3, 2022 COA – Aboveground Storage Tanks at Three Chlorine Booster Stations

As part of implementing PWSA's Environmental Compliance Program, the Authority self-identified to PA-DEP several above ground storage tanks which required registration under PA DEP regulations. Three of these storage tanks locations associated with chlorine booster systems did not have sufficient secondary or emergency containment. After negotiation of these matters, the COA mandates, as ordered by the PA-DEP and agreed to by the PWSA, corrective actions as follows:

1. Remote SCADA monitoring and loss of level alarms for the three tank systems (complete)
2. Daily visual inspection and submittal of documentation of the three tank systems (on-going)
3. Herron Hill Reservoir:
 - a. Completion of capital project to replace the tank system (in-progress)
4. Lanpher Reservoir:
 - a. Installation of a flood panel across the door to help use the room for emergency containment (complete)
 - b. Submit the permit for construction of a new tank system by July 30th (complete)
 - c. Construction of a new tank system (waiting on PA-DEP permitting)
5. Highland No. 2 Reservoir:
 - a. While the Highland No. 2 Reservoir is out of service, to pull the tanks from that room, install a liner in the room and a flood panel across the door and then reinstall the tanks (complete)
 - b. Submit a schedule for construction of a new tank system, associated with the construction of the Highland Pump Station. PWSA has received the construction permit for this work. (complete)

All three of these sites within the next three years will have capital projects that are in progress and then the existing tank systems will be replaced with new booster stations.

- a. Provide information indicating whether the company is in compliance with SDWA provisions at 25 Pa. Code § 109.407 regarding general public notification requirements:

PWSA had the following Public Notifications: Loss of Positive Pressure (Tier 1 Boil Water Advisory) on, June 2, 2021, July 9, 2021, May 11, 2022, July 6, 2022, July 20, 2022, July 30, 2022, September 22, 2022, October 18, 2022, and February 12, 2023. See copies of Public Notifications attached.

- (i) Provide a copy of each public notification given in accordance with this section, since the last rate proceeding. - Attached

IX. QUALITY OF SERVICE

(ii) Provide a detailed explanation of all actions taken to remedy an acute violation, and to comply with the requirements prescribed by a variance or exemption.

PWSA resolved all loss of positive pressure conditions by performing necessary repairs (in the case of water main breaks) and returning pumping operations to normal (in the case of power outages). Bacteriological sampling was conducted in accordance with PA-DEP requirements prior to lifting the boil water advisories. All documentation was submitted to PA-DEP at the conclusion of each event.

(iii) State whether any fines or penalties were assessed by PA-DEP, and indicate the amounts paid by the company.

PWSA has not been assessed any fines or penalties by PA-DEP for Loss of Positive Pressure events.

b. Provide the most recent copies of all annual consumer confidence reports Issued pursuant to SDWA Amendments of 1996 since the last rate proceeding.

1. Provide any annual consumer confidence reports which reflect violations of State and Federal safe drinking water requirements.
2. Explain how these violations were resolved.

Consumer Confidence Reports for FY 2021 is attached. The report includes a public notification of a monitoring requirement violation. PWSA routinely collects more samples than are required by regulation to assure the quality of the drinking water. In December 2021 PWSA collected 59 more chlorine samples than were required for the month. On December 28, 2021 a PWSA sampler failed to collect the required free and total chlorine measurement while collecting a coliform sample at one sample site. A coliform sample was analyzed and reported by our contract lab for the sample site and was negative. Chlorine measurements were completed at the site on January 3, 2022. In addition, PWSA and our contract laboratory reviewed chain of custody and sample acceptance procedure to ensure that all required analyses are collected at each sample site.

Exhibit TLF – 2

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-3 Please provide copies of PWSA’s unaccounted for water based on the PUC Section 500 Method for the calendar years 2021 and 2022. Include the procedure for estimating non-revenue water such as water used for blow-offs, street sweeping, flushing, firefighting, main breaks, and Highland Reservoir overflows and evaporation, etc. Explain all assumptions used in the calculations.

Response: See Attachment OCA-V-3. The “Notes” tab within the OCA-V-1 describes our methodologies and assumptions for estimating non-revenue water in a narrative format and are summarized as follows:

- Blow-offs: The PWSA elected to estimate this volume by multiplying the total water consumption with the water audits suggested default rate of 0.25%.
- Street Sweeping: The PWSA provided meters to the City of Pittsburgh to record water usage associated with street sweeping. Each meter was installed with an attached MXU unit, therefore the flow data is being transmitted remotely and billed accordingly. Based on the foregoing, water usage associated with street sweeping is categorized as Billed Metered Authorized Consumption, rather than Unbilled Unmetered Authorized Consumption.
- Flushing: The PWSA elected to estimate this volume by multiplying the total water consumption with the water audits suggested default rate of 0.25%.
- Firefighting: The PWSA elected to estimate this volume by multiplying the total water consumption with the water audits suggested default rate of 0.25%.
- Main Breaks: The PWSA estimates this volume by recording the characteristics of known breaks (area of break, size of main, pressure of main, estimated leak time, etc.) and calculating the estimated water loss. The 2021 and 2022 “SpryMobileLeakReporting_PWSA” spreadsheets are available, upon request.
- Clearwell leakage/overflows and Highland Reservoir Evaporation: These are located prior to the system delivery meters and are therefore not included in the unaccounted for water estimation.
- Reservoir Draining: In 2021, the PWSA drained the Herron Hill Reservoir (North Cell) and Lanpher Reservoir (East Cell). The work was required for inspection, operation and maintenance and/or construction purposes. The PWSA recorded the pre-drain water surface elevation and post-drain water surface elevation. In 2022 Highland No. 2 Reservoir was drained for replacement of the liner and cover. Based on historical records, we created a spreadsheet to estimate the volume of water discharged for each reservoir.
- Rising Main Inspection and Disinfection: The PWSA drained Rising Main 4 in December 2021 for the start of the 2019 Large Diameter Water Main Improvements Project. In addition, the PWSA drained, flushed and disinfected the Lanpher Rising Main between August and December 2021. In 2022 Rising Main 3 was drained, flushed, and disinfected.
- City Properties: On October 3, 2019, the PWSA and the City of Pittsburgh (City) entered into an updated cooperation agreement. The updated cooperation agreement was created under PUC oversight and includes provisions to completely transition the City accounts to be billed and metered. In 2019, the PWSA began metering the remainder of the City

500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	Water Delivered for Distribution & Sale:		
2	Water Obtained from Company Sources	23,140,062,141	63,397,431
3	Water Obtained from Other Independent Utilities		
4	Total Water Delivered	23,140,062,141	63,397,431
5	Metered Sales:		
6	Residential	2,751,755,065	7,539,055
7	Commercial	2,938,690,766	8,051,208
8	Industrial	208,619,000	571,559
9	Public (Health & Education)	1,061,129,000	2,907,203
10	Other Water Utilities	897,074,000	2,457,737
11	Private Fire Protection	7,975,000	21,849
12	Public Fire Protection		
13	Other Metered Sales (Flower Gardens)	1,107,000	3,033
14	Total Metered Sales	7,866,349,831	21,551,643
15	Unmetered Sales:		
16	Residential	11,487,000	31,471
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales Identify _____		
21	Total Unmetered Sales	11,487,000	31,471
22	Total Sales	7,877,836,831	21,583,115
23	Non-Revenue Usage Allowances:	53,360,000	146,192
24	Authorized Unmetered Usage:		
25	Main Flushing	10,565,926	28,948
26	Blow-off Use		
27	Others: Reservoir & Rising Main Flushing	13,490,730	36,961
28	Unauthorized Use	17,452,000	47,814
29	Unavoidable Leakage 1.462 gpd/mile of main	514,400,000	1,409,315
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services	4,688,628,511	12,845,558
32	Others Lanpher Leak	200,245,000	548,616
33	Total Allowances & Adjustments	5,444,782,167	14,917,211
34	Unaccounted-for-Water	9,817,443,143	
35	Percentage Unaccounted-for-Water	42.4%	

500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	Water Delivered for Distribution & Sale:		-
2	Water Obtained from Company Sources	23,325,850,000	63,906,438
3	Water Obtained from Other Independent Utilities		
4	Total Water Delivered	23,325,850,000	63,906,438
5	Metered Sales:		
6	Residential	2,727,249,047	7,471,915
7	Commercial	3,322,943,845	9,103,956
8	Industrial	144,584,000	396,121
9	Public	978,869,000	2,681,833
10	Other Water Utilities	746,484,000	2,045,162
11	Private Fire Protection	6,977,000	19,115
12	Public Fire Protection		
13	Other Metered Sales <small>Flower Gardens</small>	580,000	1,589
14	Total Metered Sales	7,927,686,892	21,719,690
15	Unmetered Sales:		
16	Residential	10,174,800	27,876
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales		
21	Total Unmetered Sales	10,174,800	27,876
22	Total Sales	7,937,861,692	21,747,566
23	Non-Revenue Usage Allowances: Unbilled Metered Usage	37,891,000	103,811
24	Authorized Unmetered Usage:		
25	Main Flushing	15,277,327	41,856
26	Blow-off Use		
27	Others: <small>Reservoir & Rising Main Flushing</small>	151,570,241	415,261
28	Unauthorized Use	17,452,000	47,814
29	Unavoidable Leakage 1.466 gpd/mile of main	516,100,000	1,413,973
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services	2,295,241,888	6,288,334
32	Others		
33	Total Allowances & Adjustments	3,033,532,455	8,311,048
34	Unaccounted-for-Water	12,354,455,852	
35	Percentage Unaccounted-for-Water	53.0%	

Exhibit TLF – 3

AWWA Free Water Audit Software:
Worksheet

FWAS v6.0
 American Water Works Association
 Copyright © 2020. All Rights Reserved.

Water Audit Report for: **The Pittsburgh Water and Sewer Authority**

Audit Year: **2021** **Jan 01 2021 - Dec 31 2021** **Calendar**

To access definitions, click the input name

Click 'n' to add notes To edit water system info: [go to start page](#)

Click 'g' to determine data validity grade All volumes to be entered as: MILLION GALLONS (US) PER YEAR

[Water Supplied Error Adjustments](#)

choose entry option:

VOS	Volume from Own Sources:	n g 7	23,140.060	MG/Yr	n g 8	percent	
WI	Water Imported:	n g n/a	0.000	MG/Yr			VOSEA
WE	Water Exported:	n g 3	897.070	MG/Yr	n g 4	0.44%	percent
							under-registration WEEA

WATER SUPPLIED: 22,239.025 MG/Yr

AUTHORIZED CONSUMPTION

BMAC	Billed Metered:	n g 10	6,969.280	MG/Yr			
BUAC	Billed Unmetered:	n g 2	11.490	MG/Yr			
UMAC	Unbilled Metered:	n g 4	53.360	MG/Yr			
UUAC	Unbilled Unmetered:	n g 4	241.890	MG/Yr			

AUTHORIZED CONSUMPTION: 7,276.020 MG/Yr

choose entry option:

custom 241.890 MG/Yr

WATER LOSSES

14,963.005 MG/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n g 3	17.452	MG/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n g 9	31.036	MG/Yr	0.44%	percent	under-registration
UC	Unauthorized Consumption:	n g 3	17.452	MG/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 65.940 MG/Yr

Real Losses

Real Losses: 14,897.065 MG/Yr

WATER LOSSES: 14,963.005 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 15,258.255 MG/Yr

SYSTEM DATA

Lm	Length of mains:	n g 10	964.3	miles	(including fire hydrant lead lengths)		
Nc	Number of service connections:	n g 8	83,641		(active and inactive)		
	Service connection density:		87	conn./mile main			

Are customer meters typically located at the curbstop/property line?

Lp Average length of (private) customer service line: n g 10 48.2 ft (average distance between property line and meter)

AOP Average Operating Pressure: n g 8 60.0 psi

COST DATA

CRUC	Customer Retail Unit Charge:	n g 9	\$23.86	\$/1000 gallons (US)		Total Annual Operating Cost
VPC	Variable Production Cost:	n g 9	\$311.81	\$/Million gallons		\$73,988,317 \$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier III (51-70). See Dashboard tab for additional outputs. *****

[go to dashboard](#)

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Billed Unmetered (BUAC)
3: Unauthorized Consumption (UC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:	<input type="text"/>	gal/conn/day
Unit Apparent Losses:	<input type="text"/>	gal/conn/day
Unit Real Losses ^A :	<input type="text"/>	gal/conn/day
Unit Real Losses ^B :	<input type="text"/>	gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

Exhibit TLF – 4

AWWA Free Water Audit Software: Worksheet
FWAS v6.0
American Water Works Association.
Copyright © 2020. All Rights Reserved.

Water Audit Report for: The Pittsburgh Water and Sewer Authority
 Audit Year: **2022** **Jan 01 2022 - Dec 31 2022** **Calendar**

Click 'n' to add notes To edit water system info: [go to start page](#)
 Click 'g' to determine data validity grade All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To access definitions, click the input name

[Water Supplied Error Adjustments](#)
 choose entry option:

WATER SUPPLIED

VOS	Volume from Own Sources:	n g 7	23,325.850	MG/Yr	n g 8	percent
WI	Water Imported:	n g n/a	0.000	MG/Yr		
WE	Water Exported:	n g 3	746.480	MG/Yr	n g	percent

WATER SUPPLIED: 22,579.370 MG/Yr

VOSEA
WIEA
WEEA

AUTHORIZED CONSUMPTION

BMAC	Billed Metered:	n g 10	7,181.200	MG/Yr		
BUAC	Billed Unmetered:	n g 2	10.170	MG/Yr		
UMAC	Unbilled Metered:	n g 4	37.891	MG/Yr		
UUAC	Unbilled Unmetered:	n g 4	214.160	MG/Yr		

AUTHORIZED CONSUMPTION: 7,443.421 MG/Yr

choose entry option:
 214.160 MG/Yr

WATER LOSSES

15,135.949 MG/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n g 3	17.978	MG/Yr		
CMI	Customer Metering Inaccuracies:	n g 9	13.018	MG/Yr		
UC	Unauthorized Consumption:	n g 3	17.978	MG/Yr		

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 48.975 MG/Yr

Real Losses

Real Losses: 15,086.974 MG/Yr

WATER LOSSES: 15,135.949 MG/Yr

choose entry option:
 default
 percent [under-registration](#)
 default

NON-REVENUE WATER

NON-REVENUE WATER: 15,388.000 MG/Yr

SYSTEM DATA

Lm	Length of mains:	n g 10	960.9	miles		(including fire hydrant lead lengths)
Nc	Number of service connections:	n g 8	83,960			(active and inactive)
	Service connection density:		87	conn./mile main		

Are customer meters typically located at the curbstop/property line?

Lp	Average length of (private) customer service line:	n g 10	48.4	ft		(average distance between property line and meter)
----	--	--------	------	----	--	--

AOP	Average Operating Pressure:	n g 8	60.0	psi		
-----	-----------------------------	-------	------	-----	--	--

COST DATA

CRUC	Customer Retail Unit Charge:	n g 9	\$23.87	\$/1000 gallons (US)		
VPC	Variable Production Cost:	n g 9	\$456.96	\$/Million gallons		

Total Annual Operating Cost: \$83,929,994 \$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

*** The Water Audit Data Validity Score is in Tier III (51-70). See Dashboard tab for additional outputs. ***

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:
 Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)
2: Billed Unmetered (BUAC)
3: Unauthorized Consumption (UC)

KEY PERFORMANCE INDICATOR TARGETS:
 OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:	<input type="text"/>	gal/conn/day
Unit Apparent Losses ^A :	<input type="text"/>	gal/conn/day
Unit Real Losses ^A :	<input type="text"/>	gal/conn/day
Unit Real Losses ^B :	<input type="text"/>	gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

[go to dashboard](#)

Exhibit TLF – 5



**PITTSBURGH
WATER & SEWER
COMPANY**

MANAGEMENT AND OPERATIONS AUDIT

**Pennsylvania Public Utility Commission
Bureau of Audits
Issued March 2023**

**Docket Nos.:
D-2021-3025584,
D-2021-3025585, and
D-2022-3030308**

- **NRW** – water which does not provide revenue potential to the utility (apparent losses + real losses + unbilled metered consumption + unbilled unmetered consumption = NRW)
- **Apparent Losses** – losses associated with customer metering (worn meters, improperly sized meters, or wrong type of meter for the water usage profile); systematic data handling errors (meter reading, billing, archiving, and reporting); and unauthorized consumption (theft or illegal use)
- **Real Losses** – physical water losses from the pressurized system (water mains and customer service connections) and the utility’s storage tanks up to the point of customer consumption; annual volume lost depends on frequencies, flow rates, and average duration of individual leaks, breaks, and overflows
- **Unbilled Metered** – metered consumption authorized by the utility but deemed by utility policy to be unbillable (company use or consumed during treatment process, water agreements with third parties, etc.); does not include water exported for wholesale
- **Unbilled Unmetered** – water that is neither billed nor metered (water used in activities such as firefighting, flushing water mains and sewers, street cleaning, fire flow tests conducted by the utility); typically, a minimal component of NRW
- **Water Losses** – total volume lost for the entire system or for partial systems such as transmission systems, pressure zones, or district metered areas (water supplied less authorized consumption = water losses)

Exhibit VI-7 shows the PWSA’s amounts of water supplied and lost and its NRW data. It should be noted that, for 2017, the PWSA did not report unbilled unmetered consumption (e.g., hydrant flushing, operating & maintenance flushing, etc.); therefore, the reported water losses are the same as NRW.

Exhibit VI-7
Pittsburgh Water & Sewer Authority
Water Supplied and Lost Compared to Non-Revenue Water
For the Years 2017 – 2021

Year	Water Supplied (MG)	Apparent Losses (MG)	Real Losses (MG)	Water Losses ¹³ (MG)	NRW (MG)
2017	25,064.81	-	-	16,209.13	16,209.13
2018	24,597.10	81.27	16,294.91	16,376.18	16,683.78
2019	24,301.35	143.32	17,251.80	17,395.12	17,786.44
2020	22,700.23	49.06	15,580.14	15,629.20	15,789.36
2021	22,239.03	65.94	14,897.07	14,963.01	15,258.26

MG = million gallons

Source: Data Request WO-61 and auditor analysis

¹³ Apparent Losses + Real Losses = Water Losses

Exhibit TLF - 6

IX. QUALITY OF SERVICE

IX.2. Indicate whether the company is in compliance with 52 Pa. Code, § 65.6(a) regarding normal operating pressure standards, and with 52 Pa. Code, § 65.6(d) regarding pressure surveys at regular intervals.

- a. Provide details on any water pressure problems, lasting longer than 5 days, which had occurred since the last rate proceeding in any part of the water transmission and distribution system.
- b. Describe any action taken on a temporary basis, and the long term solutions developed to address any water pressure problems.

RESPONSE:

PWSA provides water service in compliance with 52 Pa. Code, § 65.6(a) over more than 95% of its service territory, during normal operating periods. The design of PWSA's system is such that some areas (less than 5%) experience higher or lower pressures routinely, outside of those provided in 52 Pa. Code, § 65.6(a). During non-normal operating periods, such as when there is a main break or a facility is out of service, PWSA may not be able to meet 52 Pa. Code, § 65.6(a) in larger portions of the system. PWSA has developed a pressure and flow monitoring program to address these issues.

- a. PWSA installed a total of 61 continuous recording pressure monitors throughout the system. The first 24 continuous recording pressure monitors were operational by July 8, 2018, and the remaining 37 pressure monitors were operational by January 21, 2021. This monitoring network ensures that there is at least one or more continuous recording pressure monitors in each separate pressure zone throughout the PWSA distribution system
- b. PWSA continues to work with the PA-DEP to review data from the pressure sensors in the distribution system. Analysis of the data being gathered will assist PWSA with developing the long-term plan to address the local pressure problems systematically and individually.

Exhibit TLF – 7



The Pittsburgh Water and Sewer Authority

2020 – 2024 Capital Improvement Plan

PGH₂O

Water Distribution System

Low Pressure Area Remediation

PROJECT NUMBER: Unidentified

NEIGHBORHOOD/WARD: Systemwide

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Reliability/Operational Flexibility, Level of Service

PROJECT DESCRIPTION:
Fix chronically low pressure areas by either extending neighboring higher pressure districts into the area, booster pump stations, or household booster pumps.

PROJECT JUSTIFICATION:
This project is in response to the low pressure monitors required by the October 2017 Administrative Order.

RISK(S):
Customers may experience temporary service outages as a result of the work on this project.

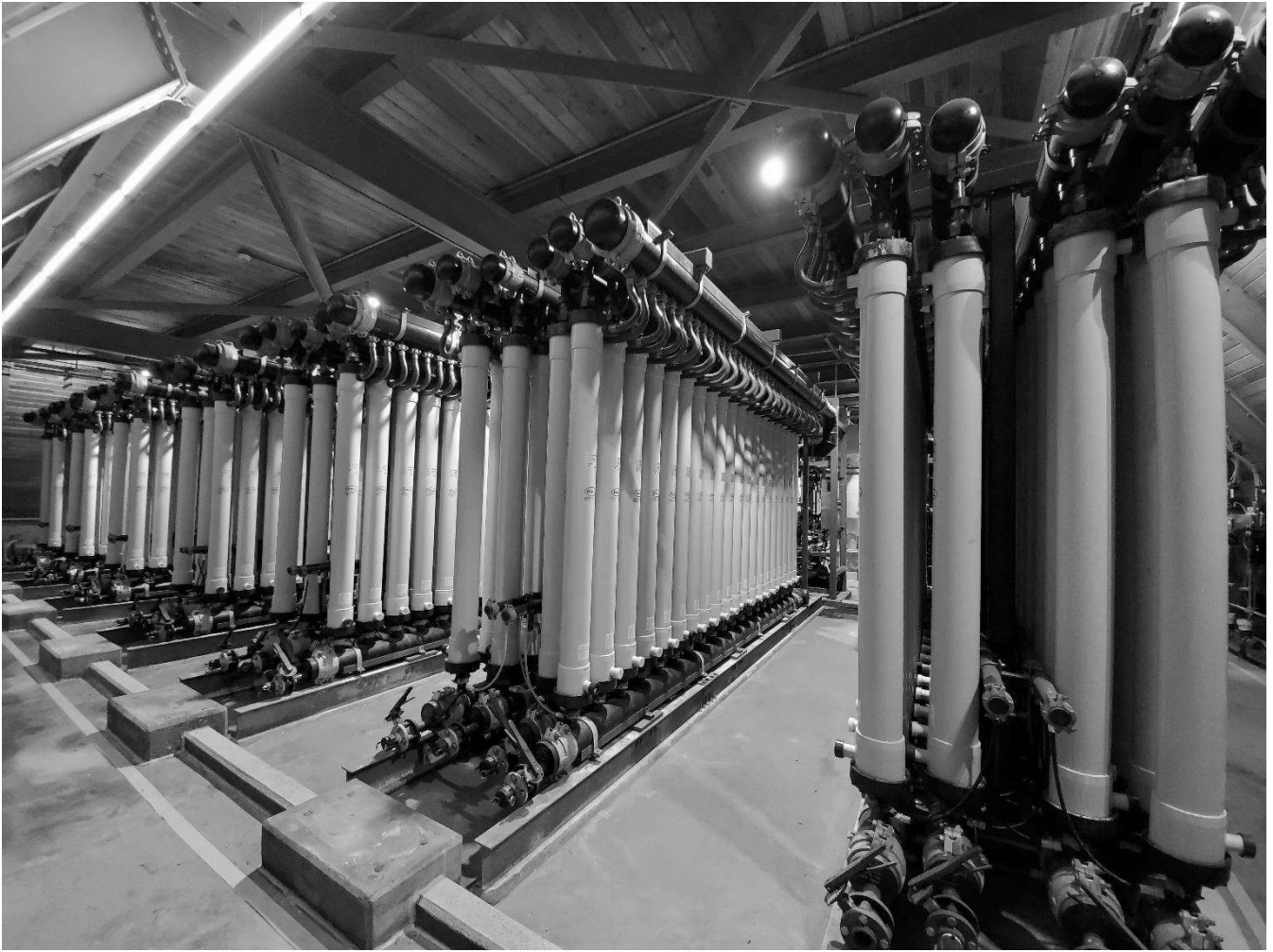
IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

ALTERNATIVES TO THE RECOMMENDED ACTION:
There are no practical alternatives to the recommended action.

		<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>Total Budget (Prior Years Included)</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Total	\$2,393,358	1,029,259	1,193,445	170,654	0	0	\$2,393,358	

*Includes contingencies

Exhibit TLF – 8



2023-2027 Project Summary



Project Class: Water Pumping and Storage Cont.

57	Lanpher Reservoir Improvements	\$2,778,963.09	\$6,370,326.38	\$3,716,023.72	\$0.00	\$0.00	\$12,865,313.19
58	Lincoln Pump Station Improvements	\$288,633.46	\$288,633.46	\$1,258,748.41	\$2,109,323.13	\$1,054,661.57	\$5,000,000.03
59	Lincoln Pump Station: Bypass Pump Station Project	\$2,155,907.00	\$2,164,264.00	\$0.00	\$0.00	\$0.00	\$4,320,171.00
60	Lincoln Tank Improvements	\$337,528.74	\$203,588.76	\$3,680,670.52	\$0.00	\$0.00	\$4,221,788.02
61	Mission Pump Station Improvements	\$0.00	\$0.00	\$577,267.00	\$1,154,534.00	\$694,764.00	\$2,426,565.00
62	Pump Station Architectural	\$0.00	\$0.00	\$0.00	\$2,500,000.00	\$0.00	\$2,500,000.00
63	Saline Pump Station Improvements	\$0.00	\$0.00	\$0.00	\$192,422.00	\$288,633.00	\$481,055.00
64	Spring Hill Tank Improvements	\$0.00	\$62,335.00	\$122,669.00	\$73,819.00	\$933,589.00	\$1,192,412.00
65	Water Pumping and Storage Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total:	Water Pumping and Storage	\$55,304,597.34	\$115,127,475.27	\$121,491,636.70	\$113,245,472.55	\$30,009,850.86	\$435,179,032.71

Project Class: Water Distribution

67	2019 Large Diameter Water Main Improvements - Rising Main 3/4	\$3,062,142.13	\$240,769.90	\$0.00	\$0.00	\$0.00	\$3,302,912.04
68	2019 Large Diameter Water Main Improvements - Rising Main 4	\$12,529,326.00	\$4,176,441.00	\$0.00	\$0.00	\$0.00	\$16,705,767.00
69	Bus Rapid Transit Water Distribution	\$1,500,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,500,000.00
70	District Metering Program	\$0.00	\$0.00	\$2,600,000.02	\$3,380,000.02	\$3,380,000.02	\$9,360,000.06
71	Hazelwood Backup Feed (formerly Duck Hollow Main Replacement)	\$175,156.10	\$175,156.10	\$1,115,470.61	\$1,534,487.21	\$0.00	\$3,000,270.02
72	Herron Hill - Squirrel Hill Boundary Adjustments	\$0.00	\$0.00	\$52,928.57	\$355,186.81	\$635,884.62	\$1,044,000.00
73	Interconnection Vault Stormwater Removal	\$453,007.96	\$1,225,931.03	\$611,310.34	\$0.00	\$0.00	\$2,290,249.34
74	Intermediate Diameter Water Main Replacement Program	\$0.00	\$0.00	\$2,603,833.08	\$4,488,230.43	\$87,000.00	\$49,867,250.52
75	Intermediate Meter Replacement Program	\$143,076.92	\$84,307.69	\$86,538.46	\$87,000.00	\$87,000.00	\$487,923.08
76	Large Diameter Water Main Replacement Program	\$2,980,665.80	\$4,820,095.96	\$23,316,701.96	\$38,087,876.89	\$33,256,579.29	\$102,461,919.89
77	Large Meter Replacement Program	\$1,557,508.32	\$1,341,456.69	\$567,307.69	\$337,000.00	\$337,000.00	\$4,140,272.71
78	Low Pressure Area Remediation	\$0.00	\$0.00	\$23,277.57	\$279,330.90	\$1,393,833.02	\$1,696,441.49
79	Neighborhood Lead Service Line Replacement Program	\$13,582,757.48	\$27,792,500.00	\$55,585,000.00	\$27,792,500.00	\$0.00	\$124,752,757.48
80	North Side Boundary Adjustments	\$0.00	\$0.00	\$79,392.86	\$532,780.22	\$953,826.92	\$1,566,000.00
81	Priority LSLR	\$3,000,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,000,000.00
82	Private Lead Service Line Reimbursement	\$400,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$400,000.00
83	Regulator Valve and Vault Replacement Program	\$378,494.08	\$1,839,360.70	\$3,446,738.96	\$4,173,179.80	\$3,439,080.48	\$13,276,854.01
84	Small Diameter Water Main Replacement Program	\$83,515,128.68	\$75,057,893.92	\$57,763,375.00	\$53,807,131.41	\$89,408,775.74	\$359,552,304.75
85	Small Meter Replacement Program	\$1,723,171.54	\$1,351,089.38	\$480,769.23	\$250,000.00	\$291,667.00	\$4,096,697.15
86	South Side Slopes Boundary Adjustments	\$0.00	\$0.00	\$79,392.86	\$532,780.22	\$953,826.92	\$1,566,000.00
87	Unmetered and Flat Rate Properties	\$327,250.00	\$635,250.00	\$0.00	\$0.00	\$0.00	\$962,500.00
88	Urgent Lead Service Line Replacement	\$1,778,653.60	\$1,749,194.10	\$1,670,085.73	\$1,590,751.08	\$1,246,677.20	\$8,035,361.70
89	Valve Replacement Program	\$2,505,485.32	\$2,800,000.00	\$2,674,358.97	\$2,800,000.00	\$2,925,641.03	\$13,705,485.32
90	Water and Wastewater Safety and Security Improvements	\$1,567,547.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,567,547.00
91	Water and Wastewater Safety and Security Improvements (Pennvest)	\$9,978,156.00	\$0.00	\$0.00	\$0.00	\$0.00	\$9,978,156.00
92	Water Relay Program	\$2,145,000.00	\$2,150,000.00	\$2,712,307.69	\$3,254,769.23	\$3,440,140.58	\$13,702,217.50
93	Water Distribution Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total:	Water Distribution	\$143,302,526.93	\$125,439,446.48	\$155,468,789.61	\$143,283,004.22	\$184,525,119.82	\$752,018,887.06

Project Class: Wastewater System

95	31st Ward Pump Station and Appurtenances - Phase 2	\$958,333.00	\$726,666.67	\$613,666.67	\$7,447,000.00	\$7,447,000.00	\$17,192,666.33
96	6122 and 6150 Mifflin Road Demolition	\$50,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50,000.00
97	Browns Hill Road Sewer Pump Station Replacement	\$432,000.00	\$1,608,000.00	\$1,880,000.00	\$0.00	\$0.00	\$3,920,000.00
98	Large Diameter Sewer Rehabilitation Program	\$12,774,486.37	\$2,997,238.10	\$4,266,000.00	\$4,897,000.00	\$4,957,000.00	\$29,891,724.46
99	M-29 Outfall Improvements	\$250,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$250,000.00
100	Mayvile Storm and Sanitary Sewer System Improvements	\$118,026.95	\$4,026,497.00	\$1,957,785.00	\$0.00	\$0.00	\$6,102,308.95
101	Queenston Sewer Improvements	\$2,210,550.00	\$243,203.00	\$0.00	\$0.00	\$0.00	\$2,453,753.00
102	Sewer Reconstruction Program	\$2,691,769.00	\$1,810,000.00	\$1,810,000.00	\$1,886,458.21	\$2,701,329.79	\$10,899,557.00
103	Sewers Under Structures Program	\$6,786,029.94	\$2,373,663.24	\$2,422,730.16	\$3,530,382.94	\$3,386,507.35	\$18,499,313.62
104	Small Diameter Sewer Rehabilitation Program	\$24,363,045.00	\$17,657,219.00	\$14,629,597.00	\$17,990,467.53	\$36,426,240.26	\$121,066,568.79
105	Wastewater Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total:	Wastewater System	\$50,634,240.26	\$31,442,487.00	\$27,579,778.83	\$45,751,308.67	\$54,918,077.41	\$210,325,892.16

Water Distribution System

Herron Hill - Squirrel Hill Boundary Adjustments

PROJECT NUMBER: 2025-200-101-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Main and valve adjustments to move the boundary between the Herron Hill Reservoir and Squirrel Hill pressure districts.
PROJECT JUSTIFICATION: Herron Hill and Squirrel Hill operate on similar hydraulic gradients. There are areas where these two systems intertwine, which has resulted in long dead end lines as well as frequent opening and altering of dividing pressure valves. Moving the boundary of the two zones to incorporate more of the Herron Hill system into the Squirrel Hill system will alleviate these issues as well as alleviate demand on the Herron Hill Reservoir.
RISK(S): Existing long dead ends can cause water quality issues.
IMPACT ON OPERATIONS: Decreased leakage between pressure districts.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$52,928	\$355,187	\$635,885	\$1,044,000	

Water Distribution System

Low Pressure Area Remediation

PROJECT NUMBER: 2021-325-101-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Fix chronically low pressure areas by either extending neighboring higher pressure districts into the area, booster pump stations, or household booster pumps.
PROJECT JUSTIFICATION: This project is in response to the low pressure monitors required by the October 2017 Administrative Order.
RISK(S): Customers may experience temporary service outages as a result of the work on this project.
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

CASH FLOW SUMMARY

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>FUNDING SOURCE(S)</u>
Annual Allocation	\$0	\$0	\$23,278	\$279,331	\$1,393,832	\$1,696,441	Debt (Revenue Bonds)

Water Distribution System

North Side Boundary Adjustments

PROJECT NUMBER: 2025-200-104-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: Main and valve installation to move some low pressure areas from the McNaugher Pressure District to the Brashears Pressure District.
PROJECT JUSTIFICATION: Areas within the McNaugher Pressure District that are near the Brashears Pressure District could have increased pressure by moving the pressure zone boundary through main improvements and valve adjustments.
RISK(S): Existing services are near or below minimum standards (20 psi).
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

CASH FLOW SUMMARY

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>FUNDING SOURCE(S)</u>
Annual Allocation	\$0	\$0	\$79,393	\$532,780	\$953,827	\$1,566,000	Debt (Revenue Bonds)

Water Distribution System

South Side Slopes Boundary Adjustments

PROJECT NUMBER: 2025-200-107-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: Main and valve adjustments to move the boundary between the Highland No. 2 and Allentown Pressure Districts.
PROJECT JUSTIFICATION: Areas within the Highland No. 2 pressure district that are near the Allentown pressure district could have increased pressure by moving the pressure zone boundary through main improvements and valve adjustments.
RISK(S): Existing services are near or below minimum standards (20 psi).
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$79,393	\$532,780	\$953,827	\$1,566,000	

Exhibit TLF – 9

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-12 Reference: PAWC St. No. 3, pg. 4: The following questions are regarding isolation valves:

- a) How many isolation valves are installed in the Authority’s system? Include both Authority and “privately owned” valves.
- b) How many are Authority valves?
- c) How many of the “privately owned” valves are installed on Authority transmission and distribution mains within public rights-of-ways or easements and include more than customer that the Authority bills separately?
- d) How many of these privately owned valves could be considered “critical” if owned by the Authority?
- e) Has the Authority notified DEP regarding the large number of “privately owned” isolation valves on the Authority’s system and the Authority’s intent regarding operating and maintaining these valves?

Response:

a) Based on current GIS mapping, there are 19,371 confirmed isolation valves and 4,163 private valves. The private valves are primarily service valves (generally 4-inch and larger) that serve commercial customers or valves that function as isolation valves on private distribution systems such as large shopping districts, hospitals, private housing developments, etc. that have their own private distribution system off of the PWSA system.

b) There are 19,371 PWSA-owned Isolation Valves based on current GIS mapping.

c) There are no privately owned valves that meet these criteria based on the current GIS mapping.

d) None of the private valves would be considered critical if owned by the Authority based on diameter. Critical valves that would be operated to isolate critical customers were defined based on review of PWSA-owned valves only at this time.

e) The private valves are only shown on GIS for general information to help the property owner in the event that they have an issue. Typically, PWSA will receive an as-built of a private development and add that information to the GIS. These private valves are not part of the PWSA system.

Response Provided by: Barry King, PE, Director of Engineering
 Jackson Stoss, GIS Manager
 The Pittsburgh Water and Sewer Authority

Dated: June 13, 2023

Exhibit TLF – 10

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”)
Set I
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: OCA-I-10 As part of the Settlement of its 2021 PWSA base rate case at Docket Nos. R-2021-3024773 et al, PWSA agreed to create a plan to implement a record-keeping procedure for valve maintenance, including valve location (GPS coordinates), age, size manufacturer, serial number (when available from the manufacturer), number of rotations to fully open and fully close valve, and overall condition of valves for all new valve installations beginning in 2022. See Section III.E.1 of the Settlement, pp. 15-16. Please answer the following questions concerning the creation of this plan:

- a. Was a plan successfully created? If so, please provide the plan. If not, indicate why not.
- b. Was any portion of this identified information unable to be included in the plan? If so, identify which information could not be provided and explain why PWSA was unable to provide the information.
- c. Did PWSA file a report for calendar year 2021 identifying each valve that it attempted to exercise and whether it was broken or operable? If so, please provide that report.
- d. Did PWSA file a report for calendar year 2021 identifying each valve that it attempted to exercise and whether it was broken or operable? If so, please provide that report.

Response:

- a. Yes. PWSA created a valve inspection program and all valves are inspected on a 5-year cycle. We created a work order and capture all this information in our Spry Mobile application.
- b. As stated, PWSA does not track the serial number, also the GPS of the valves does not happen at the time of inspection. PWSA has a dedicated employee who GPS locates our valves both new and existing.
- c. Yes. See OCA-I-10 Attach A for the report filed on April 8, 2022 which includes the condition of the valve if known and reported at the time the valve was exercised. In 2021, PWSA did not record this information for each valve exercised and, therefore, the information is unavailable for some of the valves. See **CONFIDENTIAL** OCA-I-10 Attach B for an excel version of the 2021 Valve Inspection Report.
- d. See response to OCA-I-10. PWSA was not required to file a report for calendar year 2022. See **CONFIDENTIAL** OCA-I-10 Attach C for an excel version of the 2022 Valve Inspections Report.

Response Provided by: William McFaddin, Director of Operations
The Pittsburgh Water and Sewer Authority

Dated: June 7, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”)
Set I
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: OCA-I-11 As part of the Settlement of its 2021 PWSA base rate case at Docket Nos. R-2021-3024773 et al PWSA agreed to work with a third-party expert for assistance with any necessary modeling, GIS layers, Standard Operating Procedures (SOPs) and planning efforts to develop a prioritization plan to be implemented in 2022. See Section III.E.1 of the Settlement, pp. 16-17. Please answer the following questions concerning the Prioritization Plan commitments PWSA made in the Settlement:

- a. Was a Prioritization Plan implemented? If yes, please provide a copy of the Prioritization Plan. If not, explain why not.
- b. Has PWSA completed any reports, either internal or public, that document the outcomes of this Prioritization Plan? If so, please provide a copy of any such reports. If not, indicate whether PWSA plans to produce such a report and provide an estimated timeline for completion of the report.

Response:

- a. Yes. PWSA has identified our critical valves. The cycle for which these valves will be inspected is currently being developed.
- b. Any valves that were identified as a critical valve are inspected and exercised; these steps are captured in our SPRY Mobile Application. Currently these would be part of our 2021 and 2022 valve inspection reports. *See Confidential OCA-I-10 Attach B and Attach C.*

Response Provided by: William McFaddin, Director of Operations
The Pittsburgh Water and Sewer Authority

Dated: June 7, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”)**

Set I

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-I-12 Concerning PWSA’s isolation valves, please provide a report, by calendar year, beginning at the implementation of PWSA 2021 base rate case at Docket Nos. R-2021-3024773 et al, and continuing to May 2023, documenting the following information:

- a. The number and sizes of isolation valves that have been either repaired or replaced;
- b. The amount of time it took to replace valves larger than 16”; and
- c. The cost of the isolation valve repair and replacement program.

Response:

- a. See **CONFIDENTIAL** OCA-I-12 for valves replaced 2020 through 2023.
- b. Column N of **CONFIDENTIAL** OCA-I-12 identifies the number of days it took to replace the valve; this is for the 16” and larger valves.
- c. The annual contract amounts for PWSA’s valve replacement contracts the past 2 years are as follow:

2021: \$1,203,562

2022: \$1,285,152

PWSA does not have a contract for the 2023 program yet. These contracts are funded via capital dollars. PWSA also relies on employees to replace small valves as needed in addition to the annual large valve replacement contract. Those costs are included in the O&M budget.

Response Provided by: William McFaddin, Director of Operations
The Pittsburgh Water and Sewer Authority

Dated: June 7, 2023

Exhibit TLF – 11

CONFIDENTIAL OCA-I-10
Valve Inspections 2020 through 2023

Valve Condition	Years		
	2021	2022	2021-22
Good	3126	5560	8686
Fair	81	0	81
Marginal	7	0	7
Poor	28	0	28
Broke	773	464	1237
No Description	1328	0	1328
Needs Located	<u>57</u>	<u>375</u>	<u>432</u>
Total Annual	5400	6399	11799

CONFIDENTIAL OCA-I-12
Valves Replaced 2020 through 2023

Valve Size	Year			
	2020	2021	2022	2023
4-inch	3	9	11	2
6-inch	32	87	128	57
8-inch	20	37	58	29
10-inch	1	5	1	0
12-inch	16	6	14	13
16-inch	0	3	5	3
20-inch	0	1	0	1
30-inch	0	0	0	1
42-inch	1	0	0	0
Total Annual	73	148	217	106
Totals 2020 through 2023 (to date)				544

Exhibit TLF – 12

Water Distribution System

Valve Replacement Program

PROJECT NUMBER: 2021-325-113-0, 2023-200-108-0, 2024-200-104-0, 2025-200-109-0, 2026-200-104-0, 2027-200-103-0

DSIC Eligible: Yes

PHASE: Construction / Not Started
PRIORITY: Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Replacement of defective or non-operational valves on transmission and distribution mains throughout the water distribution system, excluding valves replaced during waterline relays.
PROJECT JUSTIFICATION: Increasing the number of operable valves in the system will reduce the number of valves that would need to be closed during emergency conditions, and therefore the number of customers that may be impacted.
RISK(S): A larger number of customers may be subject to service outages.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

Program Year	CASH FLOW SUMMARY						FUNDING SOURCE(S)
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total	
	\$2,505,485	\$2,800,000	\$2,674,359	\$2,800,000	\$2,925,641	\$13,705,485	
2021 Valve Replacement	\$150,000	\$0	\$0	\$0	\$0	\$150,000	DSIC - Water
2022 Valve Replacement	\$722,152	\$0	\$0	\$0	\$0	\$722,152	
2023 Valve Replacement	\$1,633,333	\$1,166,667	\$0	\$0	\$0	\$2,800,000	
2024 Valve Replacement	\$0	\$1,633,333	\$1,166,667	\$0	\$0	\$2,800,000	
2025 Valve Replacement	\$0	\$0	\$1,507,692	\$1,292,308	\$0	\$2,800,000	
2026 Valve Replacement	\$0	\$0	\$0	\$1,507,692	\$1,292,308	\$2,800,000	
2027 Valve Replacement	\$0	\$0	\$0	\$0	\$1,633,333	\$1,633,333	

Exhibit TLF – 13

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”)**

Set I

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-I-13 Concerning PWSA’s meter testing and replacement, please provide a report, by calendar year, beginning at the implementation of PWSA’s last base rate case at Docket Nos. R-2021-3024773 et al, and continuing to May 2023, documenting the following information:

- a. The number of meters tested;
- b. The number of meters replaced;
- c. The number of customers who were unwilling to have PWSA access their meters.

Response:

- a.
 - 2020 Tested 5273
 - 2021 Tested 6971
 - 2022 Tested 5845
 - 2023 Tested 2159
- b. In 2022, PWSA replaced 5,865 water meters. Thus far in 2023 YTD, PWSA has replaced 2,237 water meters.
- c. In 2022, PWSA issued 983 non-access termination notices. Thus far in 2023 YTD, PWSA has issued 1,149 non-access termination notices.

Response Provided by: Julie A. Mechling, Director of Customer Service
William McFaddin, Director of Operations
The Pittsburgh Water and Sewer Authority

Dated: June 7, 2023

Exhibit TLF – 14



Water Distribution

PGH₂O

Water Distribution System

Intermediate Meter Replacement Program

PROJECT NUMBER: 2021-325-100-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: Replacement of customer meters size 1.5" to 2".
PROJECT JUSTIFICATION: Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed.
RISK(S): Failure to replace meters annually could result in lost revenue or violate regulatory requirements.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$143,077	\$84,308	\$86,538	\$87,000	\$87,000	\$487,923	

Water Distribution System

Large Meter Replacement Program

PROJECT NUMBER: 2023-200-102-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Annual replacement of water meters larger than 1".
PROJECT JUSTIFICATION: Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed.
RISK(S): Failure to replace meters annually could result in lost revenue.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

CASH FLOW SUMMARY

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>FUNDING SOURCE(S)</u>
Annual Allocation	\$1,557,508	\$1,341,457	\$567,308	\$337,000	\$337,000	\$4,140,273	Debt (Revenue Bonds)

Water Distribution System

Small Meter Replacement Program

PROJECT NUMBER: 2023-200-106-0

DSIC Eligible: No

PHASE: Construction / Not Started
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Annual replacement of water meters 1" or less.
PROJECT JUSTIFICATION: Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed.
RISK(S): Failure to replace meters annually could result in lost revenue or violate regulatory requirements.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$1,723,172	\$1,351,089	\$480,769	\$250,000	\$291,667	\$4,096,697	

Water Distribution System

Unmetered and Flat Rate Properties

PROJECT NUMBER: 2021-325-103-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Metering unmetered and flat rate properties as required by regulations.
PROJECT JUSTIFICATION: Required per the PUC regulations. The impact of not installing meters is the loss of revenue and lack of ability to accurately estimate water loss in the system.
RISK(S): Failure to comply with PUC regulations and the potential of lost revenue.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$327,250	\$635,250	\$0	\$0	\$0	\$962,500	

Exhibit TLF – 15

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-22 How many dead-end lines in the distribution system have been eliminated during the period 2021, 2022 and 2023 to date?

Response:

Dead-end lines are not currently identified as a separate layer in GIS making the number difficult to quantify at this time.

Response Provided by: Barry King, PE, Director of Engineering
Jackson Stoss, GIS Manager
The Pittsburgh Water and Sewer Authority

Dated: June 13, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-23 How many dead-end lines do not have fire hydrants or blow-off valves near the dead end for flushing purposes?

Response:

Dead-end lines are not currently identified as a separate layer in GIS making the number difficult to quantify at this time.

Response Provided by: Barry King, PE, Director of Engineering
Jackson Stoss, GIS Manager
The Pittsburgh Water and Sewer Authority

Dated: June 13, 2023

Exhibit TLF – 16

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-15 How many of the Authority’s fire hydrants cannot provide a fire flow of 500 gpm at 20 psig for a 2-hour duration?

Response: Using information provided by the Hydraulic Model, developed in 2019, there are estimated to be 374 hydrants that cannot provide a fire flow of 500 gpm at 20 psig for a 2 hour duration. This is approximately 5% of all system hydrants.

Response Provided by: Barry King, PE, Director of Engineering
Sarah Bolenbaugh, PE, Senior Group Manager, Water Programs
The Pittsburgh Water and Sewer Authority

Dated: June 13, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-16 Identify every public fire hydrant that is connected to a water main of less than 6- inch diameter.

Response: There are currently 82 PWSA hydrants that are connected to a water main of less than 6” diameter based on current GIS mapping.

Response Provided by: Barry King, PE, Director of Engineering
Jackson Stoss, GIS Manager
The Pittsburgh Water and Sewer Authority

Dated: June 13, 2023

Exhibit TLF – 17

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Miscellaneous Items:

Request: OCA-V-30 Complaints. Please provide a copy of the Authority’s record of all customer complaints for the calendar years 2022 and 2023 to date, on a live Excel spreadsheet that can be sorted by system, date and location regarding the following quality of service and other issues:

- a) For the water system: water quality (taste, odor, color), staining of laundry or plumbing fixtures, pressure, property damage, incomplete surface restoration, notifications, health issues and other service complaints including billing and requests for water quality and meter testing. The response should include the nature of the complaint and the action taken by the Authority in response to the complaint.
- b) For the wastewater system: odor, sewer backups, pump station alarms, grinder pumps, sewer lateral blockages, missing or offset manhole lids, property damage, incomplete surface restoration, and other service complaints including billing. The response should include the nature of the complaint and the action taken by the Authority in response to the complaint.
- c) For the stormwater system: flood damage, sewer backups, missing or offset inlet grate and manhole lids, property damage, incomplete surface restoration, and other service complaints including billing. The response should include the nature of the complaint and the action taken by the Authority in response to the complaint.

Response:

Response: See PWSA Exhibits Confidential OCA-V-30.a, Confidential OCA-V-30.a.1, Confidential OCA-V-30.b, Confidential OCA-V-30.b.1, Confidential OCA-V-30.c.

Response provided by: Julie A. Mechling

Date response provided: June 13, 2023

Pittsburgh Water & Sewer Authority
Customer Complaint Logs
 Responses to OCA Set V-30

Complaints/Inquiries	Year	
	2022	2023
Water Service		
Water Quality	17	25
Water Causing Illness	1	5
Poorly Tasting Water	15	5
Malodorous (Smell)	37	9
Discolored Water	9	6
Meter Inquiries	194	233
Total Water	273	283
Wastewater System		
Customer Sewage Backup	374	85
Had Prior Backup	173	47
Sewer Smell	67	20
Total Wastewater	441	105
Stormwater System		
Investigate Lids	127	49

Note: Date ending in 2023 varies around June 1

Exhibit TLF – 18

PWSA Customer Complaint/Call Logs

(OCA Statement 8, Exhibit 4, Docket Nos. R-2021-3024773, R-2021-3024774, R-2021-3024779)

	2020 thru Dec 31	2021 thru Jun 28
Water System		
Number of Complaints/Calls		
Investigate Dirty Water	26	20
Lab - Discolored Water	4	4
Lab - Malodorous (Smell)	15	13
Lab - Poorly Tasting Water	12	4
Lab - Water Causing Illness	1	0
Lab - Water Quality	10	7
Leak Investigation	1249	788
Hydrant Repair	299	124
Hydrant Replacement	11	1
Curb Box Locate/Replace	134	110
Investigate Lid (1)	141	106
Wastewater System		
Investigate Sewer Backups (2)	305	283
Investigate Sewer Smells	70	18
Sewer Line Jetting	24	3
Sewer Line Televising	2	0
Sinkhole Investigation	826	159
Replace Manhole Casings and Covers	31	1
Stormwater System		
Catch Basin Clean/Repair	1	15
Catch Basin Replace	33	7
Retrival from Catch Basin (3)	31	25
Overland Flooding	0	1

(1)Includes many sewer manholes, catch basins & inlet boxes

(2)Include 8 cases of backups in multiple years

(3) Retrieving personal belongings dropped in sewer

**Pittsburgh Water & Sewer Authority
Customer Complaint Log**

Complaint	Year	
	2018	2019
Water Service		
No Water	332	168
Discolored Water	67	38
Low Volume/Pressure	184	201
Lead Service Lines		
Material Verification	55	3
Request Replacement	50	22
Water Main Breaks	120	101
Service Line Leaks/Frozen	366	298
Water Meters		
Frozen/Leaking/Broken	631	88
Curb Stop/Boxes Inoperable	20	9
Locate and Mark	202	319
Blow out Valve Box	60	20
Curb Box Leaks	34	20
Defective	23	37
Fails to Close Tight	7	2
None Access	482	359
Fire Hydrants		
Repair Leaking/Broken	273	356
Investigate Hydrant		
Low Volume/Pressure	10	7
Flow Tests	127	93
Hydrants Hit/Sheared Off	109	101
Miscellaneous	25	10
Leaks (not included in above)		
Leaks in Street	501	396
Leaks in Sidewalk	51	36
Leaks in Ditch/Vault	9	2
Request Leak Detection	80	118
Request Water Sample	0	4
Water Damage		
To Property	3	0
Valve Operations	6	7
Wastewater System		
Surcharging Manholes	16	12
Sewer Line Breaks	49	20
Customer Sewage Backup	227	177
Sewer Line Jetting (Cleaning)	508	427
Sewer Odor	38	22
TV Sewer Lines	245	157
Stormwater System		
Repair Catch Basins	55	25
Clear Clogged Catch Basins	3,823	2,892
Collapsed Catch Basins	39	4
Clean CSO Outfall	32	40
Miscellaneous	298	213
System Undefined		
Restoration Repairs Needed	40	49
Sinkholes	951	561
Damaged/Missing Lids	384	399
Contractor Restoration	1,264	990
Street/Sidewalk Undermined	30	24
Investigate Problems	1,246	990

Exhibit TLF – 19

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

JULIE A. QUIGLEY

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2021-3024773 (Water)
R-2021-3024774 (Wastewater)
R-2021-3924779 (Stormwater)

TOPICS:

Collections
Compliance Plan Stage 2
Customer Service
COVID-19 Impacts and Customer Protections
Low-Income Customer Assistance Programs
Miscellaneous Water/Wastewater Tariff Issues

July 29, 2021

1 **2. Complaint Handling**

2 **a. 2020 Customer Complaint/Call Log**

3 **Q. DID MR. FOUGHT RAISE CONCERNS ABOUT PWSA’S CUSTOMER**
 4 **COMPLAINT TRACKING IN PWSA’S LAST RATE CASE?**

5 A. Yes, in PWSA’s last rate case, Mr. Fought observed that PWSA’s record of calls for the
 6 years 2018 and 2019 did not clearly indicate the PWSA system (i.e. water, wastewater,
 7 combined sewer or stormwater) that they concerned.²⁸

8 **Q. HAS PWSA ADDRESSED THE ISSUE RAISED BY MR. FOUGHT IN THE**
 9 **LAST RATE CASE?**

10 A. Yes. In January 2020, PWSA implemented SpryMobile-Work Orders and Asset
 11 Management, an extension of the existing web based application with cloud technology
 12 that now enables Field Operations staff to input work orders using iPads to track
 13 corrective and preventative maintenance on water and wastewater assets. The
 14 implementation of SpryMobile permits submission of work orders with descriptions,
 15 denoting water versus wastewater assets.

16 **Q. PLEASE DESCRIBE MR. FOUGHT’S CONCERNS ABOUT THE 2020**
 17 **CUSTOMER COMPLAINT/CALL LOG.**

18 A. In this rate case, Mr. Fought notes that the 2020 Customer Complaint/Call Log does not
 19 include any complaints regarding “pressure” or “no water” or any complaints regarding
 20 high bills and “catch-up” bills due to faulty or non-registering meters. (OCA Statement 6
 21 at 17-18). Mr. Fought also observes that the category “investigate lid” appears to have
 22 many calls concerning the wastewater and stormwater systems that were incorrectly
 23 entered as being related to the water system. (OCA Statement 6 at 18).

²⁸ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2020-3017951 (water) and R-2020-3017970 (wastewater) OCA St. No. 8 at 20-21.

1 **Q. DID PWSA’S SPRYMOBILE WORK ORDERS THAT WERE USED TO**
2 **PRODUCE THE 2020 COMPLAINT/CALL LOG CAPTURE COMPLAINTS**
3 **FALLING UNDER THE MISSING CATEGORIES IDENTIFIED BY MR.**
4 **FOUGHT?**

5 A. No.

6 **Q. WERE SOME OF THE CALLS IDENTIFIED IN THE 2020 COMPLAINT/CALL**
7 **LOG DEALING WITH THE “INVESTIGATE LID” CATEGORY**
8 **INCORRECTLY CLASSIFIED?**

9 A. Yes.

10 **Q. WHAT DOES MR. FOUGHT RECOMMEND?**

11 A. Mr. Fought recommends that PWSA should provide a “complete and accurate” customer
12 complaint log in future cases, which includes complaints received about pressure, no
13 water, high consumption, high bills and previously unbilled consumption. Further, he
14 recommends that complaints recorded as “investigate lid” should be identified and
15 correctly classified as being related to the water, sewer or stormwater system. (OCA
16 Statement 6 at 18-19).

17 **Q. WHAT IS PWSA’S POSITION ON THESE RECOMMENDATIONS?**

18 A. I appreciate Mr. Fought’s recommendations. As demonstrated over the three years since
19 PWSA has come under the jurisdiction of the Commission, PWSA is actively working to
20 update its systems based on constructive suggestions from the parties as well as the
21 Commission but it must not be forgotten that this is a process that takes time. The
22 complaints identified by Mr. Fought regarding pressure, no water, high consumption, and
23 previously unbilled consumption are currently recorded in customer account notes and
24 are not easily accessible for reporting purposes. PWSA will work with its vendor as part
25 of the SAP implementation to capture these types of complaints in a manner where they
26 are reportable. However, it would be difficult to classify complaints as alleging “high

1 bills” given the various or even multiple reasons that a consumer might be making that
 2 claim. Currently, PWSA customer service representatives are trained to record the
 3 customer’s explanation of his or her complaint in a general “notes” section of our system
 4 when the complaint cannot be more obviously be classified in one of the pre-determined
 5 categories. Because complaints about high bills can involve a number of different
 6 factors, it would be difficult to commit to standardize our reporting of these types of
 7 complaints. As to identifying and correctly classifying investigate lid complaints as
 8 being related to the water, sewer or stormwater system, PWSA will make every effort to
 9 do so, understanding that human error can occur.

10 **b. Volume of Complaints**

11 i. *Identifying Trends Based on 2020 and 2021 Data*

12 **Q. PLEASE DESCRIBE MS. ALEXANDER’S CONCERNS ABOUT COMPLAINTS.**

13 A. Ms. Alexander presents information about the number of complaints against PWSA in
 14 2020 and 2021 to reach the conclusion that PWSA experienced an increase in all
 15 complaint categories, including informal complaints, formal complaints, justified
 16 consumer complaints and verified infractions, for January through April in 2020 and
 17 2021. (OCA Statement 5 at 16). She also references the customer complaints received in
 18 the first quarter of 2021 in comparison with the same data from 2020 and concludes that
 19 the increase in complaints in 2021 raises “compliance concerns” because they occurred
 20 during a period of time when termination was not the root cause because terminations
 21 were not occurring then. (OCA Statement 5 at 17).

22 **Q. DO YOU AGREE THAT MS. ALEXANDER’S COMPARISON OF YEARS 2020**
 23 **AND 2021 IS AN ACCURATE REPRESENTATION OF THE DISPUTES AND**
 24 **INFORMAL COMPLAINTS THAT IT RECEIVES ON A REGULAR BASIS**

Exhibit TLF – 20

Water Distribution System

2019-2024 Surface Restoration

PROJECT NUMBER: 2019-325-106-0, Unidentified
NEIGHBORHOOD/WARD: Systemwide

PHASE:
Construction

PRIORITY:
Safety, Operations and Maintenance Efficiency

PROJECT DESCRIPTION:
Resurfacing of streets as a result of other capital projects.

PROJECT JUSTIFICATION:
Adequately restoring street surface conditions is a requirement for all applicable capital projects.

RISK(S):
Customers could experience temporary street closures as a result of street resurfacing work.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

ALTERNATIVES TO THE RECOMMENDED ACTION:
There are no practical alternatives to the recommended action.

		CASH FLOW SUMMARY						FUNDING SOURCE(S)
	Total Budget (Prior Years Included)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total	Debt (Revenue Bonds)
Total	\$25,911,333	3,564,474	4,158,926	4,097,387	4,197,390	4,297,393	\$20,315,569	

*Includes contingencies

Exhibit TLF – 21

PITTSBURGH WATER & SEWER AUTHORITY

5-YEAR
LONG-TERM INFRASTRUCTURE
IMPROVEMENT PLAN

April 27, 2020

	Criteria	Description	Score	% of Total Score	
		< 1910	100		
	Sub Total Percentage of Likelihood of Failure Criteria			62	
Consequences of Failure	Water Main Location	Water main located inside roadway limits	0	10	
		Water main outside limits of roadway	10		
		Water main located under structures	100		
	Traffic Functional Classification	Major/Minor Collectors, Local Roads	0	10	
		Minor Arterials	25		
		Primary Arterials and Interstates	100		
	Critical Facilities	Noncritical customers	0	18	
		Has Critical Customers Tap (Hospitals and Medical facilities)	100		
		Sub Total Likelihood of Likelihood of Failure Criteria			38
		Total Percentage			100

The ranking criteria outlined above will be revisited on an annual basis to ensure that the SDWMR program is cost-effective and addressing the most critical issues in the distribution system. The need to coordinate future water main replacements in conjunction with sanitary sewer or storm sewer replacement/improvement projects to minimize disruptions to the community and save on surface restoration will be considered in the site selection process. In addition, coordination efforts will also be undertaken to coordinate water main replacement with the City, County and State road restoration projects to minimize surface restoration costs. Finally, there will be an active coordination program with other utilities to ensure the Authority’s activities are integrated with other utility improvements to achieve a net savings in road restoration impacts.

8 OUTREACH AND COORDINATION ACTIVITIES

8.1 Construction Coordination

The Authority has developed a coordination team with the City and its other utility members. In addition, PWSA is developing a robust GIS based data layer to communicate its plans to other utilities. At present, the critical coordination appears to be with the City, specifically the annual paving plans, and the local Gas Companies' piping improvements. Significant improvement is expected with the coordination between the PWSA and the City as a result of the City's hiring of a new Chief Engineer, and additional engineering staff, which has delayed coordination in the past. Additionally, PWSA has assigned specific utility coordination duties to a primary, internal utility coordination staff member within the Engineering Department.

Additionally, as previously indicated in this report, the Authority is currently updating its GIS to add water and sewer system data, evaluate and edit existing data, and refine its data retrieval processes in order to make the system more comprehensive, dependable, and easy to use. Annually, water and sewer system capital projects including replacements, rehabilitations, and repairs are selected and vetted to the Authority's engineering department before being prioritized for the coming budget year. As part of this process, the Authority solicits information from PennDOT, Allegheny County, homeowner's associations and other utilities as to their intentions to undertake paving and other public works projects during the budget year. The Authority attends monthly utility coordination meetings with the City's Department of Mobility and Infrastructure (DOMI) and other local utilities and coordinates construction and repair efforts when possible to avoid conflicts where overlapping work is identified. Additionally, PWSA will utilize resources, including the Pennsylvania 811 Coordination web service application, to identify opportunities for collaboration between projects and to meet the need for increased coordination with local utilities and local, state, county and city government agencies.

Whenever and wherever the Authority decides to undertake a pipe or manhole refurbishment project on a road pre-scheduled for paving, the project is coordinated with the State, County, City or appropriate municipality. The Authority works closely with the government agency to ensure that the design, permitting and construction of the Authority's infrastructure project will be completed in time to allow for the road to be paved.

In some cases, the government agencies will agree to postpone paving of its roads to match the Authority's completion of construction date, even if it extends into the subsequent year. Typically, where the Authority undertakes a project where paving has been pre-planned by the involved government agency, the Authority and its rate payers will benefit financially through the avoidance of road surface restoration.

The Authority will continue the proactive means to identify opportunities to coordinate pipe replacement and road paving.

8.2 Lead Service Line Replacement Program Outreach

In full support of the COA, the Authority has built a program to support its customers through the lead service replacement process. These outreach and communication efforts encourage property owners to participate in the current no-cost private lead service replacements offered in contract work areas. The

2. Property owners will be contacted in advance and asked to enter into an agreement to allow PWSA employees and contractors to gain access to their private property in order to replace their private LSLs. The agreement will include provisions that require the property owner(s) to release and hold harmless the PWSA from any and all claims, causes of action, damages or losses, of any nature, whatsoever with respect to the work performed by PWSA or its contractors.⁵ July 2019 Policy at 3.
3. Homeowners will then be asked to cooperate with PWSA's timeline for replacement and allow workers access to the service line. July 2019 Policy at 3.
4. PWSA will restore roadways and public sidewalks, backfill any trenches excavated as part of the replacement process and will fill and seal any wall or floor penetrations in the private home. No other restoration will be conducted for the private side replacement. PWSA will not replace any landscaping, interior finishes, paving, seeding, or walkways. All restoration costs shall be borne by the homeowner. July 2019 Policy at 4.

I. Ad hoc replacements initiated by property owners after January 1, 2019: “Ad hoc replacements” refer to when a property owner elects on their own initiative to arrange for the replacement of a private side LSL when PWSA is not then-currently replacing the public side of the line. PWSA developed this program in the context of PWSA's implementation in April 2019 of its new orthophosphate water treatment plan in accordance with DEP requirements, which PWSA expects will reduce lead levels to below the lead action level under the Lead and Copper Rule. PWSA M.B. at 60; PWSA St. C-1RJ at 3, 17-18.

1. If the private LSL is connected to a public LSL, PWSA proposes to replace the public side portion of the LSL when a customer elects to replace the

⁵ A limitation of liability provision in connection with the PWSA's tort liability for any work it performs to replace the customer-owned service line in accordance with the PWSA's plan must be filed for the Commission's approval in the PWSA's tariff. See 52 Pa. Code § 69.87 (state case law permits tariff provisions to limit the liability of utilities to specified dollar amounts for injury or damages as a result of negligence or intentional torts); see also *In re: Tariff Provisions That Limit the Liability of Utilities for Injury or Damage as a Result of Negligence or Intentional Torts*, Pa. PUC v. PECO Energy Company, M-00960882, R-00943065, Pa. PUC LEXIS 111 (Declaratory Order entered March 17, 1997); see also *DeFrancesco v. Western Pennsylvania Water Co.*, 478 A.2d 1295, 1307 (Pa. Super. 1984) (holding a tariff provision limiting the company's liability was exculpatory and void as against public policy because it completely negated the water company's liability for its acts of negligence or intentional tort); see also *State Farm Fire and Casualty Co. v. PECO Energy Company*, 54 A.2d 921, 926-927 (Pa. Super. 2012) (holding that the tariff provision limiting liability to \$500 was valid and enforceable because the Commission had determined the reasonableness of the tariff and because the provision limited liability rather than negating liability altogether). As clarification, any approved limitation of liability provision for tort liability would not extend to any separate service claim raised in a complaint filed with the Commission against the PWSA under 66 Pa. C.S. § 701.

Exhibit TLF – 22

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-31 Surface Restoration of City Streets disturbed by PWSA projects.

- a) Please discuss the co-ordination between the PWSA and the City in selecting where the Authority’s projects will be located.
- b) Since 2019, how much of the surface restoration costs did the City pay for streets and/or alleys disturbed by PWSA projects that required repaving entire traffic lane(s),?
- c) Were the City’s contributions based on conditions of the streets/alleys prior to PWSA construction?
- d) What is the City’s budget for resurfacing streets for each year during the 2022-2027 period?
- e) What was the City’s budget for resurfacing streets for each year during the 2019-2021 period?
- f) Are any of the streets resurfaced by the City since 2019 proposed to be disturbed by future PWSA projects?
- g) Are any of the streets proposed to be resurfaced by the City during 2023- 2027 period also proposed to be disturbed by future PWSA projects?

Response:

- a) Historically, PWSA does not receive the City’s paving list until two weeks prior to paving season making coordination for defined projects difficult. For indefinite quantity indefinite delivery (IDIQ) projects, the Department of Mobility Infrastructure (DOMI) reviews Street Opening Permit requests for overlaps and begins coordination with other utilities or City projects for final restoration of the roadway.
 - b) Since 2021, a total of \$252,597 of surface restoration cost have been contributed by the City for streets/alleys disturbed by PWSA projects that required repaving for entire traffic lanes.
 - c) No.
 - d) City’s budget for resurfacing streets for 2022-2027:
 - 2022: \$16,002,244 (Street resurfacing)
 - 2023: 18,203,042 (Street resurfacing)
 - 2024: \$3,632,963 (Street resurfacing)
 - 2025: \$7,622,571 (Street resurfacing)
 - 2026: \$7,805,567 (Street resurfacing)
 - 2027: \$16,500,000 (Street resurfacing)
- *Source: City of Pittsburgh Capital Budgets (<https://pittsburghpa.gov/omb/capital-budgets>)

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

- e) City’s budget for resurfacing streets for 2019-2021:
- 2019: \$18,570,890 (Street resurfacing)
 - 2020: \$15,684,154 (Street resurfacing)
 - 2021: \$17,109,505 (Street resurfacing)
- *Source: City of Pittsburgh Capital Budgets (<https://pittsburghpa.gov/omb/capital-budgets>)
- f) PWSA has requested data from the City of all roads resurfaced from 2019; however, the data has not been received.
- g) Yes, for 2023 there are currently overlaps. The City has not provided a paving list past 2023.

Response Provided by: Barry King, PE, Director of Engineering
Kate Mechler, P.E., Deputy Director of Engineering
The Pittsburgh Water and Sewer Authority

Dated: June 13, 2023

Exhibit TLF – 23

Net ALCOSAN	1,766,508	2,066,814	2,400,861	2,771,926
Total	\$117,504,058	135,911,272	145,641,684	159,623,404
Difference	-	18,407,213	9,730,412	13,981,720

1

2

The expense categories of Direct Operating, Salaries, and Employee Benefits are main drivers of the increase given PWSA’s continued efforts to right size its operations to fit the size of the system.

3

4

5

Q. CAN YOU EXPLAIN WHAT EXPENSES ARE INCLUDED IN THE DIRECT OPERATING EXPENSE CATEGORY?

6

7

A. Yes, as the name implies, the direct operating expense category includes expenses that are required to keep the authority running on a day-to-day basis such as material purchases, surface restoration, water and sewer repairs, vehicles purchases, catch basin cleaning, maintenance contracts and water treatment chemical purchases.

8

9

10

11

The direct operating expense category represents the largest increase of all of the operating budget categories. This is a result of PWSA’s continued need to address and maintain its large water, sewer, and stormwater systems. Not providing PWSA with the requested amount of funds for this expense category will put even more pressure on the already massive capital improvement plan as improvements will only be made when failures occur.

12

13

14

15

16

17

Q. WHAT ARE THE MAIN DRIVERS IN THE DIRECT OPERATING EXPENSE CATEGORY?

18

19

A. The main drivers of this category are the rapid increase in water treatment chemical costs, costs to implement PWSA forthcoming wet weather consent decree, surface restoration costs, and urgent water and sewer repair costs. These expenses make up over 40% of the cost increase in this expense category between the FPFTY and FY 2026.

20

21

22

1 **Q. CAN YOU ELABORATE ON THE WATER TREATMENT CHEMICAL COST**
 2 **INCREASE?**

3 A. Yes. As displayed by the chart below, water treatment chemical costs have risen by 50%
 4 between FY 2021 and FY 2022.

	FY 2021	FY 2022	\$ Increase	% Increase
Chemical Costs	\$3,495,040	\$5,248,184	\$1,753,143	50%

5 This is the result of inflation and supply chain issues. Prices are continuing to rise with
 6 recent bids showing some chemicals prices again doubling. As a result of this activity,
 7 PWSA’s chemical claim of \$6.8 million in the FPFTY, \$8.2 million in FY 2025, and \$9.8
 8 million in FY 2026 is justified. Having the funds available for this expense is non-
 9 negotiable. It is arguably the most important expense in order to ensure safe drinking
 10 water.

11 **Q. CAN YOU DISCUSS PWSA’S WET WEATHER CONSENT DECREE?**

12 A. As discussed in the testimony of Mr. Igwe, negotiations are currently ongoing between
 13 PWSA and the United States Environmental Protection Agency for the purpose of
 14 entering into a Wet Weather Consent Decree. The goal of the decree will be to
 15 significantly reduce sanitary sewer and combined sewer overflows.

16 While the timeline can change, PWSA anticipates that the consent decree will be
 17 finalized in FY 2024. It is for this reason that PWSA included \$7.5 million - \$2.5 million
 18 in the FPFTY, an additional \$2.5 million in FY 2025, and an additional \$2.5 million in
 19 FY 2026 – in this rate case to comply with the consent decree.

20 It is estimated that Wet Weather Consent Decree will result in hundreds of
 21 millions of dollars in required improvements, with a significant portion being paid for out
 22 of the operating budget. The reality of PWSA not receiving the necessary revenues in this

1 rate case will result in non-compliance. That only negatively impacts ratepayers while
 2 hurting the reputation that PWSA has worked so hard to rebuild.

3 **Q. CAN YOU PROVIDE THE REVENUE REQUIREMENTS FOR THE URGENT**
 4 **WATER, URGENT SEWER, AND SURFACE RESTORATION MENTIONED**
 5 **ABOVE FOR THE FPPTY, FY 2025, AND FY 2026?**

6 A. The chart below shows the requested revenue requirements for urgent water, urgent
 7 sewer, and surface restoration costs in the FPPTY, FY 2025, and FY 2026.

	FY 2024	FY 2025	FY 2026
Urgent Sewer	\$9,053,157	9,596,347	10,172,128
Surface Restoration	7,836,351	8,306,532	8,804,924
Urgent Water	4,836,911	5,127,126	5,434,753

8
 9 PWSA must receive revenues sufficient to cover these three expenses. The recent
 10 strides made on PWSA’s capital improvement plan has helped to jump start the
 11 replacement of assets that are well beyond their useful life. However, this effort will need
 12 to continue for at least the next decade in order to address the backlog of assets that need
 13 to be replaced. This means the risk for water line breaks and sewer failures remains high.
 14 PWSA cannot predict when breaks and failures will occur, but when they do, heavy
 15 reliance is placed on the urgent water and sewer contracts for repairs.

16 The surface restoration contract is used to repave streets that result from breaks or
 17 other work performed by PWSA. Due to funding restrictions, there is currently a large
 18 backlog of sites within PWSA’s service area that have a temporary patch and are waiting
 19 to be paved. This has resulted in a poor level of service and complaints from ratepayers.
 20 The requested funding in this rate case will provide PWSA with the funding necessary to
 21 address this backlog and future restoration work.

Exhibit TLF – 24

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XII (12)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XII-3 Reference PWSA response to OCA-V-3. Is all the water pumped into to the Highland 1 Reservoir from the Aspinwall Treatment Plant treated and metered?

- A. If yes, why isn’t an estimate of rainfall in and evaporation out of Highland 1 Reservoir a consideration in UFW/NRW?
- B. If yes, why is the amount of water treated at and pumped from the microfiltration plant a factor in UFW/NRW for the entire system?

Response:

The water that is pumped to Highland 1 from the water treatment plant is treated but it is not metered until it leaves Highland 1 Reservoir. Since we do not meter the water until after it leaves the reservoir we do not need to account for rain or evaporation.

Response Provided by: William McFaddin, Director of Operations
The Pittsburgh Water and Sewer Authority

Dated: July 5, 2023

Exhibit TLF - 25

Water Pumping and Storage

Highland 1 Reservoir Liner

PROJECT NUMBER: 2026-300-100-0

DSIC Eligible: No

PHASE: Not Started – Project Close
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Replacement of existing Highland 1 Reservoir liner.
PROJECT JUSTIFICATION: The reservoir liner is past it's useful design life and is in need of replacement.
RISK(S): Failure to replace the liner could result an emergency repairs or replacement.
IMPACT ON OPERATIONS: Increased operating efficiency, flexibility, reliability, and life expectancy,.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$0	\$0	\$704,981	\$0	\$704,981	Debt (Revenue Bonds)

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

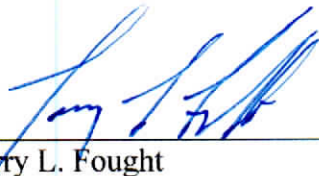
Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Terry L. Fought, hereby state that the facts set forth in my Direct Testimony, OCA Statement 6, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: August 9, 2023
*349813

Signature:



Terry L. Fought

Consultant Address: 780 Cardinal Drive
Harrisburg, PA 17111

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	)	Docket Nos. R-2023-3039920
v.	)	R-2023-3039921
Pittsburgh Water and Sewer Authority	)	R-2023-3039919

REBUTTAL TESTIMONY OF

KARL RICHARD PAVLOVIC

**ON BEHALF OF THE
PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

September 8, 2023

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1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Karl Richard Pavlovic. My business address is 22 Brooks Avenue,
4 Gaithersburg, MD 20877.

5 **Q. ARE YOU THE SAME KARL RICHARD PAVLOVIC WHO SUBMITTED**
6 **DIRECT TESTIMONY IN THIS PROCEEDING ON AUGUST 9, 2023?**

7 **A.** Yes. Exhibit KRP-1 to my direct testimony summarizes my qualifications and
8 experience.

9 **II. PURPOSE OF TESTIMONY**

10 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

11 **A.** I am testifying on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

12 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

13 **A.** The purpose of my rebuttal testimony is two-fold. First, I will make a revision in
14 my direct testimony to clarify that PWSA does not need to request a formal waiver
15 to increase its water Distribution System Improvement Charge (DSIC) from 5% to
16 7.5%. Additionally, my testimony will respond to I&E Witness Spadaccio's direct
17 testimony supporting PWSA's proposal to increase its DSIC cap percentage from
18 5.0% to 7.5%.

1 **III. DISCUSSION**

2 **A. SUMMARY**

3 **Q. PLEASE SUMMARIZE THE SUBSTANCE OF YOUR REBUTTAL TESTIMONY.**

4 **A.** As detailed below, I am making a revision to my direct testimony to clarify that PWSA
5 does not need a waiver to increase its water DSIC cap from 5% to 7.5%; however, that
6 clarification does not change my position that PWSA has not demonstrated a need for the
7 increase. Thus, my recommendation remains that the Commission should reject PWSA’s
8 request to increase its DISC to 7.5% because their request is not supported by substantial
9 evidence. The remainder of my rebuttal testimony responds to the Bureau of Investigation
10 and Enforcement’s (I&E) witness, Anthony Spadaccio.¹ Despite Witness Spadaccio’s
11 support for the DSIC increase, the lack of justification for an increase to PWSA’s DSIC
12 cap to 7.5% on grounds of either increasing DSIC PAYGO funding or providing
13 accountability for funding capital projects remains.

14 **Q. HAVE YOU PREPARED ANY EXHIBITS TO YOUR TESTIMONY?**

15 **A.** No.

¹ I&E St. No. 1.

1 **B. REVISION OF OCA STATEMENT 2**

2 **Q. YOU INDICATED ABOVE THAT YOU HAVE A REVISION TO CLARIFY YOUR**
3 **DIRECT TESTIMONY. PLEASE IDENTIFY THE PORTION YOU ARE**
4 **REVISING.**

5 A. The portion of my testimony that must be revised is on page 19, line 11-12. The identified
6 portion reads as follows: “It is my understanding from Counsel at the OCA that to request
7 more than 5%, PWSA must make a specific waiver request.” I note that the sentence
8 contains an error of omission.

9 **Q. WHAT REVISION ARE YOU MAKING?**

10 A. The sentence should read “It is my understanding from Counsel at the OCA that to request
11 more than 5% for wastewater, PWSA must make a specific waiver request.” For purposes
12 of clarity, I recognize that as a water and wastewater utility, PWSA is required to seek a
13 waiver for a 7.5% DSIC for wastewater but not for water. Therefore, the error made in my
14 direct testimony was an inadvertent error that must now be revised. This error does not
15 change the overall conclusion that PWSA has failed to come forward with substantial
16 evidence indicating that it requires a DSIC rate of 7.5% for either water or wastewater and,
17 thus, I continue to recommend that the Commission disallow these increases.

1 **C. I&E’S DSIC TESTIMONY**

2 **Q. WHAT IS I&E’S POSITION REGARDING PWSA’S PROPOSAL TO INCREASE**
3 **ITS DSIC CAPS FROM 5.0% TO 7.5%?**

4 **A.** I&E witness Spadaccio states without more that “I&E is supporting the proposal to increase
5 the Authority’s DSIC, which was established in PWSA’s 2020 base rate case from 5% of
6 distribution revenues to 7.5% of distribution revenues.”²

7 **Q. WHY DOES I&E SUPPORT PWSA’S PROPOSAL TO INCREASE PWSA’S**
8 **PROPOSAL TO INCREASE ITS DSIC CAP PERCENTAGES TO 7.5%?**

9 **A.** Witness Spadaccio does not say *why* the DSIC should be increased or that PWSA provides
10 any evidence of need. Instead, he discusses the DSIC increase in juxtaposition to I&E’s
11 opposition to PWSA’s PAYGO funding claim and then lists two effects of the proposed
12 increase in the DSIC cap percentages. First, he claims that increasing the cap percentages
13 to 7.5% will provide “an additional approximately \$15 million in the FPFTY allowing for
14 additional internally generated funds to support planned infrastructure investments.”³
15 Second, he states that “the Long-term Infrastructure Improvement Plan (LTIIP), which is
16 required for the DSIC, provides a clear picture of how ratepayer funds are being used to
17 fund capital projects, which is a level of spending accountability that is not provided with
18 PAYGO.”⁴

² I&E St. No. 1, page 21 lines 17-19.

³ I&E St. No. 1, page 21 lines 19-21.

⁴ I&E St. No. 1, page 21 line 21 to page 22 line 4.

1 **Q. WHAT IS THE CONTEXT OF I&E'S ENDORSEMENT OF PWSA'S PROPOSED**
2 **INCREASE OF PWSA'S DSIC CAP PERCENTAGES TO 7.5%**

3 **A.** The context of this testimony is that witness Spadaccio's endorsement of an increase for
4 PWSA's DSIC PAYGO funding is embedded in his argument for rejection of PWSA's
5 non-DSIC PAYGO proposal in its MYRP.⁵ Thus in context, I&E's position on the DSIC
6 increases is that PWSA should increase its PAYGO funding of LTIIIP capital projects, but
7 only via the DSIC cap increases, which will purportedly provide greater ratepayer
8 accountability for the funds used for capital projects.

9 **Q. DID I&E ARGUE THAT PWSA'S DSIC INCREASES TO 7.5% ARE NECESSARY**
10 **FOR PWSA TO ENSURE AND MAINTAIN ADEQUATE, EFFICIENT, SAFE AND**
11 **RELIABLE SERVICE?**

12 **A.** No. Witness Spadaccio did not make any claim that PWSA's ability to ensure and maintain
13 adequate, efficient, safe, and reliable service is contingent on its ability to recover a 7.5%
14 DSIC for both water and wastewater. He simply argued that DSIC PAYGO funding is a
15 better alternative to non-DSIC PAYGO funding.

16 **Q. DID I&E ADDRESS ANY NEED OF INCREASED DSIC FUNDING FOR**
17 **SPECIFIC LTIIIP CAPITAL PROJECTS?**

18 **A.** No. Witness Spadaccio did not argue that PWSA's capital projects would be impacted by
19 increased DSIC funding, nor did he identify any capital project benefits that would
20 materialize if PWSA's requests were granted.

⁵ I&E St. No. 1, page 21 line 1 to page 23 line 20; see also PWSA St. No. 2, page 27 line 19 to page 28 line 4.

1 **Q. DID I&E ADDRESS ANY OF PWSA’S ARGUMENTS FOR INCREASING ITS**
2 **DSIC CAPS TO 7.5%**

3 **A.** No. Witness Spadaccio’s testimony is the sum total of I&E testimony regarding PWSA’s
4 DSIC and PWSA’s proposal to increase its DSIC caps to 7.5%. Witness Spadaccio’s
5 testimony does not address either the propriety of DSIC PAYGO or PWSA’s arguments
6 for an increase in DSIC caps.⁶

7 **Q. DO YOU AGREE THAT INCREASING THE DSIC CAP PERCENTAGES IS AN**
8 **APPROPRIATE MEANS OF INCREASING PWSA’S PAYGO FUNDING OF THE**
9 **CAPITAL PROJECTS IN PWSA’S LTIP?**

10 **A.** No. As I explained in my direct testimony regarding PWSA’s proposal to increase its
11 DSIC caps, (1) DSIC PAYGO recovery is not an option under Section 1357(c) and is
12 inconsistent with the recovery options that are set forth in Section 1357(c),⁷ (2) DSIC
13 PAYGO recovery violates the regulatory principle of ratable recovery of the costs of capital
14 assets, which violation in turn leads to the over recovery of capital costs from current
15 customers and the under recovery of capital costs from later generations of customers in
16 violation of intergenerational equity,⁸ (3) increasing PWSA’s DSIC caps to 7.5% will only
17 increase the amount of DSIC eligible capital assets the recovery of the costs of which is in
18 violation of the principle of ratable recovery, over recovering capital costs from current
19 customers and under recovering capital cost from future customers,⁹ and (4) PWSA’s

⁶ PWSA St. No. 2, page 27 line 6 to page 30 line 8.
⁷ OCA St. 2, page 23 lines 19-20 and page 24 line 10 to page 25 line 7.
⁸ OCA St. 2, page 23 line 20 to page 24 line 3.
⁹ OCA St. 2, page 24 lines 3-6.

1 DSICs are not PWSA's only option for accessing capital asset financing that is less
2 expensive than long term debt.¹⁰

3 **Q. WHAT IS YOUR RESPONSE TO THE LTIP CAPITAL PROJECT FUNDING**
4 **ACCOUNTABILITY ISSUE RAISED BY I&E?**

5 **A.** Witness Spadaccio is simply wrong that only the DSIC provides accountability for how
6 ratepayer funds are used to fund capital projects. In any given year, PWSA completes X
7 number of capital projects. Subtracting from that number of projects the completed
8 projects funded through the DSIC leaves the projects funded either through internally
9 generated funds or long term debt. Consequently, funding is clearly accounted for non-
10 DSIC capital projects. The issues of LTIP project accounting is further compounded by
11 the fact that any increased DSIC funding must be tied to LTIP projects that ensure and
12 maintain adequate, efficient, safe, reliable and reasonable service.¹¹ Neither PWSA nor
13 I&E Witness Spadaccio has supported increasing DSIC funding from the perspective that
14 increased funding is required for LTIP projects to ensure and maintain adequate, efficient,
15 safe, reliable and reasonable service to customers.

16 **Q. WHAT IS YOUR CONCLUSION REGARDING I&E'S SUPPORT FOR PWSA'S**
17 **PROPOSAL TO INCREASE ITS DSIC CAPS TO 7.5%?**

18 **A.** For the reasons detailed above, and in my Direct Testimony, I conclude that there is no
19 justified need to increase PWSA's DSIC caps to 7.5%, in terms of increasing either DSIC
20 PAYGO funding of or accountability for funding capital projects. Like PWSA, I&E too

¹⁰ OCA St. 2, page 24, lines 7-9; page 25 lines 12-17.

¹¹ 52 Pa. Code §121.1.

1 has not supported that increased DSIC funding is necessary. Simply arguing that DSIC
2 PAYGO funding is preferable to other internally generated funding is insufficient support.

3 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

4 **A.** Yes. However, I reserve the right to supplement this testimony if further information is
5 provided by PWSA.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY
COMMISSION

Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Karl R. Pavlovic, hereby state that the facts set forth in my Rebuttal Testimony, OCA Statement 2R, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 8, 2023

Signature:



Karl R. Pavlovic

Consultant Address: PCMG and Associates, LLC.
22 Brookes Avenue
Gaithersburg, MD 20877

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY)	
COMMISSION)	
	)	DOCKET NOS. R-2023-3039920 (WATER)
v.	)	R-2023-3039921 (WASTEWATER)
	)	R-2023-3039919 (STORMWATER)
PITTSBURGH WATER AND SEWER)	
AUTHORITY)	

REBUTTAL TESTIMONY OF
JEROME D. MIERZWA

ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

SEPTEMBER 8, 2023

1 **I. INTRODUCTION**

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS
3 ADDRESS?

4 A. My name is Jerome D. Mierzwa. I am a Principal and Vice President of Exeter
5 Associates, Inc (“Exeter”). My business address is 10480 Little Patuxent Parkway,
6 Suite 300, Columbia, Maryland 21044. Exeter specializes in providing public utility-
7 related consulting services.

8 Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS
9 PROCEEDING?

10 A. Yes. My direct testimony was submitted as OCA Statement 3 on August 9, 2023.

11 Q. IN YOUR DIRECT TESTIMONY DID YOU PROPOSE ANY
12 ADJUSTMENTS TO THE PITTSBURGH WATER AND SEWER
13 AUTHORITY’S (PWSA) STORMWATER RATE DESIGN?

14 A. No. In my direct testimony, I did not propose any adjustments to PWSA’s stormwater
15 rate design.¹

16 Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

17 A. The purpose of my rebuttal testimony is to respond to certain aspects of the stormwater
18 rate testimony submitted by (1) River Development Corporation (RDC) witnesses Dr.
19 Robert Strauss (RDC St. No. 1) and Cheryl McAbee (RDC St. No. 2), and (2)
20 Pittsburgh School District (PSD) witnesses Michael J. McNamara (PSD St. No. 1) and
21 Eric M. Callocchia (PSD St. No. 2). Each of these witnesses oppose PWSA’s
22 stormwater rate for various reasons, and it is important note that the fact that I will not
23 address all aspect of these witnesses’ testimony should not be interpreted as my
24 agreement to their positions. Additionally, because these witnesses have raised certain

¹ OCA St 3. 22.

1 legal issues in this case, I will defer to counsel to address legal issues in briefing.

2 Q. HAVE ANY OF THE WITNESSES YOU IDENTIFIED CHALLENGED
3 THE PROPRIETY OF PWSA CHARGING A STORMWATER RATE?

4 A. Yes. RDC Witness Strauss claims that PWSA’s stormwater rate is improper because
5 it was never authorized by the City Council of Pittsburgh.² Additionally, RDC
6 Witnesses Strauss and McAbee, as well as PSD Witness McNamara each point to a
7 Commonwealth Court decision, *Borough of West Chester v. Pa. State System of*
8 *Higher Education et al*, as a potential basis to challenge PWSA’s stormwater rate.³

9 Q. WHAT IS YOUR RESPONSE REGARDING CLAIMS THAT PWSA’S
10 STORMWATER RATE IS UNLAWFUL?

11 A. As I already indicated, I am not offering a legal opinion in this case, and I will defer to
12 counsel to address these claims in briefing. For purposes of my analysis, it is important
13 to understand that my recommendations were developed based upon PWSA’s approved
14 stormwater rate design which was developed and approved in the settlement of
15 PWSA’s 2021 base rate case,⁴ and then later memorialized in the Commission’s
16 approval of PWSA’s Stormwater Compliance Plan case.⁵

17 Q. DID THE COMMISSION REQUIRE PWSA TO SET STORMWATER
18 RATES BASED ON A CLASS COST OF SERVICE STUDY?

19 A. No. As I indicated in my direct testimony, stormwater rates for all customers are
20 assessed based on Equivalent Residential Units (“ERU”), and PWSA calculated
21 stormwater rates based on ERUs. PWSA developed an analysis showing the cost of

² RDC St No. 1, p. 4.

³ RDC St. No. 1, pp. 4-5; RDC St. No. 2, p. 14; and PSD St. No. 1, p. 14.

⁴ *Pa. PUC v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater) (PWSA 2021 Rate Case).

⁵ *Implementation of Chapter 32 of the Public Utility Code RE: Pittsburgh Water and Sewer Authority; Stage 2 Stormwater Compliance Plan*, Docket Nos. M-2018-2640802 and M-2018-2640803 (Order Aug. 25, 2022) (PWSA Stage 2 Stormwater Compliance Case).

1 serving each ERU. PWSA's rates for stormwater service for Residential customers are
2 based on a three-tier rate structure, with rates that vary based on the impervious area of
3 a customer's property. All other customers are assessed rates for stormwater service
4 based on the ERU of the customer's property.

5 Q. WAS PWSA'S STORMWATER RATE DESIGN PART OF A
6 COMPREHENSIVE RATE CASE INVESTIGATION IN 2021?

7 A. Yes. The publicly available record from PWSA's 2021 rate case demonstrates that
8 PWSA's stormwater rate design was investigated and challenged, in part, by multiple
9 parties, including the OCA. As an example, as part of its direct case in 2021, the OCA
10 questioned whether PWSA's proposed method for determining Residential stormwater
11 tiers was reasonable and fair to all customers.⁶ As part of its investigation, the OCA
12 performed a comprehensive review of stormwater fees charged in other communities
13 in Pennsylvania based upon a 2020 study conducted by Western Kentucky University.⁷
14 The OCA challenged various assumptions underlying PWSA's tiered proposal and
15 made multiple recommendations.⁸ Other parties also challenged aspects of PWSA's
16 stormwater rate design, and the resolution of all challenges ultimately resulted in a
17 settlement, approved by the Commission in 2021.⁹ Afterward, on January 20, 2022,
18 PWSA submitted a Stormwater Compliance Plan that reflected stormwater-related
19 issues addressed in PWSA's 2021 Rate Case, including the approved rate design.
20 PWSA's Stormwater Compliance Plan was ultimately approved by the Commission on
21 August 25, 2022 with only slight modifications unrelated to rate design.¹⁰

⁶ PWSA 2021 Rate Case, OCA St. No. 3. p. 16.

⁷ PWSA 2021 Rate Case, OCA St. No. 3. p. 24.

⁸ PWSA 2021 Rate Case, OCA St. No. 3. p. 24

⁸ PWSA 2021 Rate Case, OCA St. No. 3. p. 24

⁹ PWSA 2021 Rate Case (Order November 18, 2021).

¹⁰ PWSA Stage 2 Stormwater Compliance Plan (Order Aug. 25, 2022).

1 Q. IN THIS CASE, HAS PWSA PROPOSED CHANGES TO ITS
2 STORMWATER RATE DESIGN?

A. No. PWSA is not proposing to change its previously approved stormwater rate design in this case.¹¹

3 Q. ARE ERU-BASED STORMWATER CHARGES UNIQUE TO PWSA?

4 A. No. As I mentioned, in 2020, the OCA reviewed stormwater charges across the country
5 and determined that the ERU-based method was widely used by stormwater utilities
6 across the country. To carry the OCA's review forward and to update it for this case, I
7 have reviewed the Western Kentucky University Stormwater Utility Survey for 2022.¹²
8 Page 2 of the survey indicates that the most widely used method of funding stormwater
9 costs is the ERU system, which is usually the average impervious area on a single-
10 family residential parcel, with charges for Non-Residential property being proportional
11 to the ratio of the impervious area to the ERU.

12 Q. HAVE THE WITNESSES OF RDC AND PSD CHALLENGED PWSA'S
13 ERU-BASED STORMWATER RATE DESIGN IN THIS CASE?

14 A. Yes. RDC Witness McAbee and PSD Witness Callocchia argue that PWSA's ERU-
15 based rates are inequitable because they provide three tiers of rates for Residential
16 customers but all Non-Residential customers pay based on only one tier, which is a
17 charge per ERU.¹³ Additionally, RDC Witnesses Strauss and McAbee, as well as PSD
18 witness Callocchia, each argue that the ERU-based charges are improperly designed in
19 that they rely upon impervious surface area as a basis for calculation.¹⁴ Finally, PSD
20 Witness Callocchia also argues that PWSA should adjust the ERU rates assessed to

¹¹ PWSA St. No. 5, p. 30.

¹² The survey is publicly available online using the hyperlink below:

https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1005&context=seas_faculty_pubs

¹³ RDC St. No. 2, p. 4; PSD St. No. 2, pp. 20-21.

¹⁴ RDC St. No. 1, p. 4; RDC St. No. 2, p. 4, pp. 15-16; PSD St. No. 2, pp. 20-22.

1 each customer class to assign certain costs directly to each customer class based on
2 Class Contribution.¹⁵

3 Q. HOW DO YOU RESPOND TO RDC AND PSD'S CHALLENGES TO
4 PWSA'S ERU-BASED STORMWATER RATE DESIGN?

5 A. My overall response is that I do not have enough information to consider the specific
6 challenges that they have raised in the context of how they would be reflected in
7 PWSA's rate design. As I mentioned, PWSA's stormwater rate design was developed
8 and approved in 2021, and my analysis in this case was built upon the adopted and
9 approved stormwater rate design. With respect to the claims of RDC Witness McAbee
10 and PSD Witness Callocchia that it is inequitable to provide three tiers to Residential
11 customers and only one tier to Non-Residential customers, neither Witness presents an
12 alternative that can be evaluated for reasonableness. In addition, I would note that the
13 current ERU system assesses stormwater rates and charges to all customers in direct
14 proportion to impervious area. It is unclear how a tiered system would materially
15 change the current assessment of stormwater rates and charges.

16 With respect to the claims of RDC Witness Strauss and McAbee, as well as
17 PSD Witness Callocchia that PWSA's ERU-based charges are improperly designed in
18 that they rely upon impervious area for the basis of calculation, again neither Witness
19 presents a specific alternative that can be evaluated for reasonableness. In addition as
20 indicated previously in this testimony, the Western Kentucky University Stormwater
21 Utility Survey for 2022 indicates that the most widely utilized method of funding
22 stormwater costs is the ERU system, which is usually the average impervious area on
23 a single-family Residential parcel, with charges for Non-Residential property being
24 proportional to the ratio of the impervious area to the ERU. Adopting an alternative

¹⁵ PSD St. No. 2, pp. 13-15.

1 method is likely to come with significant implementation costs which may not justify
2 a change.

3 Finally, Mr. Callocchia's claim that PWSA should adjust the ERU rates
4 assessed to each customer class to assign certain costs directly to each customer class
5 based on Class Contribution will be addressed by OCA Witness Roger D. Colton.

6 Q. RDC WITNESS MCABEE AND PSD WITNESS CALLOCCHIA ALLEGE
7 THAT PWSA IS IMPROPERLY EXEMPTING CEMETERIES FROM
8 PAYING STORMWATER RATES.¹⁶ HOW DO YOU RESPOND?

9 A. My response is that under PWSA's current stormwater tariff, all PWSA customers are
10 subject to paying stormwater rates. If RDC and PSD's claims are correct, PWSA must
11 take action to assess the proper stormwater rates as required by its tariff, as there is no
12 basis for PWSA to offer an exemption. I will await PWSA's response before
13 commenting further on this claim.

14 Q. IN SUMMARY, HAVE ANY OF THE CLAIMS MADE BY RDC AND
15 PSD CAUSED YOU TO CHANGE YOUR POSITION IN DIRECT
16 TESTIMONY?

17 Not at this time. I must reserve the right to reevaluate and consider PWSA's response
18 to these claims and respond in surrebuttal testimony if additional information enables
19 me to appropriately respond to the positions of RDC or PSD.

20 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

21 A. Yes, it does; however, I reserve the right to update this testimony as may be necessary.

¹⁶ PSD St. No. 2, pp. 25-26; RDC St. No. 2, p. 14.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

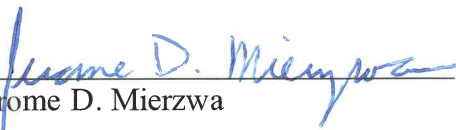
Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Jerome D. Mierzwa, hereby state that the facts set forth in my Rebuttal Testimony, OCA Statement 3R, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 8, 2023

Signature:


Jerome D. Mierzwa

Consultant Address: Exeter Associates, Inc.
10480 Little Patuxent Parkway
Suite 300
Columbia, MD 21044-3575
4874-2283-6094, v. 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission : Docket No. R-2023-3039920,
v. : Docket No. R-2023-3039921,
Pittsburgh Water and Sewer Authority : Docket No. R-2023-3039919
:

Rebuttal Testimony of Roger Colton
on behalf of
Pennsylvania Office of Consumer Advocate
OCA Statement 4R

September 8, 2023

1 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

2 A. My name is Roger D. Colton. My business address is 34 Warwick Road, Belmont, MA.

3 **Q. ARE YOU THE SAME ROGER COLTON WHO PREVIOUSLY PREPARED**
4 **DIRECT TESTIMONY ON BEHALF OF THE OFFICE OF CONSUMER**
5 **ADVOCATE IN THIS PROCEEDING?**

6 A. Yes, I am.

7 **Q. PLEASE EXPLAIN THE PURPOSE OF YOUR REBUTTAL TESTIMONY.**

8 A. The purpose of my Rebuttal Testimony is to respond to the Direct Testimony of Kevin
9 Higgins prepared on behalf of the Office of Small Business Advocate (OSBA) (“OSBA
10 St. 1”) and the Direct Testimony of Eric Callocchia prepared on behalf of the School
11 District of Pittsburgh (“School District St. 2”). My Rebuttal Testimony is limited to
12 responding to the assertion of each of those two witnesses that the entire costs of the low-
13 income universal service programs delivered by Pittsburgh Water and Sewer Authority
14 (“PWSA”) should be borne only by the residential customer class. Since their testimony
15 was very similar, I will address the issue as a whole rather than addressing each piece of
16 direct testimony on a stand-alone basis.

17 **Q. DO MR. HIGGINS AND MR. CALLOCCHIA OFFER SIMILAR ARGUMENTS**
18 **WITH RESPECT TO WATER, WASTEWATER AND STORMWATER SERVICE?**

19 A. Yes. Similarly, my references to “water” below are intended to address the arguments for
20 all three services: water, wastewater and stormwater.

1 **Q. PLEASE RESPOND TO MR. HIGGINS' COMMENTS ON PREVIOUS**
2 **COMMISSION DECISIONS REGARDING THE ALLOCATION OF UNIVERSAL**
3 **SERVICE COSTS.**

4 A. Mr. Higgins asserts that it is his “understanding” that “the Commission has had a long-
5 standing policy of allocating customer assistance program costs only to the customer
6 class whose members are eligible for the program—residential customers. (OSBA St. 1,
7 at 17). The “understanding” that Mr. Higgins expresses is in error.

8 **Q. IS THERE LONG-STANDING COMMISSION PRECEDENT REGARDING THE**
9 **ALLOCATION OF UNIVERSAL SERVICE COSTS BY A REGULATED**
10 **MUNICIPAL UTILITY THAT MR. HIGGINS FAILED TO MENTION?**

11 A. Yes. PGW’s universal service costs have been allocated among all customer classes since
12 the Customer Responsibility Program (CRP) program (PGW’s CAP) was first created in
13 1993.¹ Even since the regulation of PGW was transferred to the PUC in 2000, the PUC has
14 maintained this cost allocation policy for PGW through an interim base rate proceeding,²
15 two emergency rate proceedings,³ four full base rate cases,⁴ and the PGW restructuring

¹ Recommended Decision in the Matter of Proposed Changes to PGW’s Customer Service Regulations (Sept. 22, 1993), affirmed, Order and Resolution of the Philadelphia Gas Commission (November 9, 1993).

² Pa. PUC v. Philadelphia Gas Works, Docket No. R-00005654 (Order Entered February 21, 2001).

³ Petition of Philadelphia Gas Works for Extraordinary Rate Relief Pursuant to 66 Pa. C.S. § 1308(e), Docket No. R-00017034 (Emergency Order Entered April 12, 2002); Pa. PUC v. Philadelphia Gas Works - Petition for Emergency Rate Relief, Docket No. R-2008-2073938 (Order Entered December 19, 2008).

⁴ Pa. PUC v. Philadelphia Gas Works, Docket No. R-00006042 (Order Entered October 4, 2001); Pa. PUC v. Philadelphia Gas Works, Docket No. R-00017034 (Order Entered August 8, 2002); Pa. PUC v. Philadelphia Gas Works, Docket No. R-00061931 (Order Entered September 28, 2007); Pa. PUC v. Philadelphia Gas Works, Docket No. R-2017-2586783 (Order Entered November 8, 2017).

1 proceeding.⁵ The last time this cost allocation decision was raised (in PGW’s 2017 base
2 rate case), the Commission rejected OSBA’s arguments. In that proceeding, the
3 Commission said “PGW has a long and continuous history of allocating its extensive
4 universal service costs over all firm customers and that there is insufficient evidence in
5 this proceeding to convince us to alter this allocation at this time.”⁶ The Commission said
6 that “We also find merit in the argument. . .that all firm customers, including commercial
7 and industrial customers, benefit indirectly from PGW’s extensive low-income assistance
8 programs.”⁷

9 The same is true for PWSA. Ever since PWSA has become regulated by the PUC, as a
10 municipal utility, the Commission has approved the allocation of Customer Assistance
11 Program (“CAP”) (the name of PWSA’s suite of universal service programs) over all
12 customer classes.⁸ It is important to remember that it is OSBA and the School District
13 which seek to change past practice in this proceeding. They have offered insufficient
14 evidence to alter this allocation.

⁵ Pa. PUC v. Philadelphia Gas Works, Docket No. M-00021612 (Order Entered April 17, 2003).

⁶ 2017 PGW Order, at 73.

⁷ Id., at 74.

⁸ Pa. PUC v. Pittsburgh Water and Sewer Authority, Docket R-2018-3002645 (water), Docket R-2018-3002647 (wastewater); Pa. PUC v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2020-3017951 (water), R-2020-3017970 (wastewater) (wastewater); Pa. PUC v. Pittsburgh Water and Sewer Authority 2021 Rate Filing; Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater); R-2021-3024779 (stormwater) (consolidated); Pa. PUC v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2020-3017951 (water), R-2020-3017970 (wastewater) (wastewater).

1 **Q. AS A MUNICIPAL UTILITY, WOULD IT BE PARTICULARLY INEQUITABLE**
2 **FOR PWSA TO CHANGE THE COST ALLOCATION SO THAT UNIVERSAL**
3 **SERVICE CHARGES ARE ALLOCATED ONLY TO THE RESIDENTIAL**
4 **CUSTOMER CLASS?**

5 A. Yes. To allocate all universal service costs exclusively to the residential customer class
6 today would operate to remake the bargain that the City of Pittsburgh has made with its
7 utility customers. As a municipal utility, the offer of programs in support of universal
8 service for all customers is a *quid pro quo* that was exacted in exchange for substantial --and
9 continuing-- public perquisites provided to PWSA. So long as all customer classes enjoy the
10 fruits of that exchange, they should also contribute to paying for the obligations that were
11 part of the exchange.

12 As a municipal utility, PWSA was granted two sets of public perquisites on behalf of all of
13 its customers: (1) the right to exercise eminent domain, and (2) the right to use the public's
14 streets, alleys and public ways as transportation corridors. The bargain that was made in
15 consideration of these two public perquisites is continuing. In accepting and exercising the
16 power of eminent domain, and the right to use public streets and ways, an exchange has
17 occurred. PWSA's customers have received the two perquisites and, as compensation for
18 those benefits, "pay" for those benefits through the support of universal service.

19 Making this exchange is not unusual. For example, in the health care industry, the same
20 exchange of public perquisites for universal service has been made.⁹

⁹ See, e.g., Colton (1997). "The 'Obligation to Serve' and a Competitive Electric Industry, prepared for U.S. Department of Energy, Office of Economic, Electricity and Natural Gas Analysis, Oak Ridge National Laboratory,

1 The concept of tax exemption as an exchange originated in the common law of
2 charitable trusts and is frequently restated in contemporary court decisions
3 considering charitable hospitals' exemption from various taxes. The cases do not
4 indicate that charitable exemptions turn on an exact accounting of the costs of
5 public services provided in comparison with tax revenues foregone. Exemption
6 has not, at least historically, been conceived as a negotiated transaction between
7 the tax authorities and the exempt organization. The task of such an accounting
8 would be beyond the institutional capacities of the courts. Instead, the exchange
9 concept appears to function as one of the underlying assumptions that lead a
10 legislature to grant exempt status to a class of organizations.¹⁰

11 **Q. HOW DOES THIS RELATE TO THE ALLOCATION OF PWSA'S UNIVERSAL**
12 **SERVICE COSTS?**

13 A. As with other municipal utilities, including both water utilities and energy utilities, this
14 discussion supports the conclusion that all customer classes should help fund universal
15 service programs. The public perquisites that have been provided to all PWSA customers
16 have a substantial value. If PWSA could *not* use eminent domain, in other words, or if it

Report No. ORNL/Con-459 (documenting analogy of non-profit hospitals who, in exchange for public perquisites, bear the burden of providing indigent care).

¹⁰ James Simpson and Sarah Strum, "How Good a Samaritan? Federal Income Tax Exemption for Charitable Hospitals Reconsidered," 14 U. Puget Sound L. Rev. 633, 655 - 656 (1991); see also, Barry Furrow, "Forcing Rescue: The Landscape of Health Care Provider Obligations to Treat Patients," 3 Health Matrix 31 (1993). The connection between the obligation to serve the indigent and the grant of federal, state and local tax subsidies is not merely implicit. When subsidies were challenged in court, judicial decisions: "were reached in the context of reviewing the validity of charitable trusts for hospital purposes, or the entitlement of charitable hospitals to exemption from various state and local taxes. The decisions rejected the idea that charity demanded exclusive attention to the indigent, but made the accessibility of the hospital to all without regard to ability to pay an important consideration." How Good a Samaritan, *supra*, at 642.

1 could not use the streets and public ways as transportation corridors for its lines or pipelines,
2 the increased costs associated with acquiring its distribution system would be borne by all
3 ratepayers. Providing PWSA's customers these public perquisites, therefore, conveys
4 substantial financial benefits to all customers.

5 Having received the financial benefits of the bargain, all PWSA customers should thus pay
6 the financial compensation to the public for having provided those benefits in the first place.
7 With all end users having taken their share of the benefits of the bargain, all end users
8 should also be required to pay their fair share of the responsibility part of the bargain. To
9 allow otherwise would be to grant the benefit while forgiving the costs.

10 **Q. HAS THE COMMISSION EVER RECOGNIZED THE BENEFITS TO THE CITY**
11 **AS A WHOLE, INCLUDING COMMERCIAL CUSTOMERS, ARISING FROM A**
12 **BILL AFFORDABILITY PROGRAM BY A MUNICIPAL UTILITY?**

13 A. Yes. The PUC noted in its 2014 Universal Service Plan Order regarding PGW's
14 universal service programs that PGW differs from other Pennsylvania natural gas utilities
15 in that PGW does not have stockholders. Instead, PGW is owned and operated by the
16 City of Philadelphia.

17 Even aside from PGW, however, the City of Philadelphia also owns its own water
18 distribution system, the Philadelphia Water Department. On November 19, 2015, the
19 Philadelphia City Council unanimously adopted a percentage of income bill affordability
20 program for the Philadelphia Water Department (Philadelphia City Council Bill 140607-
21 AA). That program, called IWRAP (Income-based Water Rate Affordability Program),

1 was modeled on the percentage of income program operated by PGW, the City's
2 municipally-owned gas system.

3 In addition to the design of the program, however, even more importantly for purposes
4 here is that, because the purpose of the program was not simply to provide benefits to
5 low-income customers, but to provide benefits to the entire City, including commercial
6 establishments throughout the City, the costs of the Philadelphia Water Department bill
7 affordability program are spread over all customer classes.

8 The PWSA universal service programs serve the same municipal functions for the City of
9 Pittsburgh, and provide the same benefits to all entities in the City of Pittsburgh, as does
10 the affordability program for PWSA's sister municipally-owned utility in Philadelphia.

11 To recognize those widespread benefits accruing to all customers, including commercial
12 customers, would not involve a change in PUC policy. It would instead simply *continue*
13 the same policy that has been in effect since PWSA's program first began.

14 **Q. DID MR. HIGGINS FULLY DISCUSS THE PRIOR LITIGATION OVER THE**
15 **ALLOCATION OF UNIVERSAL SERVICE COSTS FOR A MUNICIPAL**
16 **UTILITY?**

17 A. No. Mr. Higgins did not discuss the fact that OSBA specifically litigated the allocation of
18 universal service costs for a municipal utility in PGW's 2017 base rate proceeding.

19 (Pennsylvania PUC v. Philadelphia Gas Works, Docket Nos. R-2017-2586783, Opinion
20 and Order, November 8, 2017). OSBA even cited the same cases in that PGW litigation
21 that Mr. Higgins alludes to (without citation) in his testimony here.

1 Just as the Commission rejected that precedent in the 2017 proceeding, it should do so for
2 PWSA as a municipal utility in this proceeding as well. Instead, the Commission can
3 (and should) reach the same findings for PWSA. In doing so, the Commission does not
4 modify its prior precedent. Instead, it continues its prior precedent.

5 Moreover, the Commission should reach the same further conclusion with respect to
6 PWSA, in its capacity as a water utility, that it reached with respect to PGW in its
7 capacity as a natural gas utility. “We agree with the conclusion of the ALJ that there is
8 nothing within PGW’s allocation of universal service costs to all firm customers that
9 violates the Code or our Regulations.” (Id., at 73).

10 In short, Mr. Higgins has presented no compelling evidence to demonstrate that the
11 Commission’s historic allocation decisions for a city-owned utility should be changed.

12 **Q. ARE RECENT COMMISSION DECISIONS REGARDING PECO GAS OR**
13 **COLUMBIA GAS CONTRARY TO THE PRINCIPLE OF ALLOCATING**
14 **UNIVERSAL SERVICE COSTS TO ALL CUSTOMER CLASSES?**

15 A. No. Even setting aside the differences I explained immediately above between PWSA
16 and these two investor-owned utilities (PECO and Columbia Gas), Mr. Higgins
17 erroneously alludes (without citation) to recent decisions for PECO Gas and Columbia
18 Gas as establishing the principle that universal costs should be allocated exclusively to
19 the residential class. In reaching this conclusion, I acknowledge that the PUC rejected an
20 OCA proposal to allocate universal service costs to all customer classes in a Columbia
21 Gas decision. (Opinion and Order, *Pa. P.U.C. v. Columbia Gas of Pa., Inc.*, Docket No.
22 R-2020-3018835 (Order entered Feb. 19, 2021), pp. 258-261). The PUC, however,

1 explicitly stated in that Order that its decision was *limited to the facts presented in that*
2 *proceeding*. (Id., at 261). For example, the Commission observed that OCA did “not
3 propose a specific recovery rate design method.” (Id.) That decision, in other words, is
4 not precedential, and certainly not controlling, of this proceeding. The Joint Statement of
5 Chairman Gladys Brown Dutrieuille and Vice Chairman David Sweet further indicated
6 that the Columbia Gas decision was *limited to the facts of that case*.

7 Moreover, in a PECO Gas rate case decision (Docket No. R-2020-3018929), the PUC
8 reached a similar decision. (Opinion and Order, at 265, June 22, 2021). Similarly, a Joint
9 Statement of Chairman Gladys Brown Dutrieuille and Vice Chairman David Sweet was
10 issued noting that its decision was *limited to the facts of the PECO Gas case*. It thus
11 cannot be precedential.

12 **Q. WHAT IS THE COMMISSION’S MOST RECENT POLICY ON THE ISSUE OF**
13 **THE ALLOCATION OF UNIVERSAL SERVICE COSTS?**

14 A. In its 2019 Revised CAP Policy Statement in the PUC’s generic investigation into energy
15 affordability in Pennsylvania (Docket M-2019-3012599) (hereafter, “Final CAP Policy
16 Statement”),¹¹ the Commission explicitly acknowledged that, historically, it allocated
17 universal service costs exclusively to residential customers, but then stated that “our
18 review of Pennsylvania’s current universal service model in the *Review and Energy*
19 *Affordability* proceedings has *provided reasons to reconsider this position*. (Final CAP
20 Policy Statement, at 92) (emphasis added). The Commission observed that “[t]he current

¹¹ http://www.puc.pa.gov/about_puc/consolidated_case_view.aspx?Docket=M-2019-3012599 (November 5, 2019).

1 cost-recovery method for universal services, including CAP costs, is putting a significant
2 burden on residential customer bills. . .” (Id.).

3 I agree with these observations. As I explained in detail in my Direct Testimony, there is
4 a substantial population of PWSA customers who have difficulties in paying their utility
5 bills without being sufficiently “low-income” to qualify for CAP. The current CAP costs
6 could prove to be a problem for these customers, and those costs will increase in the
7 future. (pages 94 – 95).

8 The Commission stated in its Final CAP Policy Statement that “the Commission finds it
9 appropriate to consider recovery of the costs of CAP costs from all ratepayer classes.

10 Utilities and stakeholders are advised to be prepared to address CAP cost recovery in
11 utility-specific rate cases consistent with the understanding that *the Commission will no
12 longer routinely exempt non-residential classes from universal service obligations.* . .”

13 (Id., at 99, notes omitted). (emphasis added).¹²

14 **Q. DID THE COMMISSION ARTICULATE SPECIFIC FACTORS TO CONSIDER**
15 **IN DECIDING HOW TO ALLOCATE UNIVERSAL SERVICE COSTS?**

16 A. Yes. Mr. Higgins states that the Commission “would consider recovering the costs of
17 customer assistance programs from all ratepayer classes in utility-specific proceedings in
18 an effort to maintain affordability for non-CAP residential customers.” (OSBA St. 1, at
19 19). Based on this representation, Mr. Higgins addresses only that question.

¹² The Commission observed that it was not making “a final precedential decision regarding cost recovery in this docket. We are merely providing that the recovery of CAP costs in particular can be fully explored in utility rate cases henceforth.” (Id., at note 150).

1 That discussion by Mr. Higgins, however, is too narrow, and does not capture the full
2 range of the Commission’s decision when the Commission decided that it “will no longer
3 routinely exempt non-residential classes from universal service obligations.” In addition
4 to the limited issue which Mr. Higgins asserts was the basis for universal service cost
5 allocation decisions, the PUC was correct when it found in its 2019 Final CAP Policy
6 Statement that:

- 7 ➤ poverty and its impacts are “not just residential class problems” (Final CAP
8 Policy Statement, at 96);
- 9
10 ➤ several factors “contribute to households struggling to afford utility service” and
11 that, amongst those factors are “poverty, poor housing stock, and other factors”
12 (Id., at 96)
- 13
14 ➤ poverty is a broad-based social problem *not* associated with any particular
15 customer class, including specifically not being associated with the residential
16 class exclusively. (Id., citing 1992 *Final Report on The Investigation of*
17 *Uncollectible Balances*¹³ at Docket No. I-00900002, at 157 – 158).
- 18
19 ➤ “Helping low-income families maintain utility service and remain in their homes
20 is also a benefit to the economic climate of a community.” (Id., at 96, *Pa. PUC, et*
21 *al. v. PGW*, Docket No. R-2017-2586783 (order entered on November 8, 2017), at
22 75).
- 23
24 ➤ “Clearly, there is a persuasive argument to be made that home heating and energy
25 assistance for low-income households *serves a public good* whose responsibility
26 is not merely other residential ratepayers.” (Id., at 96 – 97) (emphasis added),
- 27
28 ➤ “While there are strong arguments to be made that non-residential classes do
29 benefit from universal services, there are also strong arguments to be made in
30 favor of multi-class allocation even if one discounts any non-residential benefits.”
31 (Id., at 97).
- 32

¹³ <http://www.puc.pa.gov/pcdocs/1524987.pdf>. This docket number is sometimes cited as Docket No. I-900002.

1 In fact, in direct contravention of the assertion by both Mr. Higgins and Mr. Callocchia
2 that only the residential customer class benefits from a universal service program, the
3 Commission explicitly found that “In approving PGW’s practice of recovering such costs
4 across all ratepayer classes, we noted that ‘all firm customers, including commercial and
5 industrial customers, benefit indirectly from PGW’s extensive low-income assistance
6 programs.” (Id., at 96, citing *Pa. PUC, et al. v. PGW*, Docket No. R-2017-2586783
7 (order entered on November 8, 2017), at 75). (emphasis added) internal note omitted).

8 The Commission favorably noted that in the 2017 PGW rate case proceeding, “PGW
9 argued that all non-residential customers indirectly benefit from universal service
10 programs by keeping low income customers in their homes and allowing them to
11 contribute to Philadelphia’s economic activity. PGW contended ‘the portion of universal
12 service costs paid by non-residential customers is offset by the substantial positive
13 economic impact in Philadelphia on those non-residential customers created by PGW’s
14 universal service programs.’” (Final CAP Policy Statement, at note 144, page 96, citing
15 *Pa. PUC, et al. v. PGW* at 63). Neither Mr. Higgins nor Mr. Callocchia have provided
16 any evidence at all that would support a different Commission finding in this proceeding.

17 While the PUC’s Revised CAP Policy Statement refers to “energy,” the Commission’s
18 decisions hold equally true for water bills as well.

19 **Q. IS THERE REASON FOR THE COMMISSION TO REACH THESE SAME**
20 **CONCLUSIONS FOR PWSA?**

21 A. Yes. First, the Commission found that poverty and its impacts are “not just residential
22 class problems” (Final CAP Policy Statement, at 96). Moreover, the Commission found
23 that low-income bill payment assistance is “a public good whose responsibility is not

1 merely other residential ratepayers.” (Id.) That is as true in Pittsburgh as it was for the
 2 state as a whole. One reason that customers income-qualify for PWSA’s universal service
 3 programs is because a substantial number of people throughout the PWSA service
 4 territory are working at Poverty wages.¹⁴

5 As the Economic Policy Institute (EPI) reports:

6 [G]iven rising costs of necessities such as child care, housing, and health
 7 care, many families’ ability to achieve a modest but adequate standard of
 8 living requires resources earned on the job *and* assistance from government
 9 programs. (internal citation omitted).

10
 11 *However, for many workers in certain sectors, wages are so low that even*
 12 *those who work full time must rely heavily on government assistance to make*
 13 *ends meet.* This suggests that *low pay by many employers.* . .is placing
 14 unwarranted demands on public resources.¹⁵

15 (emphasis added). As this research finds, the cause of the public expenditures –PWSA’s
 16 Bill Discount Program (“BDP”) and/or Arrearage Forgiveness Program (“AFP”) in the
 17 case at hand—is not the individual receiving the benefits. It is “caused,” at least in part,
 18 by the economic entities providing the low wages which require a public subsidy.

19 Second, the Commission found that several factors “contribute to households struggling
 20 to afford utility service” and that, amongst those factors are “poor housing stock.” (Id., at
 21 96). Pittsburgh’s recent housing needs assessment concluded that “Because rehabilitation
 22 costs of many older units would exceed the value of the house itself, *housing quality is a*

¹⁴ Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates Pittsburgh, PA,
https://www.bls.gov/oes/current/oes_38300.htm.

¹⁵ Cooper (2016). Balancing paychecks and public assistance: How higher wages would strengthen what
 government can do, Economic Policy Institute: Washington D.C. , available at
<https://www.epi.org/publication/wages-and-transfers/>.

1 *significant concern*. This is particularly true in Pittsburgh’s weaker housing markets,
 2 where home values are particularly low.”¹⁶ Moreover, in Pittsburgh’s recent
 3 “Consolidated Plan” prepared by the City for submission to the U.S. Department of
 4 Housing and Urban Development, the first priority stated was that “There is a need to
 5 improve the quality of the housing stock in the City. . .”¹⁷ Neither the OSBA nor the
 6 School District have presented evidence that would counter, let alone contradict, the
 7 City’s own findings regarding the quality of Pittsburgh housing stock.

8 Third, the Commission found that “helping low-income families maintain utility service. .
 9 .is also a benefit to the economic climate of a community.” (Id., at 96). Such programs
 10 not only improve the competitiveness of business and industry in a community,¹⁸ it
 11 supports future economic growth as well. The provision of a strong social safety-net so that
 12 individuals and households do not face the deprivation of basic household necessities is a

¹⁶ Mullin and Lonergan Associates (2016). Housing Needs Assessment, presented to the City of Pittsburgh Affordable Housing Task Force, at 5. available at https://apps.pittsburghpa.gov/dcp/Pittsburgh_Housing_Needs_Assessment.pdf.

¹⁷ City of Pittsburgh, Office of Management and Budget (June 30, 2020). FY 2020-2024 Five Year Consolidated Plan and FY 2020 Annual Action Plan, at 22, 147.

¹⁸ CFPB (August 2014). Financial wellness at work: A review of promising practices and policies. <https://www.consumerfinance.gov/data-research/research-reports/financial-wellness-at-work/>; *citing*, Garman et al., Financial Stress Among American Workers: Final report: 30 Million Workers in America –One in Four—Are Seriously Financially Distressed and Dissatisfied Causing Negative Impacts on Individuals, Families, and Employers, 17 (2005); *citing also*, MetLife, Inc., 10th Annual Study of Employee Benefits Trends: Seeing Opportunity in Shifting Tides 51 (2012), available at [http://www.winonaagency.com/img/~www.winonaagency.com/10th annual met life study of benefits trends.pdf](http://www.winonaagency.com/img/~www.winonaagency.com/10th%20annual%20met%20life%20study%20of%20benefits%20trends.pdf). (“22% of employees admit that they have taken unexpected time off in the past 12 months to deal with a financial issue and/or spent more time than they think they should at work on personal financial issues . . .”). 15% of Gen Y respondents, 10% of Gen X respondents, 5% of Younger Boomer respondents, and 1% of Older Boomer respondents admitted to the same; PricewaterhouseCoopers, LLC, Employee Financial Wellness Survey 10,11 (2014), available at http://www.pwc.com/en_US/us/private-company-services/publications/assets/pwc-employee-financial-wellness-survey-2014-results.pdf.

1 strong and growing factor in businesses making locational decisions. These locational
2 factors are particularly important for high technology firms, which represent a particularly
3 strong future growth potential for the economy.¹⁹ Businesses focus on quality of life
4 considerations when making location decisions because they are relevant for attracting a
5 high quality workforce.²⁰

6 Finally, the Commission found that “In approving PGW’s practice of recovering such
7 costs across all ratepayer classes, we noted that ‘all firm customers, including commercial
8 and industrial customers, benefit indirectly from PGW’s extensive low-income assistance
9 programs.’” Just as PGW’s universal service program helps keep people in their homes
10 and contribute the local economic activity, as the Commission favorably noted in the
11 2017 PGW rate case proceeding (Final CAP Policy Statement, at note 144, page 96,
12 citing *Pa. PUC, et al. v. PGW* at 63), the same is true in Pittsburgh. The Pittsburgh
13 Foundation has long studied the relationship between “housing insecurity” and the ability
14 of residents to participate in the local economy.²¹ Other research has documented not

¹⁹ Gertler (2002). *Competing on Creativity: Placing Ontario’s Cities in North American Context*, report produced for the Ontario Ministry of Enterprise, Opportunity and Innovation and the Institute for Competitiveness and Prosperity (available at http://webarchive.urban.org/UploadedPDF/410889_Competing_on_Creativity.pdf). In this sense, affordable home energy can be viewed in the same way that health and education are viewed. “There are numerous empirical studies that demonstrate the links between education, health and competitiveness. In particular, both health and education are correlated with superior economic outcomes such as higher productivity, higher per capita incomes, and faster growth.” Burstein (2004). *Developing the Business Case for Multiculturalism*, at 8, Multiculturalism and Human Rights Branch, Department of Canadian Heritage (available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.132.7196&rep=rep1&type=pdf>).

²⁰ Taylor, *et al.* (2006). *A Cost-Benefit Analysis of Universally-Accessible Pre-Kindergarten Education in Texas*, Bush School of Government and Public Service, Texas A&M University: College Station (TX) (available at <https://oaktrust.library.tamu.edu/handle/1969.1/97006>).

²¹ See, e.g., Pittsburgh Foundation. *Deconstructing the Housing Dilemma*. available at <https://pittsburghfoundation.org/deconstructing-housing-dilemma>.

1 only this conclusion, but also how keeping people in affordable housing is necessary for
2 employers to be able to recruit attract and retain their workforce.²² When Pittsburgh lose
3 their housing, as happens due to unaffordable utility bills, the financial health of the City
4 and its economy unquestionably suffers.²³

5 **Q. ARE THERE OTHER REASONS WHY THE IMPLEMENTATION OF**
6 **UNIVERSAL SERVICE INITIATIVES IS OF PARTICULAR IMPORTANCE TO**
7 **A MUNICIPALITY FROM A WATER UTILITY**

8 A. Yes. The whole community benefits from universal service programs because providing
9 affordable home energy addresses public health and safety costs that are borne by all
10 taxpayers (*e.g.*, homelessness). Businesses benefit from these programs because the
11 programs provide help to low-wage employees and low-income customers. Small
12 businesses require low-wage employees to survive, but low wages also create a situation
13 where the employees may need help to afford utility service.

14 As I noted in my direct testimony, even more than home energy, providing affordable
15 water is a public health issue. A 2022 White Paper by the U.S. Water Alliance states that
16 “for every community in our country, the availability of safe drinking water and

²² Shroyer and Gaitdn (September 11, 2019). Four Reasons Why Employers Should Care About Housing, Urban Institute: Washington D.C. <https://housingmatters.urban.org/articles/four-reasons-why-employers-should-care-about-housing>.

²³ Chernick, Newman and Reschovsky (July 21, 2021). What’s the link between housing markets and the financial health of cities, available at <https://housingmatters.urban.org/research-summary/whats-link-between-housing-markets-and-financial-health-cities>.

1 wastewater services is a precondition for public health and prosperity.”²⁴ Water is vital to
 2 maintaining hygiene and health. A recent study published in the American Journal of
 3 Preventative Medicine concluded that “Water shutoffs pose a real threat to human health
 4 because the lack of adequate sanitation can cause diseases to spread and allow people to
 5 become sick.”²⁵ A 2010 report for the Water Research Foundation (the research arm of
 6 the American Water Works Association, AWWA) concluded that “A final consideration of
 7 importance to water utilities is the relationship of payment problems to health issues. . .
 8 Potential impacts relate to many of the same public health endpoints targeted by Safe
 9 Drinking Water Act standards such as effects on children and the unborn.”²⁶ (OCA St. 4,
 10 at 8 – 9).

11 **Q. PLEASE RESPOND TO THE TESTIMONY OF MR. HIGGINS AND MR.**
 12 **CALLOCCIA THAT RESIDENTIAL CUSTOMERS SHOULD BE ALLOCATED**
 13 **ALL UNIVERSAL SERVICE COSTS BECAUSE ONLY RESIDENTIAL**
 14 **CUSTOMERS MAY PARTICIPATE.**

15 A. In arguing that PWSA’s universal service costs should be allocated only to the residential
 16 class because only residential customers may participate, both Mr. Higgins and Mr.
 17 Callocchia fail to recognize that the Commission has specifically rejected that argument

²⁴ Hara, Willette and Simonson (2022). Making Water a Public Good: The Bigger Picture of Water Affordability, at 1, US Water Alliance.

²⁵ Zhang et al (2021). Water Shutoff Moratoria Lowered COVID-19 Infection and Death Across U.S. States, 2021 American Journal of Preventative Medicine.

²⁶ Cromwell, et al. (2010). Best Practices in Customer Payment Assistance Programs, at xxii, Water Research Foundation: Washington D.C. (hereafter “Best Practices”).

1 in the past. When that argument was previously presented to the Commission, the
2 Commission responded:

3 We note there is no statutory or appellate prohibition that limits the recovery
4 of CAP costs, whether specifically calculated or as part of total universal
5 service costs, to funding from the residential class.²⁷ Universal service
6 funding from non-residential classes, while not mandatory, is permissible:

7 Thus, under *Lloyd*, there is no statutory requirement that the funding for
8 special programs come only from those who benefit from the programs.
9 However, the lack of such a requirement does not mean that funding for
10 special programs must come from those who do not benefit.

11 *MEIUG v. Pa. PUC*, 960 A.2d 189, 202 (2008), citing *Lloyd v. Pa. PUC*, 904 A.2d
12 1010 (Pa. Cmwlth. 2006).

13 Consistent with the comments of the Low Income Advocates and OCA, the
14 Commission concludes that the General Assembly clearly identified the
15 public purpose of these programs in the Competition Acts by requiring that
16 their costs be nonbypassable²⁸ when a customer switches energy providers.

17 As is evident, and as the Commission has previously held, the Commonwealth Court
18 decision in *Met-Ed Industrial Users Group (MEIUG) v. PA PUC*, in which the court
19 found that funding from special programs is not limited to those who benefit.

20 While PWSA does not operate under the same statutory universal service framework that
21 Pennsylvania's energy utilities do, there is no reason for the Commission to view the
22 costs of providing universal service programs as "public goods," or serving a "public
23 purpose," any less for PWSA today than it previously has for PWSA or than it previously
24 has for the state's natural gas and electric distribution companies.

²⁷ In PGW's 2017 rate case, the Commission noted that recovering universal service costs from all ratepayers does not appear to be a violation of Title 66 or Commission regulations. *Pa. PUC, et al. v. PGW* at 74.

²⁸ Some documents use the term "non-bypassable."

1 **Q. WHAT DO YOU CONCLUDE?**

2 A. I conclude that the Commission has a long-standing policy with respect to the allocation
3 of universal service costs for regulated municipal utilities. The arguments presented by
4 OSBA witness Higgins and School District witness Calocchia have been presented to the
5 Commission before and rejected. Neither Mr. Higgins nor Mr. Calocchia have
6 presented new or compelling evidence that would merit a change in Commission policy
7 in this proceeding.

8 **Q. DO YOU DISAGREE WITH THE SCHOOL DISTRICT'S TESTIMONY THAT IT
9 DERIVES NO BENEFIT FROM PWSA'S LOW-INCOME PROGRAMS?**

10 A. Yes. When Mr. Calocchia testifies on behalf of the School District that it derives no
11 benefit from the low-income programs offered by PWSA, he fails to acknowledge the
12 substantial adverse impacts that unaffordable utility bills have not only on the students
13 which the School District serves, but on the School District itself.

14 **Q. WOULD ANY OF THE HOUSEHOLDS ENROLLED IN THE PITTSBURGH
15 SCHOOL DISTRICT BE INCOME-ELIGIBLE FOR PWSA'S LOW-INCOME
16 PROGRAMS?**

17 A. Yes. Not all students who qualify for the free and reduced price school meals would
18 qualify for PWSA's low-income programs (though they will if PWSA's proposal to
19 increase the eligibility to 200% FPL is approved). According to the U.S. Department of
20 Agriculture's Food and Nutrition Services, the maximum income eligibility for the 2023
21 – 2024 School Year is determined as follows: "The Department's guidelines for free
22 meals and milk and reduced price meals were obtained by multiplying the year 2023
23 Federal income poverty guidelines by 1.30 and 1.85, respectively, and by rounding the

1 result upward to the next whole dollar.”²⁹ As can be seen, the current maximum PWSA
2 income eligibility (150% FPL) would reach most but not all of those students at or below
3 185% FPL, while the proposed PWSA maximum income eligibility (200% FPL) would
4 reach all of them.

5 **Q. DOES THE PITTSBURGH SCHOOL DISTRICT ENROLL A SUBSTANTIAL**
6 **NUMBER OF STUDENTS WHO QUALIFY FOR FREE AND REDUCED**
7 **MEALS?**

8 A. Yes. Pennsylvania school districts provide annual “data reports” to the state Department
9 of Education on the percentage of students who are eligible for free and reduced school
10 lunches (“Annual Building Data Report”).³⁰ According to the Department of Education’s
11 Annual Building Data Report, the Pittsburgh School District reported data for 56
12 different school sites. Of the 23,172 total “enrolled students” reported for those schools,
13 66% (15,340) were eligible for the free school lunch program. The Department reported
14 that 49 of those 56 sites had 50% or more of their enrolled students eligible for the free
15 school lunch program, while 23 had 75% or more of their enrolled students eligible for
16 the free school lunch program.

17 Moreover, under the federal Every Student Succeeds Act, school districts report data on,
18 among other things, chronic absenteeism to the U.S. Department of Education. Pursuant
19 to the most recent report of that data for the Pittsburgh School District, 30.0% (6,588 of

²⁹ Available at <https://www.fns.usda.gov/cn/fr-020923>

³⁰ Available at: <https://www.education.pa.gov/Teachers%20-%20Administrators/Food-Nutrition/reports/Pages/National-School-Lunch-Program-Reports.aspx>

1 21,974) of the School District's student population were chronically absent.³¹ Chronic
2 absenteeism is defined as a student who misses at least 15 days of school in a year.
3 While the Department of Education's data base does not track the contribution which
4 unaffordable utility bills make to that chronic absenteeism, that connection is the
5 connection that was made in my *Journal on Children and Poverty* article as I discuss
6 below.

7 **Q. GIVEN THIS LOW-INCOME STUDENT POPULATION IN THE PITTSBURGH**
8 **SCHOOLS, ARE THERE PARTICULAR BENEFITS TO THE PITTSBURGH**
9 **SCHOOL DISTRICT FROM PWSA PROVIDING AFFORDABLE UTILITY**
10 **SERVICE TO THE FAMILIES OF THESE LOW-INCOME CUSTOMERS?**

11 A. Yes. In 1996, I authored an article for the *Journal on Children and Poverty*. The article,
12 The Road Oft Taken: Unaffordable Home Energy Bills, Forced Mobility And Childhood
13 Education in Missouri,³² the article made several findings based on research I had
14 undertaken for the Missouri association of Head Start providers. I reported that that a
15 substantial portion of the low-income population in Missouri was "frequently mobile"
16 over a five year period; that one primary cause of this frequent mobility was the
17 unaffordability of home energy bills, including home heating and electricity; and that that
18 frequent mobility created problems both for the students in these mobile households and
19 for the teachers and schools who seek to educate those students. One conclusion I

³¹ U.S. Department of Education, Chronic Absenteeism in the Nation's Schools: A Hidden Educational Crisis, available at <https://www2.ed.gov/datastory/chronicabsenteeism.html>

³² Colton (1996). "The Road Oft Taken: Unaffordable Home Energy Bills, Forced Mobility And Childhood Education in Missouri." 2 *Journal on Children and Poverty* 23.

1 reached was that appropriate public policy should concentrate on breaking the causal
 2 chain which gives rise to the educational problems in the first place rather than seeking
 3 only to redress the problems once they occur.

4 **Q. WHAT IS THE ADVERSE IMPACT OF FREQUENT MOBILITY ON**
 5 **PITTSBURGH’S STUDENTS IN FAMILIES WHO CANNOT AFFORD THEIR**
 6 **UTILITY BILLS?**

7 A. My study reported that, “The problems of a lack of adequate education are, not
 8 surprisingly, immense. According to [the U.S. General Accounting Office], for example,
 9 low-income children are more likely than others to experience academic failure. ‘. . .the
 10 consequences of this failure follow them for their whole lives. These children are more
 11 likely to drop out of school, for example, and high school dropouts are more likely than
 12 high school graduates to be arrested and to become unmarried parents.’”³³

13 **Q. DID YOUR STUDY ADDRESS HOW THESE ADVERSE EDUCATIONAL**
 14 **IMPACTS AFFECT NOT ONLY THE CITY’S SCHOOLS BUT THE CITY’S**
 15 **BUSINESSES AS WELL?**

16 A. Yes. My study reported that: “Moreover, in 1987, one business group warned that
 17 without providing a quality education, ‘our industries will be unable to grow and compete
 18 because an expanding educational underclass will be unable to meet the demands’ of
 19 ‘dramatic and irreversible changes in the job market.’ Moreover, that group noted, youth

³³ Id., citing U.S. General Accounting Office (1994). *School-Age Children: Poverty and Diversity Challenge Schools Nationwide*,

At 2, Washington D.C.

1 who drop out of school are ‘virtually unemployable’ and each annual class of dropouts
 2 loses, in current dollars, about \$237 billion in lifetime earnings. Reducing the dropout
 3 rate would not only increase these individuals' incomes, but would boost government tax
 4 revenues from that income by up to \$70 billion.”³⁴

5 **Q. WHAT IMPACTS FROM UNAFFORDABLE UTILITY BILLS DID YOUR**
 6 **STUDY IDENTIFY THAT WOULD APPLY TO THE PITTSBURGH SCHOOL**
 7 **DISTRICT?**

8 A. My study reported:

- 9 ➤ The educational impacts of frequent mobility are dramatic. Overall, third-
 10 graders who have changed schools frequently are two-and-a-half times as
 11 likely to repeat a grade as third-graders who have never changed schools (20
 12 percent versus 8 percent).
- 13 ➤ Of the nation's third-graders who have changed schools frequently, 41 percent
 14 are low achievers, that is, below grade level, in reading, compared with 26
 15 percent of third graders who have never changed schools. Results are similar
 16 for math--33 percent of children who have changed schools frequently are
 17 below grade level, compared with 17 percent of those who have never changed
 18 schools.
- 19 ➤ Highly mobile students pose problems to the school systems as well. High
 20 numbers of mobile children, school officials have reported, can interfere with
 21 teachers' ability to organize and deliver instruction. While the mobility of
 22 children is often a reflection of underlying family issues, such as shortages of
 23 affordable housing, changes in marital status, or unemployment, it is the
 24 schools that must face the difficult challenge of meeting the educational needs
 25 of children who change schools frequently. Teachers may find it difficult to
 26 assess the needs of such new children, determine their past education
 27 experiences, and provide instruction that builds on these experiences. Teachers
 28 may therefore not have the time to identify gaps in such a child's knowledge;

³⁴ Id. (internal notes omitted).

1 moreover, these gaps may grow as the child is left on his or her own to make
2 sense of the new curriculum and its relation to the one at the previous school.³⁵

3 **Q. WOULD A FOCUS ON WATER AFFORDABILITY RATHER THAN ENERGY**
4 **AFFORDABILITY CHANGE YOUR FINDINGS OR CONCLUSIONS?**

5 A. No. My experience counsels that the unaffordability of home water service has the same
6 effect on households as the unaffordability of home energy does. Indeed, if anything, the
7 disconnection of water service has a more severe impact given that housing units are
8 generally deemed to be uninhabitable given a lack of running water.

9 **Q. WHAT DO YOU CONCLUDE?**

10 A. Based on the above data and discussion, I conclude that the testimony from OSBA and
11 the Pittsburgh School District that they derive no benefit from PWSA's universal service
12 programs is in error. Not only the Pittsburgh School District, but Pittsburgh's small
13 businesses as well derive considerable financial benefits from the PWSA initiatives.

14 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

15 A. Yes, it does.

³⁵ Id. (internal notes omitted).

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Roger D. Colton, hereby state that the facts above set forth in my Rebuttal Testimony, OCA Statement 4R, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 8, 2023

Signature:



Roger D. Colton

Consultant Address: Fisher, Sheehan, & Colton
34 Warwick Road
Belmont, MA 02478
4893-4022-2846, v. 1

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission) Docket Nos. R-2023-3039920 (Water)
v.) R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority) R-2023-3039919 (Stormwater)

SURREBUTTAL TESTIMONY OF

DANTE MUGRACE

**ON BEHALF OF THE
COMMONWEALTH OF PENNSYLVANIA
OFFICE OF CONSUMER ADVOCATE**

September 22, 2023

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1 **I. PURPOSE OF SURREBUTTAL TESTIMONY**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Dante Mugrace. My business address is 22 Brooks Avenue, Gaithersburg, MD
4 20877.

5 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS DOCKET?**

6 **A.** Yes. I submitted Direct Testimony on August 9, 2023, which was marked as OCA
7 Statement 1. My qualifications and experience are attached to my Direct Testimony.

8 **Q. DO YOU HAVE ANY ADJUSTMENTS TO YOUR DIRECT TESTIMONY?**

9 **A.** No, I do not. Based upon the rebuttal testimonies of the witnesses and the additional
10 information received, I am still recommending an overall increase of \$30,584,475 as shown
11 on my Exhibit DM-1.

12 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

13 **A.** The purpose of my Surrebuttal Testimony is to address the Rebuttal Testimony of
14 Authority witnesses Pickering (PWSA St. No. 1-R), Barca (PWSA St. No. 2-R), and Fay
15 (PWSA St. No. 9-R). To the extent that I do not respond to or address a particular issue or
16 argument, I defer to my Direct Testimony on those issues.

17 **Q. DOES YOUR SURREBUTTAL TESTIMONY CONTAIN ANY EXHIBITS?**

18 **A.** Yes. Exhibits DM-SR 1, DM-SR 2 and DM-SR 3 are attached and they contain documents
19 that I reference in this surrebuttal testimony.

20 **Q. DID MR. BARCA UPDATE THE AUTHORITY'S COST OF SERVICE MODEL
21 REGARDING THE FPFTY REVENUE REQUIREMENT INCREASE?**

22 **A.** No.

23 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR OVERALL
24 RECOMMENDED REVENUE REQUIREMENT?**

25 **A.** Mr. Barca claimed that the financial metrics that my analysis produced were inflated due
26 to the use of normalization and other adjustments. According to Mr. Barca, these

1 adjustments artificially lower PWSA's expected levels of operating expenses and debt
2 service in the FPFTY. (PWSA St. No. 2-R at 3). Mr. Barca alleges that the rate increase
3 recommendations provided by the OCA will not produce the financial metrics the OCA
4 claims and will not provide PWSA with the necessary resources to achieve its mission,
5 which is to support the Pittsburgh region by protecting public health and the environment
6 through delivery of safe and reliable water services with a commitment to future
7 generations. (PWSA St. No. 2-R at 4). Mr. Barca opined that the impact of the
8 recommendation would be so severe that PWSA would need to contemplate whether to
9 defer planned maintenance, cancel all active capital projects, and/or freeze the expansion
10 of operations to stay financially solvent. (PWSA St. No. 2-R at 4). Mr. Barca stated that
11 the PUC should not consider accepting the OCA's recommendations. (PWSA St. No. 2-R
12 at 4-5).

13 **Q. DID MR. BARCA AND MS. FAY ATTEMPT TO RECONFIGURE YOUR**
14 **REVENUE REQUIREMENT RECOMMENDATION TO SUPPORT THEIR**
15 **CLAIM THAT IT IS INSUFFICIENT FOR PWSA?**

16 **A.** Yes. Mr. Barca claims that the financial metrics in my direct testimony are inaccurate
17 because, according to him, my position actually results in a 1.44x senior debt coverage
18 level and 1.05x total debt service coverage and produces only 206.9 days cash on hand
19 (DCOH). (PWSA St. No. 2-R at 3-4). Ms. Fay makes similar claims with a slightly
20 different DCOH calculation in that she alleges my recommended revenue requirement and
21 related adjustments drops the senior debt service coverage to 1.44x and the total debt
22 service coverage to 1.05x in violation of the Authority's rate covenant and drops the DCOH
23 to an unacceptable level of 203. (PWSA St. No. 9-R at 3).

24 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA AND MS. FAY'S CLAIMS**
25 **ABOUT YOUR RECOMMENDED REVENUE REQUIREMENT AND**
26 **FINANCIAL METRICS?**

27 **A.** Mr. Barca and Ms. Fay's attempts to recalculate my revenue recommendation and the
28 resulting conclusions are faulty because they rely upon the assumption that none of the
29 adjustments I made are appropriate, and that PWSA must be awarded the full level of rate
30 increase request. As I explained in my Direct Testimony, PWSA is responsible to
31 substantiate all of its claims in this case, and where it did not do so, I recommended

1 adjustments. (OCA St. 1 at 17). While Mr. Barca and Ms. Fay may not agree with my
2 adjustments, their attempt to mischaracterize my position produces skewed financial
3 metrics that fail to account for the totality of my recommendations.

4 **Q. DOES MS. FAY ARGUE THAT THE OCA IS NOT FAIRLY CONSIDERING**
5 **PWSA’S STATUS AS A CASH-FLOW UTILITY?**

6 **A.** Yes. Ms. Fay claims that while the Intervenors would undoubtedly support granting a for-
7 profit company a rate increase that includes a “rate of return” that would permit the firm to
8 maintain and attract capital, they have opposed the Authority obtaining an adequate “rate
9 of return for reinvestment” back into the system. (St. No. 9-R at 4). Ms. Fay claims that the
10 OCA’s proposal, which is \$14.9 million less than the Authority’s requested rate increase,
11 violates the Authority’s required rate covenant. She alleges that “the Intervenors’
12 consistent objection to the level of proposed rate increase in each filing situation has had
13 the effect of disrupting PWSA’s planning and implementation of operational, maintenance,
14 regulatory and supervisory improvements. (PWSA St. No. 9-R at 6). Ms. Fay claims that
15 the OCA’s revenue requirement recommendations would require PWSA to substantially
16 cut its operating budget to a point that would seriously threaten PWSA’s ability to continue
17 to provide safe and reliable services in order to achieve sufficient net operating revenue to
18 meet the Additional Bond Test (ABT). (PWSA St. No. 9-R at 7).

19 **Q. HOW DO YOU RESPOND TO MS. FAY’S CLAIMS?**

20 **A.** Setting rates for service under a cash flow method is not unique. Applying the same basic
21 ratemaking principles to that of a traditional Rate Base/Rate of Return methodology still
22 requires the finding of known and measurable (justified based upon the documentation and
23 evidence provided through discovery), prudent in nature (judged by the reasonableness and
24 based upon information received) and used and useful (whether costs that are incurred to
25 provide utility services are useful to ratepayers) expense and components. In order to allow
26 recovery of expenditures and costs components, PWSA should show that these
27 expenditures and costs components are realistic and a necessary part of its normal day to
28 day operations. There is a degree of interpretation involved when reviewing forecasted
29 data, and various levels of interpretations can vary among the parties to the proceeding,
30 which will ultimately be determined by the Commission when setting rates for service. Mr.

1 Barca and Ms. Fay claimed that my recommended revenue requirement will not provide
2 PWSA with the necessary resources to provide safe and reliable water services and stay
3 financially solvent, but my analysis demonstrates that the opposite is true. PWSA's rates
4 should be set sufficiently to cover all of its known and measurable costs and provide
5 sufficient cash on hand to meet its day to day obligations. Ratemaking concepts, including
6 those that are set under a cash flow method, do not provide for 100% guaranteed recovery
7 of all costs and expenditures. It provides for the opportunity and the ability to recover all
8 of a utility's known and measurable costs using good, sound management techniques and
9 proper operational approaches in order to provide utility service to ratepayers. The OCA's
10 recommendation is reasonable and will allow PWSA to remain financially secure while
11 ensuring that customers are not paying unjust and unreasonable rates.

12 **II. REVENUE REQUIREMENT ISSUES**

13 **A. Direct Operating Expenses – Overview**

14 **Q. DOES MS. FAY ARGUE THAT INTERVENORS MAY JEOPARDIZE PWSA'S**
15 **OPERATIONS IF THEY ARE WRONG ABOUT PWSA'S OPERATING**
16 **EXPENSES?**

17 **A.** Yes. Ms. Fay claims that if PWSA's expenses are higher than OCA's recommended
18 expenses, critical operations would not be funded, maintenance would not be
19 accomplished, certain projects would have to be cancelled and/or delayed, additional
20 regulatory efforts would be disrupted, and the operational level of service would be
21 reduced.

22 **Q. DOES MS. FAY ALSO MAKE CLAIMS ABOUT THE RESULT THAT WOULD**
23 **OCCUR IF PWSA'S EXPENSES ARE LOWER THAN IT PROJECTS AND IT**
24 **RECOVERS MORE REVENUE THAN EXPENDED?**

25 **A.** Yes. Ms. Fay opined that if expenses are much lower than PWSA budgeted for, or do not
26 entirely materialize, the Authority would simply have more funds to reduce its debt, build
27 its reserves, accelerate the timing for regulatory projects, improve the quality and level of
28 services and other operational goals, and lower its cost of doing business, among other
29 things. (PWSA St. No. 9-R at 7-8).

1 **Q. WHAT IS YOUR RESPONSE?**

2 **A.** My first response is that Ms. Fay presents a false-choice scenario in which PWSA must
3 either receive its full increase, regardless of whether ratepayers overpay for service, or
4 PWSA's operations will decline and impact service. Aside from the fact that Ms. Fay
5 ignores other options in between, including that PWSA can always seek additional rate
6 relief as needed, her argument is flawed in several other respects. In reviewing projected
7 and prospective costs, one must review historic costs to determine whether the Authority's
8 projections are reasonable in nature and prudent. Ms. Fay's interpretation is based upon
9 her opinion and based upon PWSA not recovering all of its projected expenditures, which
10 is an unreasonable and arbitrary approach. PWSA always has the ability to re-evaluate its
11 financial position and cash flow needs in future years and can seek further rate adjustments
12 as its business situation may require at that time. PWSA should not be permitted to over-
13 collect its expenditures simply because it is a cash flow utility. Ms. Fay's approach in
14 setting rates for service by using over-collected cash for other purposes such as reducing
15 debt, building its reserve and accelerating the timing of regulatory projects among other
16 things, are contrary to basic ratemaking principles of reasonableness. PWSA should not
17 use excess ratepayer monies to fund other areas of its operations. Ms. Fay's approach
18 shows a lack of understanding of regulatory concepts as any potential over-recoveries
19 should be refunded back to ratepayers.

20 **Q. HAS THE AUTHORITY PROVIDED ADEQUATE EVIDENCE TO SUPPORT ITS**
21 **REQUEST AND TO ESTABLISH THE REASONABLE AND APPROPRIATE**
22 **EXPENSES THAT SHOULD BE USED TO SET FORWARD LOOKING RATES?**

23 **A.** No. For the expenses I have adjusted, the Authority has not identified specific increases in
24 costs, nor provided detailed information as to why costs have increased. As I stated
25 previously, setting rates for service should be supported by costs that are known,
26 measurable, used and useful and prudent in nature. PWSA has provided insufficient detail
27 regarding the actual and projected balances on which the Authority has based its claim for
28 its proposed revenue requirement increase. I reviewed prior historical balances and used
29 my judgment and my ratemaking experience to evaluate whether the cost adjustments from
30 the HTY, the FTY and FPFTY budget balance were reasonable adjustments, reliable in
31 nature, and prudent. In the various tabs to the PWSA COSS 2023 Rate Model, the

1 Authority has not provided any further information regarding the absence of prior costs,
2 the fluctuations of certain costs from year to year, and the need and requirement to ramp
3 up these costs in the FPFTY period. Review, examination and analysis is needed to support
4 its claims, but where I reflected adjustments to operating expenses, the Authority has not
5 provided that support.

6 **1. Financial Metrics – Debt Service Coverage / Day Cash on Hand**

7 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR RECOMMENDED DEBT**
8 **SERVICE COVERAGE RATIOS?**

9 **A.** Mr. Barca did not agree with my recommended Debt Service Coverage (DSC). He claims
10 that OCA’s claimed senior and total debt were arrived at by pretending that PWSA will
11 incur operating expenses on a normalized level rather than on the level projected in
12 PWSA’s approved operating budget. (PWSA St. No. 2-R at 12). Mr. Barca stated that
13 OCA’s recommendation actually results in a senior DSC of 1.44x and “an equally
14 catastrophic” 1.05x total DSC, cause PWSA multiple bond covenant defaults. (PWSA St.
15 No. 2-R at 12).

16 **Q. WHAT IS YOUR RESPONSE?**

17 **A.** Mr. Barca’s argument is inaccurate, as I explained above. Mr. Barca’s argument that its
18 total level of projected operating expenses should be recovered in order to produce the
19 recommended DSC ratios proposed is unsupported by facts and unrealistic. DSC ratios are
20 akin to the traditional rate base/rate of return methodology and that through reasonable
21 adjustments to PWSA’s operating expenses, the resulting DSC are achievable and
22 attainable. Mr. Barca’s argument that OCA’s recommendation as compared to the use of
23 PWSA’s projected expenses results in less than PWSA’s recommended DSC of 1.65x is
24 also not accurate or realistic. Mr. Barca tries to manipulate the OCA’s calculation of the
25 DSC ratios to show that it is in violation of legal requirements, but acceptance of his
26 position would require a determination that PWSA is entitled to every single dollar of the
27 rate increase it has requested, and that position is simply not supported in this case.

1 **Q. WHAT DID MR. BARCA AND MS. FAY CLAIM REGARDING YOUR**
2 **RECOMMENDED DAYS CASH ON HAND (DCOH)?**

3 **A.** Mr. Barca did not agree with my recommendation of the DCOH balance. (PWSA St. No.
4 2-R at 14). Mr. Barca claimed that my recommended balance pretends that PWSA will
5 incur operating expenses on a normalized level rather than on the level projected in
6 PWSA’s approved budget. Ms. Fay stated that these levels are not acceptable as she claims
7 they inhibit PWSA’s ability to continue to grow its reserves to levels that are comparable
8 to its peers as well as to levels that the rating agencies view as favorable in their scoring
9 methodologies. (PWSA St. No. 2-R at 14).

10 **Q. WHAT IS YOUR RESPONSE?**

11 **A.** As I previously stated above, PWSA’s recovery of 100% of its projected and forecasted
12 expenditures in order to achieve its recommended DCOH is not a realistic nor a credible
13 approach. PWSA has the opportunity, *not* the guarantee of recovery, and it must
14 substantiate all claimed expenses. PWSA has the burden of proof to support all of its
15 claimed expenses. Only known and measurable costs, which are prudent in nature and used
16 and useful in utility operations should be recovered from ratepayers. The fact that PWSA
17 had its budget approved by its Board of Directors bears no weight because the rates and
18 charges will ultimately be set by the Commission which has the overall regulatory authority
19 to set rates for service.

20 **2. Overall Expenses – Expenses in the FPFTY**

21 **Q. WHAT DID MR. BARCA CLAIM REGARDING THE OVERALL EXPENSE**
22 **RECOMMENDATION OF OTHER PARTIES?**

23 **A.** Mr. Barca claims that the concerns expressed by OCA regarding variances between
24 budgeted and actual expenses require distinctions between the capital budget and the
25 operating budget. According to Mr. Barca, the operating budget contains less variances
26 between actual to budget and the capital budget contains variances due to PWSA spending
27 less than all of its capital budget in FY 2021 and FY 2022. (PWSA St. No. 2-R at 40).

1 **Q. WHAT IS YOUR RESPONSE?**

2 **A.** I will address my adjustments related to Mr. Barca's statement regarding variances below
3 for each of my recommended adjustments as needed and addressed.

4 **3. Payroll and Employee Benefits**

5 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR ADJUSTMENTS TO**
6 **PAYROLL AND EMPLOYEE BENEFITS?**

7 **A.** Mr. Barca did not agree with my adjustments or my methodology to determine employee
8 levels and expenses related to employees. He stated that my use of a vacancy rate ratio of
9 12.61% is unreasonable. (PWSA St. No. 2-R at 44). Mr. Barca stated that my recommended
10 employee count is far less than PWSA's total employee count of 418 as of September 7,
11 2023. Mr. Barca stated that my recommendation is only \$967,185 more than the FTY
12 amount which does not allow PWSA to recover increased expenses for additional
13 employees in the FPFTY as well as seriously jeopardizing the ability to pay for health
14 insurance costs and offer a 3% cost of living adjustments to employees. (PWSA St. No. 2-
15 R at 44).

16 **Q. WHAT IS YOUR RESPONSE?**

17 **A.** Mr. Barca claimed that as of September 7, 2023, a total of 418 employees were employed
18 by PWSA. In response to OCA Set 6-5, the actual total projected employees for 2023 was
19 393 with a vacancy level of 48 and projected total projected employees of 441. Exhibit
20 DM-SR 1. This is 23 vacancy fills short of PWSA's projections as of September 7, 2023.
21 To my knowledge, PWSA never supplemented its discovery response to reflect an increase
22 in employees, so I learned of Mr. Barca's claim for the first time in his rebuttal testimony.
23 Further, PWSA has not provided any schedule or a list of new employees that were hired
24 subsequent to April 23, 2023. Exhibit DM-SR 1, Exhibit DM-SR 2. The prior employee
25 count has shown vacancies in all of the years 2020 through 2023. It also appears that PWSA
26 is struggling to hire and retain employees and the use of a vacancy rate ratio is reasonable
27 given the inability to fill vacancies in prior years. Employee vacancies are inherent in all
28 companies including utilities in that in any given period, employees retire, voluntarily and
29 involuntarily leave the company and certain positions are eliminated. With respect to

1 PWSA's offer of a 3% cost of living increase, I accepted PWSA's cost of living increase
2 as shown in response to OCA Set 6-12. Exhibit DM-SR, 3. My vacancy rate adjustment
3 reflects the level of employees and employee count with current salaries and benefits.

4 **4. Drag Bucket**

5 **Q. WHAT DID MR. BARCA CLAIM WITH RESPECT TO YOUR ADJUSTMENT**
6 **RELATED TO PWSA'S DRAG BUCKET COSTS?**

7 **A.** Mr. Barca did not agree with my normalizing the cost of the Drag Bucket over a two year
8 period or \$368,100 annually. (OCA St. No. 1 Exhibit DM-11). He stated the full amount
9 of the claimed expense should be granted and that prior costs were repurposed to Flow
10 Monitoring to better track costs which were charged to a different account. (PWSA St. No.
11 2-R at 46). Mr. Barca stated that a new contract will be procured in the coming months and
12 that not providing PWSA with the funds to fulfill this contract will force PWSA to cancel
13 agreed upon commitments. (PWSA St. No. 2-R at 46).

14 **Q. WHAT IS YOUR RESPONSE?**

15 **A.** PWSA has not provided the new contract, nor identified the vendor, nor provided the
16 effective date of this new contract and when it will be in place in and become effective.
17 More than speculation is needed to substantiate PWSA's claim. PWSA argues that these
18 forecasted costs will be realized without providing any evidence. Prior costs, whether
19 accounted for in another account or repurposed, did not rise to the level of costs proposed
20 in the FPFTY period. In Account 5370 (Operating Contracts Other) (Tab 931) PWSA
21 proposed \$0 in 2020, \$0 in 2022 and \$790,230 in 2023. This results in an average cost of
22 about \$263,000 annually. $(\$0 + \$0 + \$790,230 / 3)$. PWSA's argument that not providing
23 these funds to fulfill this contract will force PWSA to cancel its commitments is without
24 merit as PWSA has not provided any evidence to show it actually entered into a contract
25 with a vendor. In the absence of support for PWSA's full claim normalization is a
26 reasonable approach to recover these costs in the FPFTY period.

1 **5. Line Televising**

2 **Q. WHAT DID MR. BARCA CLAIM WITH RESPECT TO YOUR ADJUSTMENT**
3 **RELATED TO PWSA’S LINE TELEVISIONING COSTS?**

4 **A.** Mr. Barca stated that he did not agree with my two-year average. He stated that I failed to
5 recognize that the account for these costs was changed in FY 2023 and these costs did exist.
6 Mr. Barca claimed that PWSA will incur such costs in the FPFTY and Forecasted Period
7 as projected and cutting the claim in half would deny PWSA the opportunity to recover
8 costs that it will incur in the FPFTY and the Forecasted Period. (PWSA St. No. 2-R at 48).
9 Mr. Barca provided a schedule showing that Line Televising costs were \$625,515 in 2020,
10 \$611,252 in 2021 and \$703,814 in 2022. Mr. Barca showed a balance of \$184,561 in FY
11 2023 (PWSA St. No. 2-R at 48).

12 **Q. WHAT IS YOUR RESPONSE?**

13 **A.** Prior costs related to Line Televising were accounted for in Account 7383 (Professional
14 Services Other) Tab 931. PWSA booked \$827,202 in 2020, \$1,700,159 in 2021 and
15 \$1,939,374 in 2022. PWSA reduced this balance by \$1,305,374 and booked a balance in
16 2023 of \$633,750. (OCA Set 18-24). PWSA has not provided a breakdown as to what level
17 of costs are included in Account 7383 that is related to Line Televising. However, Mr.
18 Barca indicated that these costs in prior years were \$625,515 (2020), \$611,252 (2021) and
19 \$703,814 (2022), and \$184,561 in 2023. Mr. Barca provided no further information related
20 to a new contract as to when it is to be procured in the coming months, nor has he provided
21 the name of the vendor, nor has he provided the effective date of the new contract. Whether
22 existing costs were incurred in prior years, no other information was provided but for the
23 response to OCA Set 18-24. In the absence of support for PWSA’s full claim, normalizing
24 this projected expense is a reasonable approach to recover these costs in the FPFTY period.

25 **6. Rate Case Expenses**

26 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR ADJUSTMENT TO THE**
27 **AUTHORITY’S RATE CASE EXPENSES?**

28 **A.** Mr. Barca claimed that my normalization of rate case expenses is not appropriate since the
29 Authority is a cash flow utility, and that the Authority must have the full amount to

1 purchase any item or service and recovering these costs over multiple years is not an option.
2 (PWSA St. No. 2-R at 51).

3 **Q. WHAT IS YOUR RESPONSE?**

4 **A.** For regulated utilities in Pennsylvania, it is appropriate to normalize rate case expenses,
5 regardless of whether the utility operates under a Rate Base/Rate of Return methodology
6 or under a Cash Flow Methodology. It is also appropriate to normalize these types of costs
7 over a period of time and not solely within the current period, as these costs benefit future
8 periods. My recommendations remain the same. The mere fact that PWSA is a cash flow
9 utility is not a reason to recover the full amount of the claimed rate case expense over a
10 single period, as this will have the effect of over-collecting these costs in future periods
11 without having a base rate case proceeding before the Commission.

12 **7. COVID-19**

13 **Q. WHAT HAS MR. BARCA CLAIMED WITH RESPECT TO THE AUTHORITY'S**
14 **POSITION ON THE COVID-19 EXPENSE CLAIM?**

15 **A.** Mr. Barca stated that he did not agree with my recommendation to recover these COVID-
16 19 costs over a 24-month period. He stated that PWSA voluntarily deferred the recovery
17 of COVID-19 expenses in the last rate case to lessen the burden on ratepayers given the
18 grim economic conditions of the pandemic. (PWSA St. No. 2-R at 52). As a cash flow
19 utility, he claims that it was an enormous burden to have to fund these expenses but to defer
20 receiving the cash necessary to pay them. (PWSA St. No. 2-R at 52).

21 **Q. WHAT IS YOUR RESPONSE?**

22 **A.** My recommendation remains the same. I do not believe that reducing the COVID-19
23 balance and requesting recovery of these expenses over a two-year period or \$131,608
24 annually constitutes an enormous burden to fund these expenses. By not amortizing these
25 costs and allowing recovery of the full amount of \$263,215 annually, it would have the
26 effect of over-collecting these costs until PWSA files its next base rate case proceeding.
27 My recommendation to amortize these costs is a reasonable approach to permit recovery
28 of the expense in a way that recognizes that they are not expenses that should be an ongoing

1 part of PWSA’s rates. PWSA’s request to recover the full amount annually is not a
2 reasonable approach.

3 **8. Normalization / Various Adjustments**

4 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR NORMALIZATION**
5 **ADJUSTMENTS AND VARIOUS OTHER ADJUSTMENTS?**

6 **A.** Mr. Barca did not agree with my various normalization adjustments to PWSA’s projected
7 expense categories. Mr. Barca claimed that this approach may be reasonable when it is
8 applied to an investor-owned utility that is regulated on a rate or return/rate base basis, but
9 for several reasons, is not reasonable for PWSA. (PWSA St. No. 2-R at 57). Mr. Barca
10 stated that PWSA is in a dynamic, ramp-up mode and using historical data to condemn
11 future projections amounts to a repudiation of the Authority’s efforts to repair the
12 negligence and inadequacies of the past. Mr. Barca claims that if PWSA is held to historic
13 spending levels for ratemaking purposes, it will be forced to reduce the levels of
14 expenditures to those levels and will not be able to accomplish key projects and initiatives.
15 (PWSA St. No. 2-R at 57). Mr. Barca stated that unlike investor-owned utilities, PWSA
16 has asked for no increment above the revenues it needs to fund its operating budget to be
17 able to attain financial indicators that would be consistent with its peer utilities. Finally,
18 Mr. Barca argues that unlike an investor-owned utility, if PWSA does encounter
19 unforeseen circumstances and is unable to expend all of its FY 2024 budget funding
20 provided in rates, that 100% of the revenues PWSA collects from customers is retained by
21 PWSA and will be used to support the Authority’s continued operations in a safe and
22 reasonable manner and will not go to shareholders or an owner. (PWSA St. No. 2-R at 58).
23 Mr. Barca then began to address each of my recommended normalization adjustments
24 beginning with Vehicles (PWSA St. No. 2-R at 54) and ending with Landscaping and
25 Grounds (PWSA St. No. 2-R at 57).

26 **Q. WHAT IS YOUR RESPONSE?**

27 **A.** I am addressing the use of normalization overall as a basis for setting rates for service. My
28 arguments for normalizing certain adjustment components are the same as discussed in my
29 direct testimony. The use of normalizing and averaging certain expense adjustments is an
30 appropriate method to set rates prospectively (FPFTY 2024). Past spending trends are a

1 good indicator of future needs and requirements. Abnormalities, fluctuations and variations
2 are among the reasons to normalize costs because it smooths out costs and provides for a
3 consistent and steady recovery. In periods where the Authority has not booked costs nor
4 documented any prior expense, it is difficult to measure or assess what level should be
5 considered reasonable and appropriate. Costs must be incurred continuously and be
6 recurring going forward, and the Authority has not provided any specific reason why
7 certain accounts did not have costs in prior periods but will have costs in future periods.
8 The test is the FPFTY period 2024, and the recovery of costs should be used for that
9 specific period only, and any over-recovery of costs in the FPFTY 2024 is not an
10 appropriate approach to set rates for service. This is the main reason for normalization, to
11 prevent over-recovery or over-collection of expenses in future periods. Over-recovery of
12 expenses comes at the expense of ratepayers as rates have already been set by the
13 Commission, and ratepayers will be harmed in being charged unreasonable rates.

14 The Authority has the opportunity to recover all of its prudent and known costs to provide
15 safe and reliable utility service. It is not guaranteed to recover all of its costs based on a
16 capital plan or budget for ratemaking purposes, and it must support all claimed expenses,
17 not merely be entitled to recover any claimed cost simply by alleging that terrible things
18 will occur if it is not awarded every dollar requested . In PWSA Statement No. 2-R at 57,
19 Mr. Barca stated that PWSA is in a dynamic ramp-up mode in order to repair the neglect
20 and inadequacies of the past. In other words, there was little or no investment in the systems
21 for a significant amount of time while PWSA was not a jurisdictional utility. PWSA was
22 previously controlled by the City of Pittsburgh and governed by a Board of Directors to
23 oversee the strategic direction of PWSA's operations. The Board of Directors still approves
24 PWSA's annual operating and capital budget, however it is the Public Utility Commission
25 that determines what rates are just and reasonable not the Board of Directors in deciding
26 the annual operating and capital budget. Even during a ramp up period, it remains
27 reasonable and appropriate to use normalization and to review historical data in the
28 development of rates going forward, and that is true even putting aside evidence in this
29 case that PWSA's capital budget is consistently over projected and that its case now is built
30 on the claim that it will double that budget .

1 **Q. DOES PWSA’S STATUS AS A CASH-FLOW UTILITY ENTITLE IT TO HAVE A**
2 **FINANCIAL CUSHION AT THE EXPENSE OF RATEPAYERS?**

3 A. No. PWSA should not have any incremental revenues above the revenues it needs simply
4 because under a cash flow basis of ratemaking, revenues equal expenses. PWSA has a daily
5 cash on hand balance of \$87,692,058 (which is akin to a rate base / rate of return cash
6 working capital balance) that it can use to cover unforeseen and unexpected expenditures
7 during its annual operating period. PWSA St. No. 2, pp. 39-40). This is PWSA’s cushion,
8 and I also note that PWSA is expecting an operating surplus of about \$6 million for 2023
9 (PWSA St. No. 9, Exh. CF-10, p. 4). Additionally, PWSA’s claims ignore that when rates
10 for service are set, they are neither the highest rates nor the lower rates, but rather a
11 reasonable rate that is set by the Commission based on evidence that rates are based on
12 reasonable and prudent costs of the utility. In this regard, there is no difference whether
13 Rate Base / Rate of Return or Cash Flow Methodology is being applied. Using either
14 methodology, it is not appropriate for PWSA to recover all prior deferred maintenance
15 costs in this one instant proceeding. This approach creates an unnecessary burden on
16 ratepayers and an undue hardship. PWSA should not have unfettered access to ratepayer
17 money without costs being justified, prudent and used and useful in nature. The
18 Commission should also take into consideration the ratemaking principle of gradualism in
19 permitting PWSA to recover increased costs over several years or through a number of rate
20 case proceedings.

21 **9. Inflation Factors**

22 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR REMOVAL OF**
23 **INFLATION FACTORS?**

24 A. Mr. Barca did not agree with my characterization of projections as a blanket generalized
25 inflation adjustment. (PWSA St. No. 2-R at 67). Mr. Barca claimed that I attempted to
26 characterize PWSA’s adjustment as blanket inflation adjustment applied to numerous
27 expense claims, which is not what PWSA did. Mr. Barca stated that PWSA expects all
28 expenses/costs to increase from the FTY to the FPFTY. Mr. Barca stated that PWSA’s
29 budget process was derived through a comprehensive Authority-wide budgeting process.

1 PWSA used a zero-based budgeting method ¹ to develop annual budgets (PWSA St. No.
2 2-R at 67). This is in contrast to a traditional budgeting approach in which an escalation
3 factor is applied for an anticipated increase in a specific type of cost. (PWSA St. No. 2-R
4 at 67). Mr. Barca stated that for the utility industry and the Construction Cost Index,
5 escalation factors show that the requested 6% inflation adjustments are more in line with
6 this index. (PWSA St. No. 2-R at 70).

7 **Q. WHAT IS YOUR RESPONSE?**

8 **A.** First, it is important to note that PWSA did not truly utilize zero-based budgeting, as Mr.
9 Barca claims. While PWSA may have prepared its budget under a zero based budgeting
10 process for the 2020, 2021, 2022 and 2023, it did include an inflation factor or CPI index
11 to adjust and set the balances in FPFTY 2024, and in its FY 2025 and FY 2026 rate years
12 which is typically used under a traditional-based budgeting process. In setting rates for
13 utility service, costs should be prudently incurred, and known and measurable, regardless
14 of the test period utilized. I believe that general inflationary type expense adjustments do
15 not provide a true picture of cost increases (or decreases) because these types of general
16 adjustments apply to a general basket of goods and services and may or may not be accurate
17 adjustments for the costs of the specific goods and services incurred by the Authority.
18 While these types of cost adjustments are appropriate for economic data, they should not
19 be used to set rates under a ratemaking methodology, for ratemaking purposes. Inflationary
20 cost adjustments cannot be precisely determined because there is no way to pinpoint a
21 particular cost and determine whether that particular cost has been affected by the use of a
22 Consumer Price Index (CPI) adjustment. In response to OCA Set 6-12, I asked PWSA to
23 provide all inflation and CPI indices that the Authority used to develop its FPFTY 2024
24 revenue requirement increases. I also asked PWSA to provide the sources that it relied
25 upon to determine the rate of inflation. PWSA only provided various inflation factors and
26 indices with no further evidence to show where these factors were derived. In rebuttal, Mr.
27 Barca provided a site related to construction costs (Engineering News-Record) (PWSA St.
28 No. 2-R at 70). In PWSA 2023 COSS model, PWSA increased most if not all of the
29 expenses by an inflation factor of either 20%, 15% or 6%, which , does not particularly

¹ [Zero-Based Budgeting vs Traditional Budgeting: Pros and Cons \(linkedin.com\)](#)

1 constitute a true zero-based budgeted method, but rather a traditional budget approach or a
2 hybrid of both budget approaches (PWSA St. No. 2-R at 67). The Authority has not
3 provided any further information related to cost increases beyond its response to OCA-Set
4 6-12, and what has been provided in rebuttal. The proposed 6% increase identified and
5 related to all other operating expenses, does not solely include construction costs, but rather
6 administrative type related expenses which are not construction related expenses. My
7 recommendations remain the same. These are clearly blanket-type adjustments and do
8 overstate the expense claims in the FPFTY 2024 test year period.

9 **Q. WHAT DID MR. PICKERING CLAIM REGARDING ADJUSTMENTS TO**
10 **INFLATION?**

11 **A.** Mr. Pickering stated that given the recent inflation trends, it is reasonable and sensible to
12 incorporate a 6 percent inflation factor into PWSA’s cost projections. (PWSA St. No. 1-R
13 at 4). Mr. Pickering stated that to the extent the trends do not continue at that level, PWSA
14 will have more funds available to invest back into the system for the benefit of ratepayers,
15 to pay down debt or to delay future base rate increase requests. (PWSA St. No. 1 -R at 4).

16 **Q. WHAT IS YOUR RESPONSE?**

17 **A.** Mr. Pickering’s projection of a 6% inflation trend is unreasonable and not reflective of
18 what level of inflation is being incurred now and what is projected to be when new rates
19 are set by the Commission. ² According to the Congressional Budget Office (CBO),
20 inflation is projected to slow gradually in 2023 as pressures ease from the factors that have
21 caused demand to grow more rapidly than supply in recent years. CBO projects inflation
22 as measured by the price index consumption expenditures (PCE) will be 3.3% in 2023 and
23 2.4% in 2024. The price index for consumption expenditures is expected to continue to
24 decline thereafter approaching the Federal Reserve’s long-run goal of 2 percent by 2026.
25 Mr. Pickering’s 6% inflation proposal does not reflect what is being incurred in today’s
26 economic outlook. Mr. Pickering’s approach to use excess dollars to invest back into the
27 system is inappropriate and contrary to ratemaking principles. Mr. Pickering’s approach to
28 use over-collected dollars to fund other PWSA’s operations does not follow the “safe and
29 reliable utility service at reasonable rates” fundamental principles of ratemaking. Any

² [The Economic Outlook for 2023 to 2033 in 16 Charts | Congressional Budget Office \(cbo.gov\)](https://www.cbo.gov/publications/2022/07/the-economic-outlook-for-2023-to-2033-in-16-charts)

1 over-recovery of dollars collected by PWSA would be difficult to refund to customers
2 when new rates are set by the Commission.

3 **10. Chemical Expenses**

4 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR ADJUSTMENTS TO**
5 **CHEMICAL EXPENSES?**

6 **A.** Mr. Barca did not agree with my proposed 6.8% chemical inflation adjustment, stating this
7 is still below the most recent levels for the Construction Cost Index and the increases that
8 PWSA is experiencing. (PWSA St. No. 2-R at 70). Mr. Barca stated that a bid was released
9 and ultimately signed by a supplier but was terminated through force majeure as a result of
10 chemical shortage and supply chain issues. PWSA will look to rebid the chemicals when
11 the market returns to normal. (PWSA St. No. 2-R at 71).

12 **Q. WHAT IS YOUR RESPONSE?**

13 **A.** Unless PWSA can provide further information related to its Chemical expenses, I am
14 continuing to recommend a 6.8% adjustment to PWSA Chemical costs. I am still of the
15 opinion that PWSA's proposed 20% increase is excessive and not reasonable. Supply
16 Chain issues have relaxed a bit since PWSA filed its rate case proceeding. PWSA has not
17 supported nor provided any other documentation or evidence that a 20% increase is
18 appropriate.

19 **11. Executive Bonus**

20 **Q. WHAT HAS MR. BARCA CLAIMED REGARDING YOUR ADJUSTMENT TO**
21 **EXECUTIVE BONUS?**

22 **A.** Mr. Barca did not agree with my disallowance of the executive bonus related to the Chief
23 Executive Officer. Mr. Barca stated that the performance goals and metrics that justify the
24 bonus are determined annually and approved at the discretion of PWSA's Board of
25 Directors. (PWSA St. No. 2-R at 71). According to Mr. Barca, this incentivizes the Chief
26 Executive Officer to continue to improve overall aspects of the PWSA. Mr. Barca stated
27 that the goals to be used for the end of FY 2024 will be set early in FY 2024. Mr. Barca
28 claimed that such goals have been instrumental in supporting PWSA's improved customer
29 service, financial health and system safety and reliability. (PWSA St. No. 2-R at 71).

1 **Q. WHAT IS YOUR RESPONSE?**

2 **A.** PWSA wants the dollars to be included in rates and recovered from ratepayers, for costs
3 related to executive bonuses even though the goals and metrics will be developed in a future
4 period, particularly when new rates are set by the Commission. In order to evaluate whether
5 the executive bonus should be included in the revenue requirement equation, one must
6 determine whether those dollars benefit ratepayers in the area of customer service, safety
7 and reliability. This review should occur now and not prospectively. This is not an
8 appropriate way to evaluate whether the costs related to incentive compensation are
9 reasonable and prudent in nature. PWSA has not provided any evidence now or in the past
10 with respect to the costs associated with the bonus paid to the Chief Executive Officer, nor
11 has PWSA demonstrated that the bonus is specifically conditioned upon meeting
12 performance goals and/or metrics that produce quantifiable ratepayer benefits. Therefore,
13 I am continuing to recommend disallowance of the costs related to the Chief Executive
14 Officer in the amount of \$47,223.

15 **12. Utility Expenses – Electric and Gas**

16 **Q. WHAT HAS MR. BARCA CLAIMED REGARDING YOUR ADJUSTMENTS TO**
17 **UTILITY EXPENSES – ELECTRIC AND GAS?**

18 **A.** Mr. Barca disagreed with my adjustments related to a reduction in PWSA’s claim for
19 electricity and natural gas. (PWSA St. No. 2-R at 72). Mr. Barca stated that PWSA’s
20 electric distributor is Duquesne Light with Direct Energy/NRG being its electric supplier.
21 The prices set forth by Direct Energy for electric generation supply are not regulated by
22 the PUC with the amount that PWSA is obligated to pay being set by the contract, which
23 is attached at Exhibit EB-12. (PWSA St. No. 2-R at 72). Mr. Barca stated that PWSA has
24 experienced growth of at least 17% in electric expenses in FY 2021 and FY 2022 and
25 electric expenses are up 35% through July 31, 2023. (PWSA St. No. 2-R at 72). Mr. Barca
26 also disagreed with my adjustment to PWSA’s gas distributor – People’s Gas with Synder
27 Brothers, Inc. Synder Brothers, Inc.’s natural gas prices are also not regulated by the PUC
28 with the amount that PWSA is obligated to pay being set by the contract that is attached as
29 Exhibit EB-13. (PWSA St. 2-R at 72-73). Mr. Barca stated that PWSA has experienced
30 over 8% growth in natural gas expenses in FY 2021 and FY 2022. Mr. Barca stated that

1 under the current contract, natural gas expenses are up 3.15% through July 31, 2023, as
2 compared to the prior year as a result of increased demand. (PWSA St. No. 2-R at 73).

3 **Q. WHAT IS YOUR RESPONSE?**

4 **A.** I reviewed PWSA’s attachments EB-12 and EB-13 related to the contracts for electricity
5 and gas, respectively. These contracts were dated May 18, 2021/July 1, 2021 (Electric Page
6 8 and 9 of 9) and May 25, 2017 / February 5, 2021 (Gas page 10 and 11 of 11). I am unable
7 to verify the claimed costs in the FPFTY 2024 as the contract for electric shows annual
8 historical usage and an approximation based upon best estimation (Electric) and various
9 monthly contract quantities and service addresses with a fixed price of \$2.50 / City Gate –
10 DTH (Gas). It is difficult to discern or calculate what PWSA may be obligated to pay under
11 the terms of the Electric and Gas contracts. PWSA has failed to provide actual invoices
12 that show the actual costs to date for both electric and gas utilities, I am still recommending
13 maintaining the costs of \$6,000,000 for electric utility costs and \$360,000 for gas utility
14 costs, which is based upon actual cost incurred in 2022 of \$5,558,804 (OCA Set 18-12 and
15 PWSA COSS Model 2024 tab 322 Account 7605 and 7650 (electric and gas, respectively),
16 and applying PWSA’s 7.9% increase adjustment for its electric charges and a -2.75%
17 adjustment for its gas charges in 2023. No other information was provided but for the
18 response in OCA Set 18-12, in which PWSA stated that given the unknown of future rate
19 case results from providers, market increases that would affect PWSA’s cost, and historic
20 price increases, PWSA is assuming an annual increase of 15% per year to both electric and
21 gas costs. PWSA has not supported that its assumption is reasonable.

22 **13. Charitable Contributions / Membership Fees**

23 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR ADJUSTMENT TO**
24 **CHARITABLE CONTRIBUTIONS AND MEMBERSHIP EXPENSES?**

25 **A.** Mr. Barca did not agree with my recommendation of disallowing \$29,118 of expenses
26 related to membership fees. He stated that these costs are not associated with charitable
27 contributions or sponsorships. Mr. Barca stated that membership fees are a legitimate
28 expense that allows PWSA and its employees to collaborate and learn from other utilities
29 and professionals. (PWSA St. No. 2-R at 73).

1 **Q. WHAT IS YOUR RESPONSE?**

2 **A.** Mr. Barca’s claims are not accurate, and the only adjustments I made were not to
3 memberships such as AWWA, but to organizations where membership was either only
4 partly based, or not at all based upon service benefits to customers. More specifically, in
5 response to OCA Set 6–19, I asked PWSA to provide a schedule of charitable
6 contributions, sponsorships, membership dues, civic donations, and other related costs. My
7 adjustments or disallowances relate to the following:

8	African American Chamber of Commerce	\$664
9	Allegheny Conference of Community Development	\$4,782
10	Isle, Inc.	\$11,954
11	NACWA	\$9,271
12	PA. Municipal League	\$86
13	PA Rural Water Association (50% disallowed)	\$634
14	PA Municipal Authority Association (50% disallowed)	<u>\$1,727</u>
15	Total	\$29,118

16 These types of costs do not represent membership fees, but rather civic donations,
17 sponsorships, and other philanthropic expenses. As indicated above, I am allowing for 50%
18 recovery of certain expenses where at least some of the expense appears to provide a
19 service-based benefit to ratepayers, but I disallowed expenses that did not appear to have
20 any service-based benefits. It is important to recognize that PWSA did not provide a
21 detailed breakdown to substantiate benefits to ratepayers and that none of the expenses I
22 disallowed appeared to be related to the provision of utility service. For example, the
23 African American Chamber of Commerce is an organization that supports the economic
24 empowerment and growth of African-American businesses; the Allegheny Conference of
25 Community Development improves Pittsburgh regions economic future and quality of life;
26 Isle, Inc. provides for a healthy work-life balance and a positive team oriented atmosphere
27 and supports human growth and recognized the value of second chances; NACWA
28 represents the interest of public clean water utilities and serves as the advocate voice on
29 behalf of clean water sectors and legislative, regulatory and legal advocacy; PA Municipal
30 Association is a non-profit organization that represents 3rd class cities and shares policy
31 interests, legislative advocacy and municipal services; PA Rural Water Association
32 represents and works with industries to support water and wastewater utilities in training,
33 legislative representation and protects communities on economic health and; PA Municipal

1 Authority Association represents and assists authorities in providing services to protect the
2 environment and advocates for favorable legislation and proposals and provides for
3 economic vitality. In the absence of support for each of PWSA's claims here, my
4 adjustments represent my best attempt to permit PWSA recovery of expenses that provide,
5 either in whole or in part, service-based benefits.

6 **14. Lobbying**

7 **Q. WHAT DID MR. BARCA CLAIM REGARDING YOUR DISALLOWANCE**
8 **RELATED TO LOBBYING EXPENSE?**

9 **A.** Mr. Barca stated that while he understands the Commission's general rule with respect to
10 lobbying, he submits the amount of \$98,262 is reasonable for PWSA. PWSA is a municipal
11 authority and has an obligation to maintain lines of communication with other parts of
12 government. (PWSA St. No. 2-R at 74). Mr. Barca stated that since PWSA has no
13 shareholders, all of PWSA's lobbying efforts accrue to the benefit of customers and
14 believes that lobbying expenses should be deemed a reasonable pro forma expense for
15 PWSA. (PWSA St. No. 2-R at 74). Mr. Barca stated that the Commission should depart
16 from its general rule for lobbying expenses and stated that he was informed by counsel that
17 the PUC can waive provisions of the Public Utility Code if such a waiver would be
18 reasonable considering PWSA's special circumstances. (PWSA St. No. 2-R at 75).

19 **Q. WHAT IS YOUR RESPONSE?**

20 **A.** I continue to recommend disallowance of lobbying expenses from the revenue requirement
21 calculation. These types of costs do not benefit ratepayers and PWSA has not provided any
22 evidence that these costs do, nor has it supported the position that it must fund a lobbyist
23 to get legislative and regulatory updates. Regardless of whether or not PWSA has
24 shareholders is irrelevant, these types of costs are not an appropriate expense to be included
25 in the provision of utility services. Further, PWSA has not provided a special circumstance
26 surrounding PWSA's ratemaking development and PWSA did not provide any reason to
27 warrant for such treatment. Since these costs are not justified or reasonable, they should
28 not be recovered from ratepayers, as PWSA would have to determine how these amounts
29 should be expensed.

1 **15. Bad Debt Expenses**

2 **Q. WHAT HAS MR. BARCA STATED REGARDING YOUR ADJUSTMENTS TO**
3 **BAD DEBT EXPENSE?**

4 **A.**Mr. Barca stated that I am not challenging the percentages or collection rates that were
5 used to develop the Bad Debt Expense, but rather my recommended Bad Debt Expense is
6 related to the level of revenue requirement. (PWSA St. No. 2-R at 78).

7 **Q. WHAT IS YOUR RESPONSE?**

8 **A.**I am in agreement with Mr. Barca’s characterization of the development of Bad Debt
9 Expense in that the differences between PWSA’s and my recommended level is based upon
10 the recommended revenue requirement increase used to develop the Bad Debt Expense.
11 These adjustments are considered flow through adjustments.

12 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

13 **A.**Yes, it does.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set VI**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-VI-5 Please prepare a vacancy rate analysis by employee group (Union / Non-Union Employees, Supervisory / Management, Executive) for the periods FY 2020 through the projected FY 2024, and for the projected FY 2025 – FY 2026. Please provide an explanation of the yearly vacancy rate adjustments for the periods required.

Response: See attachment OCA-VI-5.

Response provided by: Edward Barca, Director of Finance

Date response provided: June 22, 2023

FY	Count - Employee Group
2020	122
2021	103
2022	89
2023	48
2024	33
2025	19
Total Result	414

Employee Group

Position	FY	
HR Manager	2021	Non-union
HR Recruiter	2021	Non-union
Payroll Specialist	2021	Non-union
HR Assistant	2021	Non-union
HR Intern	2021	Non-union
Meter Repair Specialist	2021	Union
Senior Collections Manager	2021	Non-Union
Paralegal	2021	Non-Union
Customer Service Coordinator	2021	Non-Union
Senior Billing Specialist	2021	Non-Union
Billing Specialist	2021	Non-Union
Clerical Specialist II	2021	Union
CSR 1-PT (1500 Hours)	2021	Union
CSR 1-PT (1500 Hours)	2021	Union
Budget Manager, Operating	2021	Non-union
Procurement Manager	2021	Non-union
Asset Management Application Administrator	2021	Non-union
Manager, Facilities	2021	Non-union
Senior Project Controls Specialist	2021	Non-union
Contract Specialist	2021	Non-union
Budget Analyst	2021	Non-union
SCADA Manager/Specialist	2021	Non-Union
SCADA Security/Network Specialist	2021	Non-Union
Operations Superintendent	2021	Non-Union
Electrician	2021	Union
Operations Startup/Commissioning Technician	2021	Non-Union
Foreman	2021	Union
Electrician	2021	Union
Plumber	2021	Union
Steamfitter	2021	Union
Steamfitter	2021	Union
Plant Operator - Class A	2021	Union
Plant Operator - Class A	2021	Union
Stationary Engineer	2021	Union
Utility Worker	2021	Union
Laborer	2021	Union
Laborer	2021	Union
Administrative Assistant	2021	Non-Union
Safety Intern	2021	Non-union
Lab Manager	2021	Non-Union
Chemist I	2021	Union
Chemist I	2021	Union
Director of Water Quality	2021	Non-Union
Project Manager	2021	Non-Union
Special Project Coordinator	2021	Non-Union
Scientist 2	2021	Non-Union

Scientist 1	2021	Non-Union
Office Manager	2021	Non-Union
Intern	2021	Non-union
IT Security Analyst	2021	Non-Union
IT Helpdesk Technician II	2021	Union
Intern	2021	Non-union
Government Affairs Manager	2021	Non-union
Communications Project Manager	2021	Non-union
Internal Communications Associate	2021	Non-union
Intern	2021	Non-union
Director of Legal, Ethics, and Compliance	2021	Non-union
Corporate Counsel - Environmental	2021	Non-union
Corporate Counsel - PUC	2021	Non-union
Assistant Corporate Counsel	2021	Non-union
Assistant Corporate Counsel	2021	Non-union
Paralegal - PUC	2021	Non-union
Law Clerk, Part-Time (1,000 hours)	2021	Non-union
Truck Driver	2021	Union
Field Service Technician III	2021	Union
Laborer	2021	Union
Laborer	2021	Union
Laborer	2021	Union
Laborer	2021	Union
Laborer	2021	Union
Field Service Technician III	2021	Union
Field Service Technician III	2021	Union
Field Service Technician III	2021	Union
Stormwater Superintendent	2021	Non-Union
T.V. Truck Specialist	2021	Union
Inspector II	2021	Union
Truck Driver	2021	Union
Laborer	2021	Union
Laborer	2021	Union
Laborer	2021	Union
Assistant to Stormwater Superintendent	2021	Union
Sr. Group Manager	2021	Non-Union
Senior Group Manager, Stormwater	2021	Non-Union
Senior Manager, GIS and Technical	2021	Non-Union
Senior Manager, Wastewater	2021	Non-Union
Sr. Project Manager	2021	Non-Union
Sr. Project Manager	2021	Non-Union
GIS Modeler	2021	Non-Union
Project Manager	2021	Non-Union
Project Manager	2021	Non-Union
Project Manager	2021	Non-Union
Project Manager	2021	Non-Union
Associate Project Manager	2021	Non-Union

Associate Project Manager	2021	Non-Union
Sr. GIS Analyst	2021	Non-Union
Associate Project Manager	2021	Non-Union
Sr. GIS Analyst	2021	Non-Union
Engineer III	2021	Non-Union
Senior Inspector	2021	Non-Union
Engineer III	2021	Non-Union
Engineer II	2021	Union
GIS Analyst	2021	Union
Inspector III	2021	Non-Union
Chief Corporate Counsel / Chief Legal Officer	2022	Non-Union
Chief Engineering Officer	2022	Non-Union
Corporate Counsel	2022	Non-Union
Deputy Director Customer Service	2022	Non-Union
Deputy Director, Finance	2022	Non-Union
Deputy Director, Production	2022	Non-Union
Senior Manager, Organizational Development	2022	Non-Union
Senior Project Manager-Water	2022	Non-Union
Senior Project Manager, Construction	2022	Non-Union
Lab Manager	2022	Non-Union
Water Quality Manager	2022	Non-Union
Workforce Development Manager	2022	Non-Union
Environmental Compliance Manager	2022	Non-Union
IT Project Manager	2022	Non-Union
Project Manager	2022	Non-Union
Project Manager, Construction	2022	Non-Union
Project Manager	2022	Non-Union
Technical Program Manager for Asset Management	2022	Non-Union
Workplace Safety Manager	2022	Non-Union
Plant Maintenance Foreman	2022	Union
GIS Analyst	2022	Union
Sewer Foreman	2022	Union
Heavy Equipment Operator	2022	Union
Welder	2022	Union
Stationary Engineer	2022	Union
Financial Analyst	2022	Non-Union
Human Resources Analyst	2022	Non-Union
Environmental Compliance Specialist	2022	Non-Union
Environmental Compliance Specialist	2022	Non-Union
T.V. Truck Specialist	2022	Union
T.V. Truck Specialist	2022	Union
Plant Operator	2022	Union
Plant Operator	2022	Union
Engineering Technician III, Stormwater	2022	Non-Union
Engineering Technician III, Wastewater	2022	Non-Union
Utility Worker II - Licensed	2022	Union
Scientist 2	2022	Non-Union

Vactor Operator	2022	Union
Valve & Hydrant Specialist	2022	Union
Valve & Hydrant Specialist	2022	Union
Valve & Hydrant Specialist	2022	Union
Valve & Hydrant Specialist	2022	Union
Inspector III	2022	Non-Union
Truck Driver	2022	Union
Truck Driver	2022	Union
Truck Driver	2022	Union
Truck Driver	2022	Union
Truck Driver	2022	Union
Truck Driver	2022	Union
Accounting Specialist	2022	Non-Union
Security Coordinator	2022	Non-Union
Utility Worker I	2022	Union
Utility Worker I	2022	Union
Utility Worker I	2022	Union
Utility Worker I	2022	Union
Inspector II	2022	Union
Lead Program Customer Assistance	2022	Union
Scientist 1	2022	Non-Union
PGH2O Cares Analyst	2022	Non-Union
AMI & Billing Data Analyst	2022	Non-Union
Inventory Control Specialist 2	2022	Union
Billing Specialist	2022	Union
Billing Specialist	2022	Union
IT Administrative Assistant	2022	Non-Union
Paralegal	2022	Non-Union
Customer Service Representative 3	2022	Union
Customer Service Representative 3	2022	Union
Dispatcher	2022	Union
Administrative Assistant	2022	Non-Union
Administrative Assistant	2022	Non-Union
Administrative Assistant	2022	Non-Union
Customer Service Administrative Assistant	2022	Non-Union
Customer Service Representative 1	2022	Union
Customer Service Representative 1	2022	Union
Customer Service Representative 1	2022	Union
Security Guard	2022	Non-Union
Security Guard	2022	Non-Union
Security Guard	2022	Non-Union
Security Guard	2022	Non-Union
GIS Intern	2022	Non-Union
GIS Intern	2022	Non-Union
Document Management Intern	2022	Non-Union
Intern	2022	Non-Union
Intern	2022	Non-Union

Intern	2022	Non-Union
Intern	2022	Non-Union
Intern	2022	Non-Union
Intern	2022	Non-Union
Customer Service Representative 1-PT (1500 Hours)	2022	Union
Chief Engineering Officer	2023	Non-Union
Corporate Counsel - Litigation	2023	Non-Union
Senior Project Manager, Facilities (Construction)	2023	Non-Union
Senior Project Manager-Water	2023	Non-Union
Water Quality Manager	2023	Non-Union
Manager, HR Administration	2023	Non-Union
Lead Help Manager	2023	Non-Union
Project Engineer	2023	Non-Union
Contract Specialist	2023	Non-Union
Heavy Equipment Operator	2023	Union
Paralegal	2023	Non-Union
Project Control Associate	2023	Non-Union
Vactor Operator	2023	Union
Valve & Hydrant Specialist	2023	Union
Senior Manager, Maintenance	2023	Non-Union
Project Manager, Production	2023	Non-Union
Plant Operator - Class A	2023	Union
Plant Operator	2023	Union
Inspector II Construction	2023	Union
Contact Center Coordinator	2023	Non-Union
Scientist	2023	Non-Union
Plant Operator	2023	Union
Plant Operator	2023	Union
Plant Maintenance Foreman	2023	Non-Union
Electrician - Licensed	2023	Union
Electrician	2023	Union
Plumber	2023	Union
Stationary Engineer	2023	Union
Truck Driver - Hazmat	2023	Union
Utility Worker I	2023	Union
Help Desk Technician II	2023	Union
Compliance Analyst	2023	Non-Union
IT Administrative Assistant	2023	Non-Union
Field Service Technician II	2023	Union
Construction Health and Safety Specialist	2023	Non-Union
Dispatcher	2023	Union
Security Guard	2023	Non-Union
CSR 1	2023	Union
CSR 1	2023	Union
CSR 1	2023	Union
Security Guard	2023	Non-Union
Security Guard	2023	Non-Union

Security Guard	2023	Non-Union
Security Guard	2023	Non-Union
Receptionist	2023	Non-Union
GIS Special Projects Intern	2023	Non-Union
GIS Special Projects Intern	2023	Non-Union
Cooperative Education	2023	Non-Union
Quality Control Analyst	2024	Non-Union
Customer Service Representative 1	2024	Union
Customer Service Representative 1	2024	Union
Senior Project Manager, Wastewater/Stormwater	2024	Non-Union
Project Engineer	2024	Non-Union
Environmental Compliance Specialist	2024	Non-Union
Financial Analyst	2024	Non-Union
Contract Specialist	2024	Non-Union
Director of Human Resources	2024	Non-Union
Training Administrator	2024	Non-Union
Diversity, Equity, & Inclusion Specialist	2024	Non-Union
Scientist	2024	Union
Senior Manager of IT	2024	Non-Union
Senior GIS Analyst	2024	Non-Union
GPS Field Services Tech	2024	Non-Union
Government Affairs Manager	2024	Non-Union
Communications Manager	2024	Non-Union
Security Guard	2024	Non-Union
Security Guard	2024	Non-Union
Foreman	2024	Union
T.V. Truck Specialist	2024	Union
T.V. Truck Specialist	2024	Union
Utility Worker I	2024	Union
Capital Projects Manager	2024	Non-Union
Lead Utility Worker	2024	Union
Utility Worker I	2024	Union
Valve & Hydrant Specialist	2024	Union
Valve & Hydrant Specialist	2024	Union
Truck Driver	2024	Union
Truck Driver	2024	Union
Plant Operations Asset Manager	2024	Non-Union
Plant Operations Project Manager - Production	2024	Non-Union
Plant Maintenance Foreman	2024	Union
Utility Worker I	2025	Union
Utility Worker I	2025	Union
Utility Worker I	2025	Union
Utility Worker I	2025	Union
Inspector II	2025	Union
Valve & Hydrant Specialist	2025	Union
Valve & Hydrant Specialist	2025	Union
Customer Service Representative 1	2025	Union

Customer Service Representative 1	2025	Union
Human Resources Analyst	2025	Non-Union
Compensation & Benefits Specialist	2025	Non-Union
Instructional Designer	2025	Non-Union
Employment Attorney	2025	Non-Union
Public Affairs Specialist	2025	Non-Union
Public Affairs Administrative Assistant	2025	Non-Union
Public Affairs Specialist	2025	Non-Union
Engineer II	2025	Non-Union
Associate Project Manager	2025	Non-Union
Project Engineer	2025	Non-Union
Lab Manager	2020	Non-Union
Chemist II - Yr 1	2020	Union
QA/QC Manager	2020	Non-Union
Water Quality Supervisor	2020	Non-Union
Foreman	2020	Union
Electrician	2020	Union
Plumber	2020	Union
Steamfitter	2020	Union
Plant Operator - Class A	2020	Union
Plant Operator	2020	Union
Plant Operator	2020	Union
Plant Operator	2020	Union
Administrative Assistant	2020	Non-Union
Data Coordinator	2020	Non-Union
Intern	2020	Non-Union
SCADA Manager	2020	Non-Union
SCADA Technician	2020	Non-Union
SCADA Security/Network Specialist	2020	Non-Union
Administrative Assistant	2020	Non-Union
Sr. Manager- Field Operations	2020	Non-Union
Plumbing Superintendant	2020	Non-Union
Heavy Equipment Operator	2020	Union
Heavy Equipment Operator	2020	Union
Leak Detection Specialist	2020	Union
Leak Detection Specialist	2020	Union
Leak Detection Data Foreman	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Utility Worker	2020	Union
Equipment Repair Specialist	2020	Union

Valve & Hydrant Specialist	2020	Union
Valve & Hydrant Specialist	2020	Union
Valve & Hydrant Specialist	2020	Union
Valve & Hydrant Specialist	2020	Union
Valve & Hydrant Specialist	2020	Union
Truck Driver - Special/Winch	2020	Union
General Laborer	2020	Union
Administrative Assistant	2020	Non-Union
Vac Truck Driver	2020	Union
Field Service Technician II	2020	Union
Truck Driver	2020	Union
Truck Driver	2020	Union
Laborer	2020	Union
Laborer	2020	Union
Laborer	2020	Union
Laborer	2020	Union
Administrative Assistant	2020	Non-Union
Deputy Director	2020	Non-Union
Deputy Chief, Program Management	2020	Non-Union
Safety and Security, Sr. Manager	2020	Non-Union
Compliance Analyst	2020	Non-Union
CSR 3	2020	Union
CSR 3	2020	Union
CSR 3	2020	Union
CSR 2	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1	2020	Union
CSR 1 - PT (1500 Hours)	2020	Union
Director of Information Technology	2020	Non-Union
Sr. Network Systems Administrator, As Needed	2020	Non-Union
IT Security Analyst	2020	Non-Union
Intern	2020	Non-Union
IT Helpdesk Technician	2020	Union
IT Helpdesk Technician	2020	Union
Project Systems Coordinator	2020	Non-Union
Archival Data Librarian Intern	2020	Non-Union
Assistant HR Manager	2020	Non-Union
HR Specialist	2020	Non-Union
Payroll Specialist	2020	Non-Union
HR Intern	2020	Non-Union
Corporate Counsel - PUC	2020	Non-Union
Document Management Specialist	2020	Non-Union

Intern	2020	Non-Union
Senior Manager, Wastewater	2020	Non-Union
Sr. Project Manager	2020	Non-Union
Sr. Project Manager	2020	Non-Union
Project Manager	2020	Non-Union
Project Manager	2020	Non-Union
Project Manager	2020	Non-Union
Project Manager	2020	Non-Union
Project Manager	2020	Non-Union
Project Manager	2020	Non-Union
Associate Project Manager	2020	Non-Union
Associate Project Manager	2020	Non-Union
Associate Project Manager	2020	Non-Union
Associate Project Manager	2020	Non-Union
Engineer II	2020	Non-Union
Engineering Technician III	2020	Non-Union
Engineering Technician III	2020	Non-Union
Engineering Technician III	2020	Non-Union
Engineering Technician II	2020	Non-Union
Engineering Intern/Co-Op	2020	Non-Union
GIS Modeler	2020	Non-Union
Sr. GIS Analyst	2020	Non-Union
GIS Analyst	2020	Non-Union
GIS Specialist	2020	Union
Senior Inspector	2020	Non-Union
Senior Inspector	2020	Non-Union
Inspector III	2020	Non-Union
Inspector II	2020	Union
Inspector II	2020	Union
Inspector I	2020	Union
Inspector I	2020	Union
Administrative Assistant	2020	Non-Union
Environmental Coordinator	2020	Non-Union
Scientist 1	2020	Union
Scientist 2	2020	Union
Scientist 3	2020	Non-Union
Administrative Assistant	2020	Non-Union
Intern	2020	Non-Union
Intern	2020	Non-Union

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set VI

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-VI-25 Refer to Statement No. 2 at 18. Please reconcile the employee levels as identified by Mr. Pickering in Statement No. 1 at 26 of 393 (April 23, 2023) with Mr. Barca’s identified level of over 400 employees in PWSA St. No. 2 at p. 18.

Response: Mr. Pickering’s employee count of 393 was the exact total as of April 23, 2023. The headcount changes throughout the year. Mr. Barca’s count of over 400 was a generalization given these changes.

Response provided by: Edward Barca, Director of Finance

Date response provided: June 22, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set VI**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-VI-12 Please provide all inflation factors and CPI indexes that the Authority used to develop its FPFTY 2024 revenue requirement increase. Please also provide the same for the multiyear rate years 2025 and 2026. Please provide the operating expenses to which the inflation factors and CPI indexes are adjusted to in the 2024-2026 multiyear rate plan period. What sources did the Authority rely upon to determine its inflation factors and CPI indexes levels?

Response: See below.

	FY 2024	Assumption	FY 2025	Assumption	FY 2026	Assumption
Non-Union COLA	3.00%	Based on historical actual cost	3.00%	Based on historical actual cost	5.00%	Based on historical actual cost
PJCBC COLA	3.00%	Contractual	3.00%	Based on historical actual cost	5.00%	Based on historical actual cost
AFSCME 2719 COLA	3.00%	Contractual	3.00%	Contractual	3.00%	Contractual
AFSCME 2037 COLA	3.00%	Contractual	3.00%	Based on historical actual cost	5.00%	Based on historical actual cost
Short-term Disability	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost
Long-term Disability	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost
AD&D	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost
Dental	1.00%	Based on historical actual cost	1.00%	Based on historical actual cost	1.00%	Based on historical actual cost
Vision	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost	4.00%	Based on historical actual cost
Medical	13.00%	Based upon actual cost	18.00%	Based on historical actual cost	20.00%	Based on historical actual cost

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set VI**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Chemicals	20%	Based on historical actual cost	20%	Based on historical actual cost	20%	Based on historical actual cost
Utility	15%	Based on historical actual cost	15%	Based on historical actual cost	15%	Based on historical actual cost
All other Operating Budget Costs	6%	Based upon average 3-year CPI increase	6%	Based upon average 3-year CPI increase	6%	Based upon average 3-year CPI increase

Response provided by: Edward Barca, Director of Finance

Date response provided: June 22, 2023

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Dante Mugrace, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 1SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 22, 2023

Signature: *Dante Mugrace*
Dante Mugrace

Consultant Address: PCMG and Associates
90 Moonlight Court
Toms River, NJ 08753
4868-7690-4064, v. 1

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	)	Docket Nos. R-2023-3039920
v.	)	R-2023-3039921
Pittsburgh Water and Sewer Authority	)	R-2023-3039919

SURREBUTTAL TESTIMONY OF

KARL RICHARD PAVLOVIC

**ON BEHALF OF THE
PENNSYLVANIA**

OFFICE OF CONSUMER ADVOCATE

September 22, 2023

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1 **I. STATEMENT OF QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 **A.** My name is Karl Richard Pavlovic. My business address is 22 Brooks Avenue,
4 Gaithersburg, MD 20877.

5 **Q. ARE YOU THE SAME KARL RICHARD PAVLOVIC WHO SUBMITTED**
6 **DIRECT AND REBUTTAL TESTIMONY IN THIS PROCEEDING ON**
7 **AUGUST 9, 2023 AND SEPTEMBER 8, 2023?**

8 **A.** Yes. Exhibit KRP-1 to my direct testimony summarizes my qualifications and
9 experience.

10 **II. PURPOSE OF TESTIMONY**

11 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

12 **A.** I am testifying on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

13 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

14 **A.** The purpose of my surrebuttal testimony is to address the rebuttal testimony of
15 PWSA witnesses Pickering, Barca, and Smith regarding PWSA's proposed Multi-
16 Year Rate Plan (MYRP) and the rebuttal testimony of PWSA witness Barca
17 regarding PWSA's proposed Distribution System Improvement Charge (DSIC)
18 increase of its water and wastewater cap percentages from 5.0% to 7.5%, proposed
19 Infrastructure Improvement Charge (IIC) and proposed Customer Assistance
20 Charge (CAC).

1 **III. DISCUSSION**

2 **A. SUMMARY**

3 **Q. PLEASE SUMMARIZE THE SUBSTANCE OF YOUR SURREBUTTAL**
4 **TESTIMONY.**

5 **A.** As detailed below, the rebuttal testimony of witnesses Pickering, Barca, and Smith has
6 given me no reason to withdraw or modify my direct testimony recommendations that the
7 Commission reject PWSA’s proposed Multi-Year Rate Plan, proposed increase of the
8 Distribution System Improvement Charge cap percentages, proposed Infrastructure
9 Improvement Charge, and proposed Customer Assistance Charge,

10 **Q. HAVE YOU PREPARED ANY EXHIBITS TO YOUR TESTIMONY?**

11 **A.** Yes. Exhibit KRP-SR is attached and it contains a schedule referenced in this testimony.

12 **B. PWSA’S PROPOSED MULTI-YEAR RATE PLAN (MYRP)**

13 **Q. WHAT WAS YOUR DIRECT TESTIMONY REGARDING PWSA’S PROPOSED**
14 **MYRP?**

15 **A.** In my direct testimony I recommended that PWSA’s MYRP be denied for among other
16 reasons, it (1) fails to include a reconciliation mechanism to periodically adjust MYRP
17 rates in order to guard against over recovery of actual expenses,¹ (2) fails to include any
18 performance metrics,² (3) fails to satisfy the Commission’s factors regarding cost and rate

¹ OCA St. 2, page 8 lines 1-12.

² OCA St. 2, page 10 lines 1-10.

1 design, customer impact, reliability and administrative efficiency,³ (4) fails to account for
2 (a) PWSA’s acquisition of water and wastewater assets from the City of Pittsburgh in 2025
3 and (b) any amendments to or termination of PWSA’s Cooperation Agreement with the
4 City of Pittsburgh in 2025,⁴ and (5) is likely to over recover capital costs because PWSA
5 has consistently failed to complete its budgeted capital projects.⁵ For all these reasons I
6 recommended that the Commission not approve PWSA’s proposed MYRP.⁶

7 **Q. DID PWSA WITNESS PICKERING ATTEMPT TO DEFEND PWSA’S MYRP IN**
8 **HIS REBUTTAL TESTIMONY?**

9 A. Yes. Mr. Pickering makes several arguments in an attempt to defend PWSA’s unsupported
10 MYRP, including (1) that the MYRP would give PWSA a level of financial security needed
11 to perform work,⁷ (2) that the MYRP would provide transparency to customers and allow
12 them to plan for the increases,⁸ (3) that PWSA will be able to avoid filing additional rate
13 cases thereby conserving its resources,⁹ (4) that the General Assembly has made a policy
14 decision to permit utilities to implement a MYRP,¹⁰ and (5) that before becoming a
15 jurisdictional utility, it was customary for the PWSA Board to approve three-year rates,
16 and PWSA customers have become accustomed to this, so this should not create any “major
17 concerns.”¹¹

³ OCA St. 2, page 10 line 19 to page 16 line 18.

⁴ OCA St. 2, page 16 line 19 to page 17 line 15.

⁵ OCA St. 2, page 17 line 16 to page 18 line 10.

⁶ OCA St. 2, page 18 lines 11-17.

⁷ PWSA St. 1-R, page 7 lines 6-9.

⁸ PWSA St. 1-R, page 7 lines 10-22.

⁹ PWSA St. 1-R, page 7 line 23 to page 8 line 16.

¹⁰ PWSA St. 1-R, page 8 line 19 to page 9 line 9.

¹¹ PWSA St. 1-R, page 11 lines 10-13.

1 **Q. WHAT IS YOUR RESPONSE TO MR. PICKERING’S CLAIM THAT THE MYRP**
2 **WOULD GIVE PWSA A LEVEL OF FINANCIAL SECURITY?**

3 A. I will largely defer to OCA Witness Mugrace on this topic, as in his surrebuttal testimony,
4 he explains how PWSA’s arguments regarding its entitlement to a financial cushion are not
5 consistent with accepted ratemaking practices in Pennsylvania. For my part, and consistent
6 with my direct testimony,¹² I do not believe that ratepayers would be protected against
7 unjust and unreasonable rates under PWSA’s MYRP proposal.

8 **Q. WHAT IS YOUR RESPONSE TO MR. PICKERING’S CLAIM THAT PWSA’S**
9 **MYRP WOULD PROVIDE CUSTOMERS WITH TRANSPARENCY AND GIVE**
10 **THEM TIME TO BUDGET FOR FUTURE RATE INCREASES?**

11 A. My response is two-fold. First, the MYRP does not provide customers with transparency,
12 because as I explained in my direct testimony, there is no process identified that would
13 require PWSA to substantiate future rates for FY 2025 and FY 2026 to protect customers
14 from overpaying, or to reconcile any potential overpayments and to provide refunds. As I
15 explain below, PWSA has proposed a vague and poorly defined ‘process’ for the first time
16 in the rebuttal testimony of witnesses Barca and Smith that does not in any meaningful way
17 correct this deficiency in PWSA’s proposed MYRP. Second, it is important to recognize
18 that even if PWSA’s MYRP did promote transparency, which it clearly does not, it is of
19 little consequence whether customers know that three consecutive years of rate increases
20 will be coming if those rates impose a financial hardship on customers.

¹² OCA St. 2, p. 10.

1 **Q. WHAT IS YOUR RESPONSE TO MR. PICKERING’S CLAIM THAT THE MYRP**
2 **WOULD CONSERVE PWSA’S RESOURCES BY ELIMINATING ITS NEED TO**
3 **FILE MULTIPLE RATE CASES?**

4 A. While it may be easier and more convenient for PWSA if it is able to lock in consecutive
5 years of rate increases in this filing, Mr. Pickering’s argument here only considers the
6 benefits for PWSA while ignoring the detriments to its customers. In my direct testimony,
7 I explained that any administrative efficiency to PWSA comes at the expense of depriving
8 the Commission and ratepayers of any oversight of the justness and reasonableness of
9 PWSA’s rate through changing circumstances. Finally, any acceptable MYRP would have
10 to be accompanied by a specific and well-designed annual review process, which PWSA
11 has not proposed, and that process could easily consume the purported conservation of
12 resources that PWSA claims here. In any case, administrative efficiency is not a basis to
13 deprive ratepayers of the Commission’s scrutiny and oversight of the rates they must pay.

14 **Q. HOW DO YOU RESPOND TO MR. PICKERING’S CLAIM THAT THE**
15 **GENERAL ASSMEBLY HAS MADE A POLICY DECISION TO ENCOURAGE**
16 **UTILITIES HAVING ACCESS TO A MYRP?**

17 A. I acknowledge that the MYRP is an available ratemaking option that utilities may pursue
18 but Mr. Pickering ignores that a utility must demonstrate that its MYRP would produce
19 just and reasonable rates. As I explained I my direct testimony, PWSA’s MYRP is deficient
20 in multiple respects and it should not be approved.¹³

¹³ OCA St. 2, pages 4-18.

1 **Q. WHAT IS YOUR RESPONSE TO MR. PICKERING’S CLAIM THAT THERE**
2 **SHOULD BE NO MAJOR CONCERNS ABOUT THE MYRP BECAUSE IN THE**
3 **PAST, THE PWSA BOARD SET 3-YEAR RATES AND CUSTOMERS SHOULD**
4 **BE USED TO IT.**

5 A. Mr. Pickering’s argument ignores the fact that PWSA is now a regulated utility subject to
6 the Commission’s ratemaking oversight. PWSA’s Board no longer sets rates, and the
7 manner in which it increased rates in the past when it was a mismanaged unregulated entity
8 is of no consequence in this case. Mr. Pickering’s claim that customers should be used to
9 multiple years of rate increases truly exemplifies that he misses the point here about the
10 need for PWSA to support its rate increases and demonstrate that any increase is necessary
11 and produces just and reasonable rates.

12 **Q. HAS MR. PICKERING ALSO SOUGHT TO DOWNPLAY SEVERAL OF THE**
13 **PRACTICAL ISSUES YOU RAISED REGARDING PWSA’S MYRP?**

14 A. Yes. In my direct testimony, I identified multiple practical reasons why PWSA is not well-
15 suited for a MYRP, including that PWSA’s first-time ownership of its system in 2025 may
16 trigger changes that are not yet identifiable and that changes to PWSA’s 2019 Cooperation
17 Agreement with the City of Pittsburgh could be made in ways that may impact rates and
18 operations after January 1, 2025.¹⁴ Mr. Pickering simply concludes that the fact that the
19 PWSA is on the path to becoming the official owner of the City’s assets, effective on
20 September 1, 2025 and that the 2019 Cooperation Agreement is set to terminate by law on
21 January 1, 2025, are not issues.¹⁵

¹⁴ OCA St. 2, page 16 line 19 to page 17 line 15.

¹⁵ PWSA St. 1-R, pp. 12-13.

1 **Q. DOES MR. PICKERING’S TESTIMONY CAUSE YOU TO CHANGE YOUR**
2 **POSITION?**

3 A. Not at all, as he has provided no analysis of his conclusion, and as I explained in my direct
4 testimony, either PWSA’s new ownership of its system in 2025 or the potential changes
5 arising when the Cooperation Agreement may be terminated in 2025 could significantly
6 impact PWSA’s costs and operations in ways that are not yet identifiable; however, the
7 convergence of both of these potentially impactful changes in FY 2025 should not be
8 dismissed.

9 **Q. YOU MENTIONED ABOVE THAT SEVERAL PWSA WITNESSES HAVE**
10 **INDICATED IN THEIR REBUTTAL TESTIMONIES THAT PWSA HAS**
11 **DETERMINED TO OFFER A REVIEW PROCESS FOR FUTURE RATES**
12 **BEFORE THEY BECOME EFFECTIVE. PLEASE EXPLAIN.**

13 A. In his rebuttal, testimony Mr. Pickering indicates, for the first time, that PWSA witness
14 Smith is proposing a 90-day proceeding in which the basic assumptions of the MYRP
15 would be evaluated and confirmed.¹⁶ In turn, Mr. Smith’s rebuttal testimony claims that he
16 always intended to support the implementation of the MYRP with safeguards, though I
17 note that his intent did not carry into his direct testimony or into PWSA’s initial rate filing.
18 In any case, Mr. Smith suggests that the Commission implement “review mechanisms
19 similar to those spelled out in the Rhode Island legislation that enables MYRP” which he
20 now indicates only require a 45-day notice of rate changes, not the 90-day identified in his
21 direct testimony. He generally indicates that the type of information required in Rhode

¹⁶ PWSA St. 1-R, p. 11.

1 Island's compliance filings depends on the nature of expenses that the utility seeks to
2 recover. Finally, Mr. Smith concludes by suggesting that all parties in this case work
3 together to design requirements of the compliance filing for PWSA's MYRP so that they
4 will strike a balance between having sufficient evidence and not making the process too
5 onerous for PWSA, noting that this should all be done fairly quickly.¹⁷

6 **Q. DO YOU SUPPORT USING THE PROCESS THAT MR. PICKERING AND MR.**
7 **SMITH RAISED AS A PATH FORWARD FOR APPROVAL OF PWSA'S MYRP?**

8 A. No. Even putting aside the fact that Mr. Pickering and Mr. Smith's vague and poorly
9 defined proposal fails to address my points that the MYRP is not supported and should not
10 be approved for multiple reasons, their proposal inappropriately seeks to put PWSA's
11 burden of support on the OCA and other parties. Compounding the many other problems
12 here, PWSA seeks to impose this burden upon other parties with very little time for them
13 to give any meaningful thought or review to this process and it would limit them to the
14 undefined and inequitable scope of whether its recommendations were not overly onerous
15 for PWSA. In short, PWSA's proposal is mainly illusory and it would provide far too little,
16 too late.

¹⁷ PWSA St. No. 7-R, pages 11-13.

1 **Q. WHAT IS THE REBUTTAL TESTIMONY OF WITNESSES BARCA AND SMITH**
2 **REGARDING PWSA’S PROPOSED MYRP?**

3 A. Responding to a series of questions that mostly mischaracterize my testimony, witness
4 Barca asserts variously (1) that Counsel informs him that PWSA’s MYRP satisfies all the
5 statutory requirements of Section 1330,¹⁸ (2) that the legislature has made the
6 determination that an MYRP is just and reasonable via Section 1330,¹⁹ (3) that performance
7 metrics are not required by statute and no witness has provided evidence that PWSA is
8 providing inadequate service,²⁰ (4) that PWSA is proposing a compliance process
9 (explained in witness Smith’s rebuttal testimony) that will permit the Commission to adjust
10 the MYRP revenue requirements and guard customers against over recovery,²¹ (5) that the
11 asset ownership transfer will have no effect on PWSA’s revenue requirement and
12 amendment or termination of the Cooperation Agreement is not expected to make a
13 material change in PWSA’s expenses,²² (6) that (a) the projected capital requirements in
14 the MYRP revenue requirements are debt service payments not the budgeted capital
15 amounts, (b) PWSA will only issue new debt for expenses actually incurred, not budgeted,
16 and (c) capital budget shortfalls do not eliminate or diminish PWSA’s capital needs,²³ (7)
17 that I did not compare the administrative burden of the MYRP to that of more frequent
18 base rate proceedings,²⁴ and (8) that I did not explain how an MYRP guarantees rates will
19 be unreasonably high compared to actual costs.²⁵

¹⁸ PWSA St. No. 2-R, page 30 lines 18-23.
¹⁹ PWSA St. No. 2-R, page 30 line24- to page 31 line 3.
²⁰ PWSA St. No. 2-R, page 31 lines 4-18.
²¹ PWSA St. No. 2-R, page 31 line 19 to page 32 line 12.
²² PWSA St. No. 2-R, page 32 line13 to page 33 line 13.
²³ PWSA St. No. 2-R, page 34 lines 18-28.
²⁴ PWSA St. No. 2-R, page 35 lines 1-4.
²⁵ PWSA St. No. 2-R, page 35 lines 5-17.

1 As I explained above, responding specifically to my testimony regarding the lack of a
2 reconciliation mechanism, witness Smith proposes that the Commission approve PWSA’s
3 proposed MYRP and order a workshop amongst the parties to arrive at review and
4 reconciliation procedures and mechanisms to be implemented regarding the proposed
5 MYRP.²⁶

6 **Q. WHAT IS YOUR RESPONSE TO WITNESS BARCA’S MYRP REBUTTAL**
7 **TESTIMONY?**

8 A. I will respond seriatim to witness Barca’s rebuttal points numbered above.

9 1. Requirements of Section 1330.

10 As I noted in my direct testimony, Section 1330 (f) defines an MYRP as “a rate mechanism
11 under which the commission sets base rates and revenue requirements for a multiyear plan
12 period and authorizes periodic changes in base rates” (emphasis added). The MYRP
13 presented in PWSA’s filing did not meet the statutory requirements because it included no
14 mechanism for periodic changes to base rates.²⁷ Further, as I explain below responding to
15 witness Smith’s rebuttal, PWSA’s proposed MYRP still does not include such a
16 mechanism.

17 2. Justness and Reasonableness of MYRP.

18 The provisions in Section 1330 do not and cannot constitute a determination that a given
19 MYRP is just and reasonable because a just and reasonable determination is reserved to
20 the Commission.

²⁶ PWSA St. No. 7-R, page 11 line 14 to page 13 line 24.

²⁷ Exhibit KRP-SR, Schedule 1 (OCA response to PWSA OCA II-3).

1 3. MYRP Performance Metrics.

2 While performance metrics are not explicitly required for an MYRP by statute, all rates
3 must be just and reasonable and performance metrics should be required in making periodic
4 changes to MYRP base rates to ensure that this standard is met.

5 4. MYRP Compliance Process.

6 As explained in my response to witness Pickering above and to Mr. Smith’s rebuttal below,
7 PWSA has not in fact substantively proposed a compliance process for its MYRP.

8 5. Asset Ownership Transfer and Cooperation Agreement.

9 With regard to the Cooperation Agreement, an expectation is a mere hope and not a
10 certainty and does not exclude the possibility of a material change in PWSA’s expenses.
11 As regards the asset ownership transfer, the Commission has previously noted PWSA could
12 be subject to a change from a cash flow ratemaking methodology to a rate base ratemaking
13 methodology which could result in more fair and reasonable rates.²⁸ Thus, witness Barca
14 cannot exclude the possibility of a material change in PWSA’s revenue requirement at the
15 time of the asset transfer and beyond, as PWSA’s entire ratemaking methodology may be
16 contested.

17 6. MYRP Revenue Requirement Debt Service Payments.

18 My response is three-fold. First, witness Barca’s assertion that only debt service payments,
19 not capital expenditures, are included in the MYRP revenue requirements speaks only to
20 the magnitude of the shortfall in actual costs versus projected revenue requirement that will

²⁸ *Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water and Sewer Authority*, Final Implementation Order 27-28 (Order entered March 15, 2018).

1 result if not all the capital projects underlying the MYRP revenue requirements are
2 completed. Second, witness Barca's assertion that PWSA only issues debt for the cost of
3 capital projects actually completed, only underscores the possibility of a shortfall between
4 the actual costs incurred and the projected costs if not all the capital projects underlying
5 the MYRP revenue requirements are completed. Third, witness Barca's assertion that
6 capital budget shortfalls do not eliminate or diminish PWSA's capital needs, is irrelevant
7 to the question of shortfalls between actual capital costs and projected capital costs in the
8 MYRP revenue requirements. Most importantly, Mr. Barca's claims ignore the point that
9 PWSA's projections have consistently been unreliable, and they are likely to be far less
10 reliable in this filing where PWSA is seeking to double its current level of spending²⁹ and
11 to project costs out even further into the future, extending into 2026.

12 7. MYRP Administrative Burden.

13 Contrary to witness Barca's assertion, I did in fact compare the administrative burden of
14 the MYRP and more frequent base rate proceedings and contrasted that reduced burden
15 with the Commission's and ratepayers' deprivation of oversight of the justness and
16 reasonableness of PWSA's MYRP 2024, 2025 and 2026 rates.³⁰

17 8. MYRP Rates Compared to Actual Costs.

18 I did not assert in my direct testimony that the MYRP would guarantee rates will be
19 unreasonably high compared to actual costs. Rather, I only stated that unreasonably high
20 rates compared to actual costs is a likely outcome.³¹

²⁹ PWSA St. No. 2, p. 24.

³⁰ OCA St. 2, page 15 line 9 to page 16 line 18.

³¹ OCA St. 2, page 8 lines 7-12, page 10 lines 15-18 and page 18 lines 7-10.

1 **Q. WHAT IS YOUR RESPONSE TO WITNESS SMITH'S MYRP REBUTTAL**
2 **TESTIMONY?**

3 A. As I noted earlier in my response to Mr. Pickering and Mr. Smith on this issue, witness
4 Barca's assertion to the contrary notwithstanding, witness Smith does not in fact layout a
5 specific mechanism for review of actual versus projected costs in an MYRP and adjustment
6 of the MYRP rates. Nor does he incorporate such a mechanism in PWSA's MYRP as laid
7 out in his direct testimony. Instead he recommends the Commission approve the MYRP
8 and then direct the parties to devise a review and rate adjustment mechanism to be used
9 during the MYRP period. My response is that witness Smith's recommendation puts the
10 cart before the horse and imposes PWSA's burden of justifying its rates onto other parties.
11 For all the reasons I presented in my direct testimony, without a mechanism for review of
12 actual costs and adjustment of rates and demonstration that the MYRP with such a
13 mechanism satisfies the factors in 52 Pa. Code §69.3302, PWSA has presented no grounds
14 upon which to find PWSA's proposed MYRP just and reasonable.

15 **Q. HAS THE REBUTTAL TESTIMONY OF WITNESSES BARCA AND SMITH**
16 **GIVEN YOU ANY REASON TO WITHDRAW OR MODIFY YOUR**
17 **RECOMMENDATION THAT THE COMMISSION REJECT PWSA'S**
18 **PROPOSED MYRP?**

19 A. No.

1 **C. PWSA’S PROPOSED DISTRIBUTION SYSTEM IMPROVEMENT**
2 **CHARGE (DSIC) CAP PERCENTAGE INCREASE**

3 **Q. WHAT WAS YOUR DIRECT TESTIMONY REGARDING PWSA’S PROPOSED**
4 **DSIC INCREASE?**

5 **A.** In my direct testimony I demonstrated that (1) PAYGO recovery of costs via PWSA’s
6 DSIC violates the regulatory principle of ratable recovery of capital costs in violation of
7 intergenerational equity and is not a recovery option under 66 Pa. C.S. §1357 (c),³² (2)
8 increasing PWSA’s DSIC cap percentage is not PWSA’s only option for meeting PWSA’s
9 10% PAYGO Capital Expenditure policy,³³ (3) increasing PWSA’s DSIC cap percentage
10 to account for loss of purchasing power due to inflation is inconsistent with forward-
11 looking regulatory ratemaking,³⁴ (4) increasing PWSA’s DSIC cap percentage is not likely
12 to accelerate the completion rate for LTIIP projects,³⁵ and (5) PWSA presented no evidence
13 that an increase to PWSA’s DSIC cap percentage is needed to further reduce PWSA’s debt
14 ratio.³⁶ Since PWSA failed to show a need for an increase in its DSIC cap percentage, I
15 recommended that the Commission deny PWSA’s DSIC increase.³⁷

16 **Q. WHAT IS THE REBUTTAL TESTIMONY OF WITNESS BARCA REGARDING**
17 **PWSA’S PROPOSED DSIC INCREASE?**

18 **A.** First, witness Barca states that my testimony that DSIC PAYGO funding is not consistent
19 with Section 1357 (c) and violates the regulatory principle of ratable recovery of capital

³² OCA St. 2, page 23 line 17 to page 25 line 7.

³³ OCA St. 2, page 25 lines 10-21.

³⁴ OCA St. 2, page 26 lines 2-13.

³⁵ OCA St. 2, page 26 line 15 to page 27 line 7.

³⁶ OCA St. 2, page 27 line 9 to page 28 line 2.

³⁷ OCA St. 2, page 28 lines 3-8.

1 costs is spurious because OCA accepted DSIC PAYGO funding in settling PWSA’s last
2 rate case.³⁸ Second, he argues that DSIC lower cost financing, i.e., PAYGO, should be
3 part of a balanced capital funding program.³⁹

4 **Q. WHAT IS YOUR RESPONSE TO WITNESS BARCA’S DSIC REBUTTAL**
5 **TESTIMONY?**

6 A. My response is three-fold. First, I note that witness Barca does not address my testimony
7 demonstrating that PWSA does not need to increase the DSIC cap percentage in order to
8 support PWSA’s 10% PAYGO Capital Expenditure Policy, to make up for loss of
9 purchasing power dues to inflation, to accelerate the completion rate of LTIP projects or
10 to further reduce PWSA’s debt ratio. Second, the fact that OCA accepted DSIC PAYGO
11 in settlement has no precedential value. The DSIC settlement provision that “[a]ll parties
12 reserve the right to reevaluate the use of DSIC revenue for PAYGO or bond related funding
13 as part of a future base rate proceeding”⁴⁰ hardly precludes my criticizing PWSA’s DSIC
14 PAYGO in this proceeding. Particularly when DSIC PAYGO is used to support PWSA’s
15 invalid arguments for increasing the DSIC cap percentage. Third, while witness Barca
16 states that DSIC PAYGO should be part of any balanced capital funding program, he
17 provides no evidence supporting that proposition either generally or specifically regarding
18 DSIC PAYGO.

³⁸ PWSA St. No. 2-R, page 22 lines 10-17.

³⁹ PWSA St. No. 2, page 22 line 18 to page 23 line 5.

⁴⁰ PA PUC v. Pittsburgh Water and Sewer Authority, Docket P-2020-3019019, Joint Petition for Settlement, p. 6, II.A.2.e (September 30, 2020).

1 **Q. DO MR. BARCA’S CLAIMS IGNORE AN IMPORTANT FACT ABOUT THE**
2 **UNIQUE WAY THAT PWSA’S DSIC IS IMPLEMENTED?**

3 A. Yes. As I indicated in my direct testimony, PWSA’s DSIC is somewhat unique in that
4 PWSA’s water and wastewater DSICs are structured to implement a full 5% charge on the
5 first date that its new rates into effect, meaning that it will have access to that level of
6 additional revenue immediately without any ramp-up period.⁴¹ With this type of DSIC
7 revenue automatically becoming available to PWSA as new rates go into effect, it becomes
8 even more important for PWSA to established a service-based need before increasing its
9 DSIC caps.

10 **Q. IN HIS REBUTTAL TESTIMONY, DID MR. BARCA RESPOND TO YOUR**
11 **POSITION THAT PWSA HAS NOT DEMONSTRATED THAT INCREASING ITS**
12 **WATER AND WASTEWATER DSIC PERCENTAGE CAPS IS NECESSARY FOR**
13 **IT TO ENSURE AND MAINTAIN ADEQUATE, EFFICIENT, SAFE, RELIABLE**
14 **AND REASONABLE SERVICE?**

15 A. No. Witness Barca did not respond to my direct testimony on this issue, nor did he offer
16 any information to support any service-based need for PWSA to increase its water or
17 wastewater DSIC cap from 5% to 7.5%.

⁴¹ OCA St. 2, page 27 lines 2-5.

1 **Q. IN HIS REBUTTAL TESTIMONY, DID MR. BARCA RESPOND TO YOUR**
2 **POSITION THAT PWSA HAS NOT IDENTIFIED HOW INCREASING THE DSIC**
3 **CAPS TO 7.5% WILL ACCELERATE THE COMPLETION OF LTIP**
4 **PROJECTS?**

5 A. No. I note that in the continued absence of any demonstration that increased DSIC funding
6 will modify the projects and timelines that exist in its LTIP, there is no support for
7 PWSA’s claim.

8

9 **Q. HAS THE REBUTTAL TESTIMONY OF WITNESS BARCA GIVEN YOU ANY**
10 **REASON TO WITHDRAW OR MODIFY YOUR RECOMMENDATION THAT**
11 **THE COMMISSION REJECT PWSA’S PROPOSED DSIC INCREASES?**

12 A. No. The same deficiencies I identified in my direct testimony continue to exist and PWSA
13 has not supported a need for increasing its water and wastewater DSIC caps from 5% to
14 7.5%.

15 **D. PWSA’S PROPOSED INFRASTRUCTURE IMPROVEMENT**
16 **CHARGE (IIC)**

17 **Q. WHAT WAS YOUR DIRECT TESTIMONY REGARDING PWSA’S PROPOSED**
18 **IIC?**

19 A. In my direct testimony I demonstrated that (1) PWSA had provided no evidence that the
20 IIC is needed to “expedite PWSA’s ability to obtain additional low cost funding through

1 PENNVEST and WIFIA,⁴² (2) the Commission typically has limited surcharges on
2 PENNVEST recovery to smaller water and wastewater companies⁴³, (3) reconciling
3 surcharges like the IIC weaken a utility’s incentive to control costs and the costs to be
4 recovered through the IIC do not meet the three criteria for a reconciling surcharge,⁴⁴ (4)
5 PWSA’s IIC does not comply with the 52 Pa. C.S. §69.363 requirements of DEP inspection
6 and listing of the IIC as a separate line item on customer bills.⁴⁵ For these reasons I
7 recommended to the Commission reject PWSA’s IIC.⁴⁶

8 **Q. WHAT IS THE REBUTTAL TESTIMONY OF WITNESS BARCA REGARDING**
9 **PWSA’S PROPOSED IIC?**

10 **A.** Witness Barca claims (1) that in his direct testimony he did not mean that the IIC would
11 expedite PWSA’s ability to obtain low cost loans, but rather that it would expedite its
12 recovery of the loan capital costs,⁴⁷ (2) that there is no evidence that the Commission
13 typically limits PENNVEST surcharge recovery to small water and wastewater
14 companies,⁴⁸ (3) that the Commission does not use the reconciling surcharge criteria I
15 cited, but that the IIC debt service costs satisfy the “outside of utility control,”
16 “unpredictable and volatile,” and “substantial and recurring” criteria⁴⁹ and (4) that PWSA’s
17 IIC will comply with the DEP inspection and separate line item requirements of 52 Pa. C.S.
18 §69.363.⁵⁰

⁴² OCA St. 2, page 29 line 6 to page 30 line 2.

⁴³ I note that there is no policy statement regarding a surcharge for WIFIA recovery.

⁴⁴ OCA St. No. 2, page 30 lines 3-17.

⁴⁵ OCA St. 2, page 31 lines 1-3.

⁴⁶ OCA St. 2, page 32 lines 1-9.

⁴⁷ PWSA St. No. 2-R, page 36 line 21 to page 37 line 10.

⁴⁸ PWSA St. No. 2-R, page 37 lines 11-16.

⁴⁹ PWSA St. No. 2-R, page 37 line 17 to page 38 line 6.

⁵⁰ PWSA St. No. 2-R, page 36 lines 3-20.

1 **Q. WHAT IS YOUR RESPONSE TO WITNESS BARCA’S IIC REBUTTAL**
2 **TESTIMONY?**

3 A. My response is three-fold. First, I note with satisfaction that PWSA meant the IIC would
4 expedite recovery of the IIC costs, which is what it actually does, and that PWSA will
5 comply with the DEP inspection and may be willing to separately provide a billing line-
6 item to be consistent with 52 Pa. Code §69.363. However, this does not resolve the issues
7 I raised. Second, Mr. Barca misstates my position regarding small water and wastewater
8 utilities by arguing that the Commission’s Policy Statement has no limitation or condition
9 indicating that only smaller water and wastewater utilities may implement a PENNVEST
10 Surcharge. My testimony was not that the Policy Statement imposed any limitation, but
11 instead that it is my understanding that *the Commission* has historically limited any
12 surcharge on PENNVEST recovery for smaller water and wastewater companies. This is
13 still my understanding, and I will defer to OCA’s counsel to address this matter further in
14 briefing. In any case, Mr. Barca misconstrued my position on this point. Third, witness
15 Barca’s lack of awareness notwithstanding, the Commission has in fact used the “outside
16 of utility control” and “unpredictable and volatile” criteria in the context of incentivizing
17 cost control.⁵¹ As for the IIC debt service costs, they are clearly (1) controllable by PWSA
18 because they are a function of the projects PWSA chooses to fund, (2) not unpredictable
19 and volatile for the same reason, and (3) neither substantial in relation to the capital
20 amounts nor recurring in volatility.

⁵¹ *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Final Order entered May 16, 2022 at Docket Nos. R-2021-3027385 and R-2021-3027286 at 281, 315 and 317.

1 **Q. HAS THE REBUTTAL TESTIMONY OF WITNESS BARCA GIVEN YOU ANY**
2 **REASON TO WITHDRAW OR MODIFY YOUR RECOMMENDATION THAT**
3 **THE COMMISSION REJECT PWSA’S PROPOSED IIC?**

4 A. No.

5 **E. PWSA’S PROPOSED CUSTOMER ASSISTANCE CHARGE (CAC)**

6 **Q. WHAT WAS YOUR DIRECT TESTIMONY REGARDING PWSA’S PROPOSED**
7 **CAC?**

8 A. In my direct testimony I demonstrated (1) that PWSA’s assertion that the costs to be
9 recovered through the CAC are growing and that actual costs may differ from projected
10 costs does not distinguish the costs from any other costs and provides no reason for
11 including them in a reconciling surcharge like the CAC,⁵² (2) reconciling surcharges like
12 the CAC weaken a utility’s incentive to control costs and the costs to be recovered through
13 the CAC do not meet the criteria for a reconciling surcharge,⁵³ and (3) the Commission
14 recently rejected Aqua’s universal service rider as having neither been legislatively
15 mandated nor directed by the Commission.⁵⁴ For these reasons I recommended that the
16 Commission reject PWSA’s CAC.⁵⁵

⁵² OCA St. No. 2, page 33 lines 3-15.
⁵³ OCA St. No. 2, page 33 line 16 to page 34 line 10.
⁵⁴ OCA St. No. 2, page 34 line 11 to page 35 line 7.
⁵⁵ OCA St. No. 2, page 35 lines 12-16.

1 **Q. WHAT IS THE REBUTTAL TESTIMONY OF WITNESS BARCA REGARDING**
2 **PWSA’S PROPOSED CAC?**

3 **A.** Witness Barca (1) reiterates the purported benefits of the CAC for ratepayers and PWSA⁵⁶
4 and (2) states that the Aqua Decision⁵⁷ is not controlling because PWSA as a cash flow
5 company has a greater need for cash on hand than a rate of return/rate base company.⁵⁸

6 **Q. WHAT IS YOUR RESPONSE TO WITNESS BARCA’S REBUTTAL**
7 **TESTIMONY REGARDING THE CAC?**

8 **A.** My response is three-fold. First, the purported benefits do not outweigh the weakening of
9 PWSA’s incentive to control costs. Second, as I explained in my direct testimony, the
10 Commission has limited surcharges to circumstances where they are either legislatively
11 mandated, or when directed by the Commission, and neither of those circumstances apply
12 here. Instead of responding to my point on this issue, PWSA simply reiterates its request
13 for a waiver of Public Utility Code provisions, which is not responsive. Third, Mr. Barca’s
14 position ignores that the cash on hand recovered through a reconciling charge like the CAC
15 is no greater than the cash on hand generated through base rates.

16 **Q. HAS THE REBUTTAL TESTIMONY OF WITNESS BARCA GIVEN YOU ANY**
17 **REASON TO WITHDRAW OR MODIFY YOUR RECOMMENDATION THAT**
18 **THE COMMISSION REJECT PWSA’S PROPOSED CAC?**

19 **A.** No.

⁵⁶ PWSA St. No. 2-R, page 38 lines 9-24.

⁵⁷ *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Final Order entered May 16, 2022 at Docket Nos. R-2021-3027385 and R-2021-3027286

⁵⁸ PWSA St. No. 2-R, page 39 lines 1-10.

1 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

2 **A.** Yes. However, I reserve the right to supplement this testimony if further information is
3 provided by PWSA.

Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority (PWSA)
Docket Nos. R-2023-3039919 (Stormwater)
R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
2023 Base Rate Case Proceeding

Responses to PWSA
Interrogatories to OCA Set II

3. Reference OCA St. 2, page 8 at 1-12, is an annual reconciliation a requirement of a multi-year rate plan as defined by 66 Pa. C.S. § 1330?

Response: See 66 Pa. C.S. § 1330 (f) *Definitions* “Multiyear rate plan.” A rate mechanism under which the commission sets base rates and revenue requirements for a multiyear plan period and **authorizes periodic changes in base rates, including, but not limited to, adjustments to account for inflation and capital investments without the necessity for base rate proceedings during the approved plan period.** (emphasis added). As a matter of definition, MYRP’s are required to incorporate periodic adjustments to rates and, absent a reconciliation process, such adjustments to rates would not be possible. While the frequency of such adjustments to rates is not specified, annual adjustments would be appropriate, given that PWSA’s MYRP proposes rates based on three separate projected revenue requirements for calendar years 2024, 2025 and 2026.

Sponsoring Witness: Karl Pavlovic

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Karl R. Pavlovic, hereby state that the facts above set forth in my Surrebuttal Testimony, OCA Statement 2SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 22, 2023

Signature:


Karl R. Pavlovic

Consultant Address: PCMG and Associates, LLC
22 Brookes Avenue
Gaithersburg, MD 20877
4864-0399-6032, v. 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY)	
COMMISSION)	
	)	DOCKET NOS. R-2023-3039920 (WATER)
v.	)	R-2023-3039921 (WASTEWATER)
	)	R-2023-3039919 (STORMWATER)
PITTSBURGH WATER AND SEWER)	
AUTHORITY)	

SURREBUTTAL TESTIMONY OF
JEROME D. MIERZWA

ON BEHALF OF THE
PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

SEPTEMBER 22, 2023

EXETER

ASSOCIATES, INC.

10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

1 **I. INTRODUCTION**

2 Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

3 A. My name is Jerome D. Mierzwa. I am a Principal and Vice President of Exeter Associates,
4 Inc (“Exeter”). My business address is 10480 Little Patuxent Parkway, Suite 300,
5 Columbia, Maryland 21044. Exeter specializes in providing public utility-related
6 consulting services.

7 Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS
8 PROCEEDING?

9 A. Yes. My direct testimony was submitted as OCA Statement 3 on August 9, 2023, and my
10 rebuttal testimony was submitted as OCA Statement 3R on September 8, 2023.

11 Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

12 A. The purpose of my surrebuttal testimony is to respond to certain aspects of the rebuttal
13 testimony submitted by Harold J. Smith, Edward Barca, William J. Pickering, and William
14 J. McFaddin on behalf of the Pittsburg Water and Sewer Authority (“PWSA”).
15

16 **II. WITNESS: HAROLD J. SMITH**

17 Q. MR. SMITH HAS MADE SEVERAL MODIFICATIONS TO THE WATER,
18 WASTEWATER CONVEYANCE, AND STORM WATER COST OF
19 SERVICE (“COS”) MODEL ORIGINALLY PRESENTED IN HIS DIRECT
20 TESTIMONY.¹ DO YOU HAVE ANY CONCERNS WITH THESE
21 MODIFICATIONS?

22 A. In my direct testimony, with the exception of the Industrial gradualism adjustment for
23 water service which I subsequently discuss, I found the COS model presented by Mr. Smith
24 to be reasonable.² With the exception of the revised water service Industrial gradualism

¹ PWSA St. No, 7-R, pp. 2-3.

² OCA St. 3, p. 8 and 11.

1 adjustment presented by Mr. Smith in his rebuttal testimony,³ I also find the modifications
2 to the COS model presented by Mr. Smith in his rebuttal testimony to be reasonable. I agree
3 with Mr. Smith that the overall impact of the proposed modifications is minimal and
4 relatively insignificant.⁴

5 Q. WHAT DID YOU PROPOSE IN YOUR DIRECT TESTIMONY
6 CONCERNING THE WATER SERVICE INDUSTRIAL GRADUALISM
7 ADJUSTMENT?

8 A. As noted on page 11 of my direct testimony, PWSA had proposed to limit the increase to
9 the Industrial class to 1.5 times the system average increase to provide for gradualism.⁵ I
10 further noted that there was no hard and fast rule as to what constitutes gradualism, and it
11 was my experience that an increase of 1.5 to 2.0 times the system average increase would
12 be consistent with the concept of gradualism.⁶ As shown on Exhibit HJS-10W, Mr. Smith
13 had reallocated \$1,030,000 of the Industrial customer class's cost of service to the other
14 customer classes to provide for gradualism.⁷ I noted that based on the information
15 presented on Exhibit HJS-15, inclusive of DSIC revenues, the increase proposed by PWSA
16 for the Industrial class was actually 1.4 times the system average increase rather than 1.5
17 times the system average increase as PWSA had claimed.⁸ I recommended that the
18 gradualism adjustment for the Industrial class be reduced by \$226,070 which would result
19 in an increase of 1.75 times the system average increase.⁹

³ PWSA St. No, 7-R, pp. 8-9.

⁴ PWSA St. No. 7-R, p. 3.

⁵ OCA St. 3, p. 11.

⁶ OCA St. 3, p. 11.

⁷ OCA St. 3, p. 11.

⁸ OCA St. 3, p. 11.

⁹ OCA St. 3, p. 11.

1 Q. DOES MR. SMITH AGREE WITH YOUR RECOMMENDATION
2 CONCERNING THE INDUSTRIAL GRADUALISM ADJUSTMENT?

3 A. No.¹⁰ Mr. Smith believes that the 1.5 times the system average increase threshold is
4 appropriate and reasonable.¹¹ However, he concedes that due to a cell error reference in
5 the COS model the original adjustment proposed by PWSA provided for a 1.4 times the
6 system average increase rather than 1.5 times the system average increase.¹² Mr. Smith has
7 subsequently modified his initial Industrial gradualism adjustment to reflect an increase of
8 1.5 times the system average increase.¹³

9 Q. DO YOU AGREE WITH MR. SMITH THAT AN INDUSTRIAL
10 GRADUALISM ADJUSTMENT OF 1.5 TIMES THE SYSTEM AVERAGE
11 INCREASE REMAINS REASONABLE AND APPROPRIATE?

12 A. No. The gradualism adjustment proposed by PWSA results in other customer classes
13 paying for a portion of the costs of providing service to Industrial customers. Table 2-
14 Surrebuttal below provides a comparison of the revised increase proposed by PWSA in Mr.
15 Smith's rebuttal testimony and the increase which would result for the Industrial class
16 under my recommended 1.75 times the system average increase. As shown in the table,
17 PWSA is proposing an overall system increase of 27.8% and an increase of 41.4% for the
18 Industrial class. Under my recommended 1.75 times the system average increase
19 recommendation, the increase for the Industrial class would be 48.6%. My proposed
20 increase is consistent with the general concept of gradualism that increases should be
21 limited to 1.5 – 2.0 times the system average increase.

¹⁰ PWSA St. No. 7-R, p. 8.

¹¹ PWSA St. No. 7-R, p. 8.

¹² PWSA St. No. 7-R, pp. 8-9.

¹³ PWSA St. No. 7-R, p. 9.

Table 2-Surrebuttal. Comparison of Present and Proposed Rates for the Industrial Class and Overall System Increase

	Proposed Rates	Increase	Percent
<u>PWSA Proposed</u>			
Industrial	\$3,362,523	\$984,281	41.4%
Overall System	\$168,073,706	\$36,554,901	27.8%
<u>OCA Proposed</u>			
Industrial	\$3,535,025	\$1,156,783	48.6%
Difference		\$172,502	7.2%

1
2 Q. IS MR. SMITH’S CLAIM THAT A 1.5 TIMES SYSTEM AVERAGE
3 INCREASE FOR THE ALLOCATION OF A RATE INCREASE TO A CLASS
4 IS WELL-ACCEPTED IN UTILITY RATEMAKING CONSISTENT WITH HIS
5 TESTIMONY IN OTHER PUBLIC UTILITY PROCEEDINGS?

6 A. No. As noted by Mr. Smith in his direct testimony,¹⁴ he provided testimony in a 2019 base
7 rate proceeding before the Rhode Island Public Utilities Commission involving the
8 Providence Water Supply Board’s (“PWSB”) multi-year rate plan (Docket No. 4994).¹⁵ In
9 that case, the overall requested water rate increase for the first year of the plan was 17.1%.¹⁶
10 The COS study presented by Mr. Smith in that proceeding indicated that monthly customer
11 charges should be more than doubled. To avoid rate shock and promote gradualism, Mr.
12 Smith proposed to limit customer charge increases to 40%, which was more than 2.0 times
13 the system average increase.

¹⁴ PWSA St. No. 7, p.2 and 5.

¹⁵ <https://ripuc.ri.gov/sites/g/files/xkgbur841/files/eventsactions/docket/4994-ProvWater-COSS-%284-1-21%29.pdf>

¹⁶The PWSB does not provide wastewater or stormwater service.

1 Q. IN YOUR DIRECT TESTIMONY, YOU RECOMMENDED THAT
2 ADMINISTRATIVE SUPPORT COSTS SHOULD NOT BE RECOVERED
3 THROUGH PWSA’S WATER AND WASTEWATER CONVEYANCE
4 CUSTOMER CHARGES.¹⁷ DOES MR. SMITH AGREE WITH THIS
5 RECOMMENDATION?

6 A. No.¹⁸ Mr. Smith claims that the approach he has utilized to recover administrative support
7 costs is consistent with the approach used by PWSA in its previous rate filings and is also
8 consistent with guidance provided by the AWWA Manual M-1.¹⁹ Mr. Smith also contends
9 that in the most recent Newport Water and PWSB base rate proceedings before the Rhode
10 Island Public Utilities Commission, I served as an expert witness and did not express any
11 concern with the recovery of administrative support costs through customer charges.²⁰

12 Q. WHAT IS YOUR RESPONSE TO MR. SMITH’S CLAIMS?

13 A. As I explained in my direct testimony, only the direct costs required to connect and
14 maintain a customer’s account should be included in the calculation of a customer charge.²¹
15 Administrative support costs are not direct costs that are required to connect and maintain
16 a customer’s account and, therefore, should not be recovered through customer charges.²²
17 Mr. Smith has presented no evidence that administrative support costs increase with the
18 addition of a customer and decrease with the subtraction of a customer and, therefore,
19 should be considered direct costs. With respect to guidance provided by the AWWA
20 Manual M-1, the AWWA Manual M-1 states that higher customer “charges may dampen
21 conservation price signals and affect the affordability of minimal levels of service.”²³

¹⁷ OCA St. 3, p. 4.

¹⁸ PWSA St. No. 7-R, p. 5.

¹⁹ PWSA St. No. 7-R, p. 5.

²⁰ PWSA St. No. 7-R, p. 6.

²¹ OCA St. 3, p. 14.

²² OCA St. 3, p. 14.

²³ AWWA Manual M-1, at 96.

1 Mr. Smith claims with respect to the proceedings in which I was an expert witness
2 in Rhode Island are over simplified and fail to consider other relevant factors that are
3 distinguishable here. In the Newport Water proceeding Mr. Smith identified,²⁴ based on
4 the as-filed revenue requirement, the monthly customer charge proposed by Mr. Smith for
5 a customer with a 5/8-inch meter was \$5.76, which reflected an increase of \$0.74 from the
6 existing charge.²⁵ In that case, the customer charge did not include a minimum usage
7 charge component or provide for the recovery of any Public Fire protection costs as is
8 currently provided for by PSWA's customer charges. By comparison, based on the
9 customer cost components identified in PWSA Exh. HJS-12-W-R page 1, exclusive of the
10 minimum usage charge component and Public Fire protection component, the customer
11 charge for a 5/8-inch meter proposed by Mr. Smith for 2024 in this proceeding based on
12 the as-filed revenue requirement is \$14.18, or 2.5 times higher than the customer charge
13 proposed in the Newport Water proceeding. Because the proposed Newport Water
14 customer charges were relatively low and would be further reduced at the approved revenue
15 requirement, I did not propose any adjustments to the calculation of those charges. The
16 actual 5/8-inch customer charge adopted in the Newport Water proceeding based on the
17 approved revenue requirement was \$5.23.²⁶ I would further note that in the Newport Water
18 proceeding, I proposed limiting the increase to any customer class to 2.0 times the system
19 average increase.

20 In the PWSB proceeding, as previously discussed, Mr. Smith had limited the
21 increase in customer charges to 40%. Therefore, it is unlikely that excluding administrative
22 support costs from the calculation of customer charges would have resulted in lower cost
23 of service based customer charges.

²⁴ PWSA St. No. 7-R, p. 6, citing RIPUC Docket No. 4933.

²⁵ https://ripuc.ri.gov/sites/g/files/xkgbur841/files/eventsactions/docket/4933-NewportWater-RateFiling_2-13-19.pdf

²⁶ <https://ripuc.ri.gov/sites/g/files/xkgbur841/files/eventsactions/docket/4933-NWD-RevSettlementAgreement-11-7-19.pdf>

1 Q. IN YOUR DIRECT TESTIMONY, YOU RECOMMENDED REMOVAL OF
2 THE READINESS-TO-SERVE COMPONENT OF THE WATER AND
3 WASTEWATER CONVEYANCE CUSTOMER CHARGES.²⁷ DOES MR.
4 SMITH AGREE WITH THIS RECOMMENDATION?

5 A. No.²⁸ Mr. Smith claims that the readiness-to-serve component is a common ratemaking
6 technique that adds numerous key benefits.²⁹ He claims the fixed readiness-to-serve
7 component within customer charges better aligns revenue recovery with the nature of
8 utility costs which are largely fixed.³⁰ He also claims that the readiness-to-serve component
9 helps to maintain PWSA's fixed revenue at a level deemed desirable by bond rating
10 agencies.³¹ Finally, Mr. Smith claims that a readiness-to-serve component is an industry-
11 accepted ratemaking practice and is addressed in the AWWA Manual M-1.³²

12 Q. WHAT IS YOUR RESPONSE TO MR. SMITH'S CLAIMS CONCERNING
13 THE INCLUSION OF A READINESS-TO-SERVE COMPONENT IN
14 CUSTOMER CHARGES?

15 A. With respect to Mr. Smith's claim that the readiness-to-serve component is a common
16 ratemaking technique, I would note that I have been an expert witness in utility rate
17 proceedings for nearly 35 years, and to the best of my recollection, aside from PWSA
18 proceedings, I cannot recall a proceeding in which a utility had currently included or
19 proposed to include a readiness-to-serve component in its customer charges. Mr. Smith has
20 sponsored numerous water cost of service studies in proceedings before the Rhode Island
21 Public Utilities Commission, and to the best of my recollection none of the water utilities
22 for which he has performed a cost of service study currently included a readiness-to-serve

²⁷ OCA St. 3, p. 4.

²⁸ PWSA St. No. 7-R, p. 6.

²⁹ PWSA St. No. 7-R, p. 6.

³⁰ PWSA St. No. 7-R, p. 7.

³¹ PWSA St. No. 7-R, p. 7.

³² PWSA St. No. 7-R, p. 7.

1 component its customer charges, and Mr. Smith did not propose to include a readiness-to-
2 serve component in the utility's customer charges in those proceedings. Finally, as noted
3 in the testimony of I&E Witness Ethan H. Cline, in response to an OCA discovery request,
4 Mr. Smith conceded that he knew of no other Pennsylvania utility that currently included
5 a readiness-to-serve component in its customer charges.³³

6
7 Q. HAS MR. SMITH MADE OTHER CLAIMS IN AN ATTEMPT TO SUPPORT
8 INCLUSION OF A READINESS-TO-SERVE COMPONENT?

9 A. Yes. With respect to Mr. Smith's claim that the readiness-to-serve component better aligns
10 revenue recovery with the nature of utility costs which are largely fixed, the recovery of a
11 utility's fixed costs through fixed charges is not ideal and is inconsistent with efficient
12 competitive pricing and competitive markets which should govern the setting of utility
13 rates. There are many capital-intensive industries, e.g., manufacturing and transportation,
14 that have cost structures predominated by "fixed" costs. Yet prices for competitive products
15 and services in these capital-intensive industries are invariably established on a volumetric
16 basis. Therefore, the notion that fixed costs should be recovered to a significant extent
17 through fixed charges does not reflect how competitive markets operate.

18 One of the most basic principles of economics is that prices determined through a
19 competitive market ensure the most efficient allocation of society's resources. A
20 fundamental goal of regulatory policy is that regulation should serve as a surrogate for
21 competition to the maximum extent practical.³⁴ Thus, the pricing policy for a regulated
22 public utility should reflect those of competitive markets to the greatest extent possible.
23 The recovery of revenues through fixed charges is inconsistent with pricing in competitive
24 markets. I also note that Mr. Smith has not offered any proof to support his claim that the
25 readiness-to-serve component is deemed desirable by bond rating agencies, but even if it

³³ I&E St. No. 3, p. 30.

³⁴ James C. Bonbright, *et al.*, *Principles of Public Utility Rates*, p. 141 (Second Edition, 1988).

1 were, it is not consistent with the type of costs that are appropriately assessed by
2 Pennsylvania public utilities.

3 Finally, with respect to Mr. Smith's claim that the readiness-to-serve component is
4 addressed in the AWWA Manual M-1, 7th Edition, p. 97, later pages of the AWWA Manual
5 M-1 provide a more comprehensive discussion, stating as follows:

6
7 The requirement to recover costs without regard to the volume of
8 sales is real but it does not necessarily suggest that fixed charges
9 should represent a large portion of total revenue requirements, nor
10 that the rate structure should match the cost structure of a utility. The
11 use of a water system is reflected in both potential and average usage
12 patterns, so a continued reliance on volumetric charges to recover
13 fixed costs has value from an equity perspective.

14 The extent to which a strategy of large service charges is employed
15 is frequently limited as a result of concerns over impacts on
16 affordability for smaller-volume customers.³⁵

17 Therefore, the recognition of the costs associated with having a system in place to provide
18 water service by the AWWA Manual M-1 does not operate as a blanket validation of
19 PWSA's proposal here. Thus, consistent with my direct testimony, I continue to
20 recommend removal of the readiness to serve component of the water and wastewater
21 conveyance customer charges.

22 **III. WITNESSES: EDWARD BARCA AND WILLIAM J. PICKERING**

23 Q. PLEASE EXPLAIN THE RECOMMENDATION PRESENTED IN YOUR
24 DIRECT TESTIMONY CONCERNING THE RATES OF WHOLESAL
25 CUSTOMERS.

26 A. In my direct testimony I noted that the water service rates proposed by PWSA for the
27 Wholesale class were significantly less than the indicated cost of service.³⁶ PWSA claimed
28 that the rates for each Wholesale customer were set by a contractual agreement and because

³⁵ AWWA Manual M-1, page 152.

³⁶ OCA St. 3, p. 9.

1 of this, PWSA was unable to increase the rates of Wholesale customers beyond what was
2 allowed by the individual agreements.³⁷ I recommended that PWSA issue a notice of
3 termination for each of the Wholesale agreements, and negotiate new agreements that
4 provide for the movement toward cost of service rates.³⁸

5 Q. WHAT WAS PWSA'S RESPONSE TO YOUR RECOMMENDATION?

6 A. Mr. Barca claims my recommendation was not appropriate.³⁹ He claims that prematurely
7 terminating the agreements for the purpose of increasing rates would create regional
8 hostility and damage PWSA's reputation and credibility for not honoring contractual
9 obligations that it previously agreed to.⁴⁰ He further claims that PWSA did not notify the
10 Wholesale customers that their existing agreements could be modified as a result of this
11 case.⁴¹

12 Mr. Pickering claims that PWSA has not engaged in any substantive conversations
13 with its Wholesale customer about negotiating their contracts.⁴² Further, no notice has been
14 provided to these customers that changes are being proposed as part of this proceeding,
15 which Mr. Pickering understands from legal counsel raises concerns about due process.⁴³
16 He indicates that PWSA will renegotiate these contracts when they expire or are up for
17 renewal, and recommends nothing should be considered or directed as part of this
18 proceeding.⁴⁴

³⁷ OCA St. 3, pp. 9-10.

³⁸ OCA St. 3, p. 10.

³⁹ PWSA St. No. 2-R, p. 33.

⁴⁰ PWSA St. No. 2-R, p. 33.

⁴¹ PWSA St. No. 2-R, p. 33.

⁴² PWSA St. No. 1-R, p. 18.

⁴³ PWSA St. No. 1-R, p. 18.

⁴⁴ PWSA St. No. 1-R, p. 18.

1 Q. WHAT IS YOUR RESPONSE TO MR. BARCA AND MR. PICKERING
2 CONCERNING THE RENEGOTIATION OF PWSA’S WHOLESAL
3 CONTRACTS?

4 A. First, each witness appears to misconstrue my testimony, as my recommendation was not
5 to “prematurely terminate” any contract, but instead it was for PWSA to give notice of its
6 intent to renegotiate each contract under the timeline identified in each contract because
7 PWSA is significantly under recovering its costs under the terms of the contracts. As
8 explained in my direct testimony, PWSA serves three Wholesale customers: Fox Chapel,
9 Aspinwall, and Reserve Township.⁴⁵ The agreement with Fox Chapel was executed in
10 1995 and had an initial term of 30 years.⁴⁶ No later than five years prior to the expiration
11 of the initial term, PWSA was entitled to give written notice that it intended to cancel the
12 agreement at the end of the initial term. No later than one year prior to the expiration of the
13 initial term, Fox Chapel was entitled to give written notice to PWSA that it intended to
14 cancel the agreement at the end of the current term. If notice of termination is not given by
15 either party within these time periods, the agreement is automatically continued until
16 terminated pursuant to the termination provisions just described. That is, PWSA may
17 cancel with five years prior notice and Fox Chapel may cancel with one year prior notice.

18 The agreement with Aspinwall was executed in 2009 and has an initial term of 30
19 years. The agreement provides that either party may terminate the agreement upon one year
20 prior written notice to the other party; however, the agreement may not be terminated by
21 either party prior to December 31, 2010.

⁴⁵ OCA St. 3, p. 10.

⁴⁶ PWSA’s contractual agreements with Fox Chapel, Aspinwall, and Reserve Township were filed with the Commission at Docket No. U-2020-3020772 in conformance with the March 26, 2020 Compliance Plan Stage Order at Docket Nos. M-2018-2640802, M-2018-2640803. The identified contractual terms are identified at these dockets at <https://www.puc.pa.gov/pcdocs/1669573.pdf>.

1 The agreement with Reserve Township was executed in 1993 and had an initial
2 term of 20 years. No later than five years prior to the expiration of the initial term, PWSA
3 was entitled to give notice to cancel the agreement at the end of the initial term. No later
4 than one year prior to the expiration of the initial term, Reserve Township was entitled to
5 give written notice to cancel the agreement at the end of the initial term. If notice of
6 termination was not given by either party within this time period, the agreement was
7 automatically renewed for two additional terms of five years and thereafter for additional
8 five year terms until timely notice of the cancellation is given by either part no later than
9 four years prior to the expiration date of any extended term.

10 Given the significant under recovery of the cost of serving Wholesale customers, I
11 believe it was imprudent for PWSA not to have already provided the notice for termination
12 currently provided for under each agreement pursuant to the notice provisions of those
13 agreements, and for it not to plan to renegotiate the agreements to provide for movement
14 toward cost of service rates. PWSA's options to terminate and/or renegotiate its current
15 Wholesale contracts are not being determined in this proceeding, as those options are
16 already specified in the current agreements. Regardless, PWSA is requesting a multi-year
17 rate increase and I stand by my position in direct testimony that if approved as filed, PWSA
18 rates will continue to reflect the under recovery at the expense of other customers who now
19 subsidize the cost of serving Wholesale customers.

1 **IV. WITNESS: WILLIAM J. MCFADDIN**

2 Q. WHAT DID YOU RECOMMEND IN YOUR DIRECT TESTIMONY
3 CONCERNING UNMETERED CITY OF PITTSBURGH PROPERTIES?

4 A. In my direct testimony, I noted that there were currently two unmetered City of Pittsburgh
5 properties.⁴⁷ I recommended that PWSA should provide a timeline for metering the two
6 properties and identify the estimated revenue impact of metering these properties.⁴⁸

7 Q. WHAT WAS MR. MCFADDEN'S RESPONSE TO YOUR
8 RECOMMENDATION?

9 A. Mr. McFadden notes that meters were installed on both properties in June 2023.⁴⁹ He
10 claims that PWSA does not have an estimate of annual water usage for these properties to
11 determine the revenue impact of metering the properties.⁵⁰ Therefore, PWSA views this
12 issue as being resolved for this proceeding.⁵¹

13 Q. DO YOU VIEW THIS ISSUE AS BEING RESOLVED FOR THIS
14 PROCEEDING?

15 A. No. PWSA should have several months of data available concerning the revenue impact of
16 metering the two properties. This data may be able to be utilized to determine the annual
17 revenue impact of metering these two properties. The OCA has served a discovery request
18 to obtain that information. Once that information is received, the OCA will assess whether
19 the revenue impact of metering the two City properties is significant and present that
20 impact in this proceeding. Therefore, the issue has not been resolved for this proceeding.

21 Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

22 A. Yes, it does; however, I reserve the right to update this testimony as may be necessary.

⁴⁷ OCA St. 3, p. 12.

⁴⁸ OCA St. 3, p. 12.

⁴⁹ PWSA St. No. 3-R, p. 2.

⁵⁰ PWSA St. No. 3-R, p. 2.

⁵¹ PWSA St. No. 3-R, p. 2.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039919 (SW)
v.	:	R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority	:	R-2023-3039921 (WW)

VERIFICATION

I, Jerome D. Mierzwa, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 3SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 22, 2023

Signature: 
Jerome D. Mierzwa

Consultant Address: Exeter Associates, Inc.
10480 Little Patuxent Parkway
Suite 300
Columbia, MD 21044-3575
4860-8090-3552, v. 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket No. R-2023-3039920 (water)
	:	
v.	:	Docket No. R-2023-3039921 (wastewater)
	:	
Pittsburgh Water and Sewer Authority	:	Docket No. R-2023-3039919 (stormwater)
	:	
	:	

Surrebuttal Testimony of Roger Colton
on behalf of
Pennsylvania Office of Consumer Advocate
OCA Statement 4SR

September 22, 2023

1 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

2 A. My name is Roger D. Colton. My business address is 34 Warwick Road, Belmont, MA.

3 **Q. ARE YOU THE SAME ROGER D. COLTON WHO PREVIOUSLY PREPARED**
4 **DIRECT AND REBUTTAL TESTIMONY FOR FILING BY THE OFFICE OF**
5 **CONSUMER ADVOCATE IN THIS PROCEEDING?**

6 A. Yes, I am.

7 **Q. PLEASE EXPLAIN THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY.**

8 A. The purpose of my Surrebuttal Testimony is to respond to the Rebuttal Testimony of
9 PWSA witness Julie Mechling (PWSA St. No. 6-R) regarding the customer service and
10 low-income issues I raised in my direct testimony. These issues include:

- 11 ➤ The enrollment of customers into PWSA's Bill Discount Program (BDP);
- 12 ➤ The design and structure of PWSA's BDP;
- 13 ➤ The design and structure of PWSA's Arrearage Forgiveness Program (AFP);
- 14 ➤ The treatment of bills, shutoff notices, and recertification notices that are
15 returned to PWSA as Undeliverable as Addressed.

16 In addition, I respond to the Rebuttal Testimony of OSBA witness Kevin Higgins to the
17 extent that he addresses the design of PWSA's low-income programs.

1 **I. Responding to Mail that is Returned as Undeliverable as Addressed.**

2 **Q. PLEASE RESPOND TO MS. MECHLING’S REBUTTAL TESTIMONY**
3 **REGARDING PWSA’S RESPONSE TO MAIL THAT IS RETURNED TO PWSA**
4 **AS UNDELIVERABLE AS ADDRESSED.**

5 A. Ms. Mechling argues in her testimony that there are not a substantial number of mail
6 pieces that are returned to PWSA as undeliverable. According to Ms. Mechling, “less
7 than 2% of the monthly bills that it issues to its 116,200 customers” are returned as
8 undeliverable. (PWSA St. 6-R, at 17). She does not acknowledge that this means that
9 more than 2,300 customers every month ($116,200 * .02 = 2,324$), or nearly 28,000 each
10 year ($2,324/\text{month} * 12 \text{ months} = 27,888$)¹ will have their bills returned to PWSA
11 returned as undeliverable. Just in the months of March through May 2023 (the only
12 months for which PWSA tracked undeliverable mail), there were nearly 4,500 bills
13 returned as undeliverable. (OCA-III-33(a)).

14 Even more problematic is when PWSA notices are returned as undeliverable. These
15 notices, for example, include shutoff notices for nonpayment and/or notices of the need
16 for low-income program participants to take action to remain in a PWSA low-income
17 program. PWSA does not track the number of those annual 28,000 bills ($2,324 \text{ customers}$
18 per month * 12 months) for which the bills were returned as undeliverable who
19 subsequently were sent a shutoff notice. (OCA-III-33(b)). Nor does PWSA track the
20 number of mailed shutoff notices that are returned as undeliverable. It is not possible for
21 Ms. Mechling to assert that the number of shutoff notices that are returned as

¹ I understand that some customers may have mail returned as undeliverable more than once.

1 undeliverable is “not substantial” when the Company concedes that it does not track that
2 number.

3 Ms. Mechling asserts that there is “a significant process in place before service is
4 terminated for non-payment which includes personal notice of pending termination.”
5 (PWSA St. 6-R, at 17). Even if one accepts the characterization of that process as “a
6 significant process,” PWSA’s process of providing personal notice is neither adequate nor
7 in compliance with PUC regulations. A customer who has had mail returned as
8 undeliverable to PWSA will not know that their bill has even been issued, let alone that it
9 remains unpaid, until that customer receives the posted shutoff notice, either a few days
10 before a disconnection or *at the time of disconnection*. Particularly for low-income
11 customers who may be struggling to pay their bills while paying other household
12 expenses (as I discuss in detail in my Direct Testimony), this provides insufficient time
13 for the customer to respond.

14 Ms. Mechling asserts that “the issue of UAA is not significant for PWSA and, when it
15 does occur, we already have processes in place to identify a more current address.” (Id.)
16 That assertion,² however, does not address the underlying issue presented in my Direct
17 Testimony. As I established in my Direct Testimony, fewer than 10% of mail that is

² Ms. Mechling argues that PWSA “partners with Kubra for its electronic billing, payment, and presentment services. Kubra utilizes a National Change of Address (NCOA) software that reads every potential mailing address in a PWSA bill, letter and notice file. When a more accurate address is discovered, Kubra utilizes it to ensure that the mail piece reaches the PWSA customer.” (PWSA St. 6-R, at 17). Hence, if there is no “change of address,” PWSA offers no process by which to ensure that customers receive the mail intended for them.

1 returned UAA is associated with an insufficient address. The “processes in place”
2 referenced by Ms. Mechling do not address the bulk of the problem.

3 Finally, Ms. Mechling advances two legal conclusions in her testimony that should be
4 dismissed. She states that all of PWSA’s procedures “are consistent with Commission
5 requirements.” (Id.) She asserts further that, based on advice of her counsel,
6 “Commission processes and regulations generally recognize the act of mailing as
7 sufficient for providing consumer notice. . .” (Id.) Ms. Mechling’s testimony provides no
8 basis for establishing the accuracy or legitimacy of those legal conclusions. Both such
9 legal conclusions should be addressed in the parties’ written legal briefs.

10 The factual foundation for my recommendation, however, would lead to the reasonable
11 conclusion that Ms. Mechling’s legal conclusions are in error. In the circumstances I
12 have identified, the only party to the transaction that has knowledge that something is
13 amiss is PWSA. PWSA is the only party that knows a bill (or shutoff notice) has been
14 mailed, but not delivered. PWSA is the only party that knows that information which is
15 important for the customer to receive has not been received. Particularly when PWSA
16 experiences repeated return of mail as UAA, PWSA no longer has a reasonable
17 expectation that merely placing a bill or other written notice in the mail will reach the
18 person to whom that mail is being sent.

1 **Q. DOES MS. MECHLING MISCHARACTERIZE WHAT YOU RECOMMEND**
2 **FOR PWSA WITH RESPECT TO MAIL THAT IS UNDELIVERABLE AS**
3 **ADDRESSED?**

4 A. Yes. Ms. Mechling states that I propose that PWSA create an exception in the
5 Company's normal collection process to place a hold when mail is UAA. (PWSA St. No.
6 6-R at 17) That mischaracterizes my recommendation. Rather, my Direct Testimony
7 recommended:

8 PWSA be directed to adopt a procedure which would create an exception *if*
9 *multiple pieces of mail are returned as undeliverable within a certain time*
10 *period* for a customer service representative to follow up with the customer to
11 update their contact information; enable reports on undeliverable mail;
12 generate an email (if an email address is attached to the account), phone call
13 or text to advise of undelivered mail and encourage the customer to log in
14 online to verify and update their information or if they do not have an online
15 account, ask that they contact the Customer Service Center.

16 (OCA St. 4, at 80 - 81).

17 **Q. WHAT DO YOU CONCLUDE?**

18 A. I conclude that Ms. Mechling's Rebuttal Testimony provides no basis to disapprove the
19 recommendation I make with respect to the treatment of mailed that is returned to PWSA
20 as Undeliverable as Addressed.

21 **II. Enrollment Processes for PWSA's Bill Discount Program (BDP).**

22 **Q. PLEASE RESPOND TO MS. MECHLING'S REBUTTAL TESTIMONY**
23 **REGARDING ENROLLMENT PROCESSES.**

24 A. The review of PWSA's enrollment of its low-income customers in its BDP and/or
25 Arrearage Forgiveness Program (AFP) is an essential component of a rate case. One
26 aspect of reasonable rates is the delivery of reasonable service. The identification and

1 enrollment of income eligible customers in PWSA’s BDP and AFP is one aspect of
2 providing reasonable service. The failure to take reasonable actions to identify low-
3 income customers and to enroll those customers in BDP and AFP is evidence that PWSA
4 is providing unreasonable service to low-income customers.

5 Ms. Mechling begins her response to the documentation of PWSA’s under-enrollment of
6 low-income customers in its BDP by asserting that “the Commission has not conditioned
7 the approval of a utility’s rate request on meeting specific low income customer
8 assistance program enrollment targets.” (PWSA St. No 6-R, at 23). She continues to
9 assert that “the commission has not deemed rates to be unjust and unreasonable based on
10 the number of customers enrolled in a natural gas or electric utility’s low income
11 customer assistance program.” (Id., at 23 – 24). She does not acknowledge that the
12 difference between PWSA and natural gas and electric utilities is that the review of
13 natural gas and electric Universal Service and Energy Conservation Plans (USECPs)
14 presents a specific process through which electric and natural gas enrollment can be
15 reviewed. Ms. Mechling opposes Pittsburgh United’s recommendation for PWSA to
16 submit a USECP to the Commission for review. (Id., at 28 – 30). Under Ms. Mechling’s
17 recommendation, therefore, whether PWSA is performing reasonably in enrolling low-
18 income customers would *never* be reviewed by the Commission. Such review would not
19 occur in a rate case. Nor would there be a separate review of PWSA universal service
20 plans and implementation.

1 **Q. PLEASE RESPOND TO MS. MECHLING’S COMMENT ABOUT PWSA’S**
2 **PARTICIPATION IN THE STATEWIDE UNIVERSAL SERVICE PLAN**
3 **WORKING GROUP.**

4 A. Ms. Mechling opposes program modifications recommended in this proceeding on the
5 grounds that “PWSA intends to be an active participant in the Commission’s Universal
6 Service Plan Working Group. . .” (PWSA St. 6-R, at 28). She argues that it would be a
7 “waste of valuable resources to impose requirements on PWSA in this proceeding that
8 may differ or be unrequired of other similarly situated utilities as a part of the working
9 group process.” (Id., at 29). The Universal Service Plan Working Group, however,
10 currently has only been presented with reviewing specific focused issues involving the
11 development of a common application; discussing the potential development of a
12 common website to facilitate the enrollment of customers into utility programs; the
13 potential requirements of a statewide administrator or other entity to administer universal
14 service enrollment statement, and DHS sharing of information. The initiative also offers
15 the opportunity to advance the goals set forth in the Commission’s March 27, 2023
16 Secretarial Letter. None of those issues, however, would necessarily supersede the
17 shortcomings of the PWSA BDP and AFP as I have documented throughout my Direct
18 Testimony, and in this Surrebuttal Testimony. Moreover, possible changes that the
19 Commission might make at some point in the future should not put a hold on further
20 development of PWSA’s low-income programs. The Commission, for example,
21 continues to review and modify the Universal Service and Energy Conservation Plans
22 (USECPs) filed by the state's natural gas and electric distribution companies even though
23 it is reviewing potential future improvements to the programs.

1 **Q. ARE THERE PROBLEMS WITH THE SPECIFIC FOUNDATIONAL**
2 **ARGUMENTS ON WHICH MS. MECHLING GROUNDS HER OPPOSITION?**

3 A. Yes. Ms. Mechling states that she “does not disagree” with my observation that low-
4 income programs not only address the social problems faced by PWSA’s low-income
5 customers, but can also address “the business [problems] faced by PWSA when it finds
6 that it cannot collect in a complete, regular, and timely fashion the bills which it renders
7 to customers who cannot afford to pay them.” (Id., at 25). Ms. Mechling argues that
8 “PWSA is willing to consider all reasonable suggestions as to how to improve our
9 enrollment levels. . .” (Id., at 24).

10 Nonetheless, she rejects every recommendation advanced in my Direct Testimony and
11 that of Pittsburgh United as being not “necessary or cost-effective to implement at this
12 time.” (PWSA St. 6-R, at 25). She offers no analysis or data indicating that the
13 recommended enrollment improvements that I advance are not “cost-effective.” That
14 conclusion should be rejected as being unsupported.

15 That leaves her two arguments: (1) that improved enrollment is not “necessary” (i.e., “we
16 are unable to agree that the proposals offered here by OCA. . .are necessary”); and (2)
17 that the improved enrollment is not “reasonable” (i.e., “PWSA is willing to consider all
18 reasonable suggestions as to how to improve our enrollment levels”).

19 Her argument that the enrollment recommendations are “not necessary” is at odds with
20 even Ms. Mechling’s own testimony. She concedes that she does not “dispute that there
21 are likely more low-income customers in PWSA’s service territory than are enrolling in
22 our low-income customer assistance programs.” (Id., at 24). There are, however, not

1 merely some low-income customers that are not enrolled, the vast majority of low-
2 income customers are not enrolled. PWSA, itself, estimates that it currently serves
3 25,793 customers with income less than 150% of Federal Poverty Level (OCA-III-13), an
4 increase of 5,603 customers in that income bracket from its estimate based on 2017 data.
5 In contrast, as of May 2023, PWSA had 5,006 BDP participants. (OCA-III-1). Hence, in
6 assessing whether enrollment can be improved, it is appropriate to consider that the
7 current PWSA participation rate misses more than eight-of-ten low-income customers.
8 Moreover, while Ms. Mechling argues that PWSA increased its BDP enrollment by 20%
9 in 2022, its current enrollment level is still less than simply the increase in low-income
10 customers since 2017 (5,006 current BDP enrollment vs. 5,603 increase in number of
11 low-income customers).

12 Her argument that the enrollment improvements I recommend are not “reasonable”
13 should be rejected as well. Ms. Mechling does not respond to my recommendation that,
14 as a municipal authority, PWSA should contact the City of Pittsburgh to negotiate
15 mechanisms through which it can cross-enroll customers through other municipal offices
16 serving the City of Pittsburgh.³ She does not explain why my conclusion that “as a
17 publicly-owned water authority, PWSA can, and should, take advantage of its association
18 with municipal government” is “not reasonable.” Nor does she explain why my
19 recommendation that, as a municipal utility, “PWSA work with the City of Pittsburgh to
20 identify and utilize those municipal programs that would assist PWSA in identifying its
21 lowest income customers and enrolling those customers in its BDP” is not reasonable.

³ I discuss my recommendation to engage in a cross-enrollment with other municipal programs at OCA St. 4, at 22 – 23).

1 Other utilities have been directed to work with their respective cities. In its 2023 rate
2 case, for example, the Philadelphia Water Department was directed by the Philadelphia
3 Water and Wastewater Rates Board to work with the city to improve enrollment in
4 PWD’s low-income discount program. Moreover, the Recommended Decision in the
5 2023 Philadelphia Gas Works rate case recommended that “PGW be directed to develop
6 and deliver to the Commission for its approval plans to implement the following
7 suggestions within 60 days after a final order in this proceeding . . . plans to confirm
8 customers’ low-income status as promptly and efficiently as possible, using data sharing
9 and in coordination with DHS and Philadelphia’s Department of Revenue. . .”⁴ As I
10 explained in my Direct Testimony, and Ms. Mechling did not dispute, the City of
11 Pittsburgh has programs similar to the City of Philadelphia.

12 **Q. DOES MS. MECHLING PROPOSE AN UNREASONABLE LIMITATION ON**
13 **THE COMMISSION’S AUTHORITY TO REVIEW BDP AND AFP**
14 **ENROLLMENT?**

15 A. Yes. Ms. Mechling asserts a conclusion that should be rejected as being unsupported.
16 She states that “it is axiomatic that PWSA has not violated any statute, regulation, or
17 policy statement of the Commission in voluntarily offering this program and therefore the
18 Commission may not force PWSA to dramatically extend its program.” (PWSA St. 6-R,
19 at 27). There are at least three problems with this testimony. First, it is a legal conclusion
20 that is inappropriate for, and not supported by, Ms. Mechling’s testimony or expertise.

⁴ Pennsylvania PUC v. Philadelphia Gas Works, Docket No. R-2023-3037933, Recommended Decision, at 127 (September 5, 2023).

1 Second, Ms. Mechling’s statement goes too far. Having offered the low-income discount
2 to its customer base, it is not within the sole discretion of PWSA to decide which low-
3 income customers may participate and which may not. Otherwise, under Ms. Mechling’s
4 reasoning, PWSA could hypothetically “voluntarily” offer the discount to 100 low-
5 income customers and refuse to extend the program to the other 25,700 low-income
6 customers and the Commission, under her view of the law, would be powerless to
7 respond.

8 Third, my recommended modifications are not based on a conclusion that PWSA has
9 somehow violated a statute, regulation or policy statement. As I document in my Direct
10 Testimony, my recommended modifications are grounded in the undisputed observation
11 that PWSA’s proposed rates will have a disproportionately adverse impact on low-income
12 customers. My Direct Testimony further documents that the modifications I recommend
13 are necessary to respond to the harms that PWSA will impose on low-income customers
14 through the rates that it has proposed in this proceeding. Finally, my Direct Testimony
15 documents how, without the modifications I recommend, the programs (i.e., BDP and
16 AFP) that have been implemented to date are failing to achieve the objectives upon which
17 the programs were grounded in the first instance. Ms. Mechling’s argument that no
18 “violation” of a statute, regulation or policy statement is a red herring that should be
19 rejected.

20 As can be seen, the limitation on Commission authority proffered by Ms. Mechling –that
21 the Commission lacks the authority to direct the expansion of any program that is
22 voluntarily offered by PWSA-- is clearly unreasonable. If there are reasonable actions
23 which PWSA might take to identify customers who qualify for its low-income programs,

1 and then enroll those customers in its low-income programs, the Commission may
 2 certainly direct PWSA to take those actions. Moreover, the BDP and AFP are both
 3 tariffed programs made available by PWSA. Under the Suspension Order, the
 4 Commission has the authority to review all aspects of PWSA's tariffs in this proceeding.

5 **Q. PLEASE RESPOND TO MS. MECHLING'S REBUTTAL TESTIMONY**
 6 **REGARDING THE USE OF TECHNOLOGY.**

7 A. Ms. Mechling opposes my recommendation that the Commission direct PWSA to submit
 8 the question of how PWSA might better use technology to identify low-income
 9 customers; to enroll those customers in the BDP and AFP; and to assist those customers
 10 in maintaining their enrollment. (PWSA St. 6-R, at 28). She states that my "suggestion
 11 to consider how enhanced technology could increase enrollment and retention of low-
 12 income customers in the BDP is an excellent issue for LIAAC to explore," (Id.), she
 13 opposes being directed to submit that question to LIAAC. Moreover, she fails to commit
 14 to submitting the question for LIAAC consideration.

15 While there is yet to be a final decision, the September 2023 Recommended Decision in
 16 PGW's 2023 base rate proceeding expressed an interest in hearing how that municipal
 17 utility was proposing to use technology to improve participation in low-income programs.
 18 The PGW Recommended Decision stated in response to a proposal similar to the
 19 proposed advanced for PWSA:

20 We also adopt OCA's recommendation that PGW be directed to include,
 21 beginning with its next-filed USECP, a specific section that summarizes any
 22 actions included in the plans described above that have not been completed in
 23 full, and presents a workplan identifying the technology tools it has adopted,
 24 or that it intends to adopt in the near-term, mid-term, and long-term, to

1 address low-income consumer identification, CRP enrollment, and CRP
2 enrollment maintenance.⁵

3 While PWSA does not file USECPs (since it is a water utility), adoption of the
4 reporting I recommend is the equivalent of what the PGW RD directed.⁶

5 **Q. PLEASE RESPOND TO MS. MECHLING’S OPPOSITION TO YOUR**
6 **GEO-TARGETED OUTREACH RECOMMENDATIONS.**

7 A. Ms. Mechling opposes my recommendations regarding geo-targeted outreach on
8 the basis that “they are unnecessary given PWSA’s current processes.” (PWSA St.
9 6-R, at 32). She argues that PWSA is already engaging in “neighborhood
10 canvassing efforts” and “cold-calling campaign.” (Id.). She further argues that
11 PWSA is developing GIS mapping to identify “neighborhoods of need” to “focus
12 canvassing efforts.” (Id.)

13 What Ms. Mechling does not acknowledge is that my recommendation extended
14 beyond the “GIS mapping” and blanket outreach that she references in her
15 testimony. My recommendation was that not only should PWSA engage in
16 outbound phone calling, outbound e-mails, and outbound mailings specifically
17 directed toward geographic areas identified as having high concentrations of

⁵ PGW 2023 Base Rate Case RD, *supra*, at 127 – 128. While PGW excepted to the consideration of *any* universal service issues in a base rate case, it did not specifically except to the Recommended Decision’s directives regarding the use of technology.

⁶ “For each of the actions recommended above, PWSA should maintain detailed outcomes records that it should present for review by its LIAAC. The outreach reporting should include data not merely on what PWSA is *doing* with respect to these two recommended outreach strategies, but what PWSA has *achieved* in improving the identification of PWSA’s lowest income customers and the enrollment of such customers in BDP and AFP.” (OCA St. 4, at 25).

1 PWSA’s lowest income customers, but also that “in addition to this geo-targeted
2 outbound outreach, PWSA should be directed to identify specific customers in
3 these geo-targeted areas that exhibit payment difficulties that could reasonably be
4 associated with an inability-to-pay.” (OCA St. 4, at 21).

5 It is difficult to understand Ms. Mechling’s opposition to my recommended geo-
6 targeting outreach proposal. Elsewhere in her testimony, Ms. Mechling states that
7 she “does not disagree” with my observation that low-income programs can
8 address “the business [problems] faced by PWSA when it finds that it cannot
9 collect in a complete, regular, and timely fashion the bills which it renders to
10 customers who cannot afford to pay them.” (PWSA St. 6-R, at 25). She further
11 states that “PWSA is willing to consider all reasonable suggestions as to how to
12 improve our enrollment levels. . .” (Id., at 24).

13 Moreover, Ms. Mechling does not dispute that the fourteen (14) zip codes served
14 by PWSA that had a penetration of customers with income at or below 150% FPL
15 that was higher than the average for the PWSA service territory as a whole had:
16 (1) 58% of the number of PWSA accounts in arrears; (2) 72% of the dollars of
17 arrears; (3) 65% of the PWSA nonpayment disconnections; (4) an average arrears
18 75% higher than the average arrears for the non-low-income zip codes (\$521 for
19 low-income zip code; \$298 for non-low-income zip codes); (5) a rate of
20 disconnections (i.e., disconnections per 100 accounts in arrears) 36% higher than
21 the rate of disconnections per 100 accounts in arrears for the non-low-income zip
22 codes; and (6) a reconnection rate (reconnection after a nonpayment
23 disconnection) for the low-income zip codes 15% lower than the reconnection

1 rate for the non-low-income zip codes. (OCA St. 4, at 12 – 13, citing OCA-III-
2 57). Nonetheless, Ms. Mechling opposes engaging in targeted personalized (e.g.,
3 outbound phone calling, outbound e-mails, outbound mail) to those individuals to
4 determine whether both they, and thus PWSA, would benefit from enrolling these
5 customers in the BDP and/or AFP.

6 **Q. PLEASE RESPOND TO MS. MECHLING’S OPPOSITION TO THE USE**
7 **OF COMMUNITY-BASED ORGANIZATIONS TO ENROLL LOW-**
8 **INCOME CUSTOMERS IN PWSA’S LOW-INCOME PROGRAMS.**

9 A. Ms. Mechling states that she “vehemently oppose[s]” using third-party
10 Community Based Organizations to enroll customers in PWSA’s low-income
11 programs. (PWSA St. 6-R, at 33). She asserts first that using CBOs, such as
12 Connecticut’s utilities do as I explain in my Direct Testimony (OCA St. 4, at 22),
13 is “unnecessary given PWSA’s current processes.” (PWSA St. 6-R, at 32). She
14 asserts that PWSA’s internal team “is positioned to perform the entire enrollment
15 process with low-income customers in the most effective and least costly manner
16 possible.” (Id., at 32 – 33). She finally argues that to “pay outside agencies with
17 ratepayer money to do what the [internal PWSA] team is already paid to do. .
18 .would drive PWSA’s rate request even higher.” (Id., at 34).

19 Moreover, Ms. Mechling argues that “there are also numerous back-office
20 functions that must be performed to ensure that our most vulnerable customers
21 received the program benefits that they are eligible to receive.” (Id., at 33). She
22 argues that even if third-party CBOs were enlisted to help “identify the lowest

1 income customers and to facilitate the enrollment of such customers in the BDP’
2 (OCA St. 4, at 22), “PWSA personnel would still need to perform data entry into
3 PWSA’s Customer Information System.” (PWSA St. 6-R, at 33).

4 Ms. Mechling’s argument that enlisting the assistance of CBOs “is not necessary”
5 and that performing the entire enrollment process internally is “the most effective.
6 . . .manner possible” should be rejected. Ms. Mechling argues that PWSA provides
7 “meaningful outreach to low-income customers and to enroll eligible customers in
8 assistance programs. . .” (Id., at 49). She asserts that “PWSA also increased
9 staffing of its PGH2O Cares team in 2022 to perform additional outreach and
10 enrollment.” (Id.)

11 This argument ignores that, as I documented in my Direct Testimony and note
12 above, while PWSA has increased its BDP enrollment by 20% in 2021 (Id., at
13 49), the vast majority of low-income customers are not enrolled. In assessing
14 whether performing the entire enrollment process internally is “the most effective
15 manner possible” it is appropriate to consider that the current PWSA enrollment
16 process has missed more than eight-of-ten low-income customers. In assessing
17 whether performing the entire enrollment process internally is “the most effective
18 manner possible,” it is appropriate to consider that PWSA’s current enrollment
19 level is still less than simply the increase in low-income customers since 2017
20 (5,006 current BDP enrollment vs. 5,603 increase in number of low-income
21 customers). There are, in other words, more unserved low-income customers
22 today than there were in the past.

1 Moreover, the weakness of Ms. Mechling’s argument about the required “back
2 office functions” is evident even in the manner in which she articulates it. She
3 asserts that “PWSA personnel would *still* need to perform data entry into PWSA’s
4 Customer Information System.” (PWSA St. 6-R, at 33) (emphasis added). Using
5 CBOs in the manner in which I recommend, in other words, would not create new
6 “back office functions” that would need to be performed. The use of CBOs
7 would simply not relieve PWSA of the need to perform such “back office
8 functions” (i.e., those back-office functions would “still” need to be performed).
9 And the functions that Ms. Mechling identifies are neither onerous nor surprising.
10 They include entering new enrollees into PWSA’s Customer Information System,
11 reviewing enrollment applications for accuracy, updating customer contact
12 information, updating the Enrollment Date and Poverty Level fields, adding an
13 “interaction record” to the account, forwarding the account to Billing to update
14 the billing rate, and recording the account and “any missing information” to the
15 Daily Tracking spreadsheet. These back-office functions are necessary
16 irrespective of whether the enrollment occurs through an internal team contact, or
17 through a cross-enrollment with another program, or through a CBO.

18 Finally, Ms. Mechling’s argument that compensating CBOs to help identify low-
19 income customers and facilitate their enrollment in PWSA’s low-income
20 programs necessarily “would drive PWSA’s rate request even higher” is not even
21 consistent with Ms. Mechling’s other testimony. Elsewhere, Ms. Mechling
22 testifies that she “does not disagree” with my testimony that well-designed
23 customer assistance programs “can also address ‘the business programs faced by

1 PWSA when it finds that it cannot collect in a complete, regular, and timely
2 fashion the bills which it renders to customers who cannot afford to pay them.”
3 (PWSA St. 6-R, at 25). In stating that she “does not disagree” with that
4 proposition, neither did Ms. Mechling dispute my findings that about the fourteen
5 zip codes that had a penetration of customers with incomes at or below 150% FPL
6 that was higher than average for the PWSA service territory as a whole, as
7 described above. Increasing participation in PWSA’s low-income programs
8 through enlisting the assistance of CBOs generates cost reductions as well as cost
9 increases. It is not at all the case that adoption of my recommendation would
10 necessarily “drive PWSA’s rate increase even higher.”

11 **III. Modifications to PWSA’s Bill Discount Program.**

12 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
13 **TESTIMONY.**

14 A. In this section of my testimony, I respond to the Rebuttal Testimony of PWSA witness
15 Mechling regarding the modifications which I recommend to PWSA’s Bill Discount
16 Program.

17 **Q. PLEASE RESPOND TO MS. MECHLING’S COMMENTS ABOUT**
18 **DETERMINING THE COSTS OF YOUR MODIFIED DISCOUNT TIERS.**

19 A. Ms. Mechling argues that my recommended modifications to the income tiers for
20 PWSA’s BDP should not be adopted because, due to a mistake made by PWSA, “accurate
21 data available to indicate FPL of BDP enrollees is limited and does not provide
22 information about the over 6,700 current BDP enrollees.” (PWSA St. 6-R, at 38). She
23 argues that PWSA cannot “support recommendations that will increase the costs to other

1 ratepayers when the data does not offer a way to reasonably project accurate impacts.”
2 (Id., at 39). She concedes, however, that “these data tracking issues have been addressed
3 in our billing system.” (Id., at 39).

4 Ms. Mechling’s opposition grounded on this basis should be rejected. She asserts that “in
5 our current structure, there was no reason to focus on FPL breakpoints beyond those
6 necessary to qualify customers for the BDP.” (Id., at 39). That statement is simply not
7 accurate. Both under PWSA’s existing discounts, and under PWSA’s proposed credits to
8 offset the impact of eliminating its minimum charge, PWSA needs to differentiate
9 households by Federal Poverty Level. Customers with income less than 50% FPL
10 receive a different discount, and will receive a different bill credit, than customers with
11 income greater than 50%. Moreover, PWSA is proposing to expand its BDP to customers
12 with income greater than 150% FPL but at or below 200% FPL. Even if PWSA had
13 made no mistakes, it would have no information about customers with income in that
14 FPL range (150% to 200%). Nonetheless, that lack of information did not prevent PWSA
15 from proposing to implement its expanded discount and projecting the costs of extending
16 the discount.

17 Ms. Mechling noted, in particular, that due to its mistakes, PWSA lacked information on
18 the enrollment date and percent of FPL “for accounts with listed tenants.” (Id., at 38).
19 She argues that, accordingly, “accurate data available to indicate FPL of BDP enrollees is
20 limited. . .” (Id., at 38) The enrollment date (whether for a tenant or for someone else),
21 however, is not a factor used to calculate the cost of the modified discount tiers I
22 recommend. Irrespective of whether a customer is a tenant or not, whether a customer
23 enrolled in the BDP in January 2022, or January 2023, or July 2023 will not change the

1 cost of the modifications I recommend for PWSA's BDP up or down. Moreover, when
2 PWSA was asked to provide the breakdown of BDP participants by owner/tenant status,
3 it reported that the number of tenants participating in the BDP was relatively minor.
4 (OCA-III-36). Indeed, my Direct Testimony expressed concern about the extent to which
5 PWSA fails to serve low-income tenants ("Despite the prevalence of tenant status
6 amongst the households in these low-income tiers, PWSA serves very few low-income
7 tenants as evidenced by its BDP." OCA St. 4, at 35).

8 **Q. HOW WOULD THE MISTAKES IDENTIFIED BY MS. MECHLING HAVE**
9 **AFFECTED YOUR COST CALCULATION?**

10 A. The PWSA mistakes identified by Ms. Mechling as occurring in the migration from the
11 previous Information Technology to the current system would not affect my cost
12 calculations. Thus, Ms. Mechling's assertion that my recommendations "will increase
13 the costs to other ratepayers when the data does not offer a way to reasonably project
14 accurate impacts" has no basis. Consider:

- 15 ➤ My recommended increase in the discount to customers with income less than
16 50% FPL uses the exact same data used by PWSA on calculating its costs to
17 serve those below 50% FPL customers, excepting using an expanded discount
18 percentage.
- 19 ➤ My recommended changes to the fixed credits (to offset the elimination of the
20 minimum charge) do not vary in cost based on FPL tiers. While my
21 recommended fixed credits are larger than the fixed credits proposed by
22 PWSA, the increase I recommend is \$3 per month across-the-board. There is

1 no need to know the exact FPL tier of a low-income customer to calculate the
2 increase in costs associated with my recommendation.

3 ➤ My recommended modification in the discount tiers (adding a new tier for
4 customers with income between 50% and 100% of customers) does not rely
5 on the historic distribution of BDP customers. Rather, I use the method of
6 estimating future enrollment in the BDP by FPL range that PWSA, itself,
7 uses. (OCA-III-13). This PWSA methodology is not based on, and would not
8 be affected by, the mistakes identified in Ms. Mechling’s Rebuttal Testimony.

9 The fact is that in estimating the costs of my recommended modification to PWSA’s
10 discount tiers, I use the exact same methodology, and the exact same data, that PWSA
11 used to estimate the costs which would be imposed by its proposed BP income tiers (and
12 proposed fixed credits to offset the elimination of the minimum charge).

13 **Q. ARE MS. MECHLING’S “CONCERNS” ABOUT INCENTIVIZING**
14 **CONSERVATION WELL-FOUNDED?**

15 A. No. Ms. Mechling testified that she is “concerned about how incentivizing conservation
16 can be achieved by providing greater discounts for more usage.” (PWSA St. 6-R, at 39).
17 She argues that BDP participants would be “less inclined to conserve” if they are
18 provided a greater discount. She argues that “high consumption bills will be
19 meaningless” and that “leaks will go undetected and conservation will suffer.” (Id., at
20 40).

21 Ms. Mechling’s “concerns” are based on no data. They are merely unsupported
22 conclusory statements. In fact, the impact of discount rates on “incentivizing

1 conservation” has been studied time and again by Pennsylvania’s utilities. Empirical data
 2 from numerous evaluations of Pennsylvania’s affordability programs have found that the
 3 offer of affordable low-income rates not only does not impede price signals, but,
 4 conversely, affirmatively improves them. By examining the evaluations of other
 5 Pennsylvania universal service programs, we can determine the impact of the PIP on
 6 participant usage using real information, rather than on supposition.

- 7 ➤ Consider, for example, the “percentage of income program” offered by Peoples
 8 Gas Company. The Peoples Gas evaluation of its Percentage of Income Plan
 9 (PIP) reported that the program succeeded in promoting conservation. In
 10 accordance with Pennsylvania PUC regulations, Peoples engaged an external
 11 third party evaluator to assess its PIP; the most recent evaluation was published
 12 in 2017.⁷ In that Evaluation, Peoples specifically considered the impact of its
 13 PIP on the natural gas consumption of PIP participants. The Peoples Evaluation
 14 reported that nearly three times more Peoples PIP participants reduced their
 15 consumption under PIP than increased their consumption under PIP. While 25%
 16 of PIP participants reduced their usage, only 9% increased their consumption.
 17 More than half of all PIP participants reported no change in their consumption.
- 18 ➤ The evaluation of PPL Corporation’s electric affordability program also shows
 19 the conservation impacts of that affordable rate.⁸ Even given the affordable rate
 20 assistance provided by PPL Corporation, only 6% of low-income participants
 21 increased their usage. Of those who did increase their usage, only two (2) said
 22 that it was because they “could afford to use more electricity.” In contrast, 40%
 23 of program participants reported that they used less electricity. Two-thirds (65%)
 24 of those said they used electricity because they were trying to reduce their
 25 consumption or to conserve.

⁷ APPRISE, Inc. (August 2017). Peoples Natural Gas, 2017 Universal Service Program Evaluation, Final Report, available at https://www.puc.pa.gov/General/pdf/USP_Evaluation-Peoples.pdf

⁸ APPRISE, Inc. (January 2020). PPL Electric Utilities, Universal Service Programs, Final Evaluation Report, available at <https://www.puc.pa.gov/pcdocs/1656535.pdf>

- 1 ➤ The 2017 evaluation of First Energy’s rate affordability program found similar
2 results as well.⁹ The First Energy evaluation found that while 14% of program
3 participants reported having higher usage under the program than they had before
4 participating in the program, 25% of program participants reported having lower
5 usage under the program. Of all program participants, 20% reported having
6 lower usage because they were trying to conserve or reduce consumption. In
7 contrast, fewer than 3% of total program participants reported having increased
8 usage either because of a “heavy use of appliances” or because they were using
9 electric space heaters.

10 The fact that these evaluations involve natural gas and electric utilities rather than a water
11 utility does not detract from their relevance to demonstrating that Ms. Mechling’s
12 “concerns” have no basis. Indeed, the fact that the *same* results were reported for both
13 natural gas and electricity demonstrates that the impact of an affordability program on
14 promoting conservation behavior does not turn on the type of utility service being
15 delivered.

16 **Q. WHAT DO YOU CONCLUDE?**

17 A. The empirical evidence from the implementation of rate affordability programs indicates
18 that affordable rates have no noticeable impact on a degradation in any “incentive” to
19 engage in conservation. If anything, those incentives are improved. Not only do far
20 more program participants reduce consumption than increase consumption, but those who
21 do reduce consumption, do so because they are *trying* to do so.

⁹ APPRISE, Inc. (January 2017). First Energy Universal Service Programs, Final Evaluation Report,
https://www.puc.pa.gov/general/pdf/USP_Evaluation-FirstEnergy.pdf

1 **Q. PLEASE RESPOND TO MS. MECHLING’S OPPOSITION TO YOUR**
2 **PROPOSED INCREASE IN THE FIXED MONTHLY CREDITS TO OFFSET**
3 **THE ELIMINATION OF THE MINIMUM CHARGE.**

4 A. Ms. Mechling opposes my recommendation to increase the low income fixed credits as a
5 means to offset the elimination of PWSA’s minimum charge and argues, simply, that
6 PWSA’s proposed fixed credits are adequate to prevent rate increases to low-income
7 customers higher than rate increases to residential customers generally. (PWSA St. 6-R,
8 at 40). She argues, for example, that a BDP Tier 2 rate increase of 63.5% (by Year 2026)
9 is reasonable given that the residential rate increase in that same time period would be
10 69.1%. Likewise, a BDP Tier 1 rate increase of 59.5% is reasonable because it is not
11 substantially different from the 69.1% residential increase in the same time period.
12 (PWSA St. 6-R, at 40, citing OCA St. 4, Table 8). She asserts that low-income customers
13 should “share in the costs of Commission approved rates,” (Id., at 41), not noting that
14 even with my recommended increased credits, Tier 2 BDP customers would experience a
15 rate increase of 43% by 2026, while Tier 1 BDP customers would experience a rate
16 increase of 21%.

17 Ms. Mechling argues that “Mr. Colton’s proposed discounting of the amounts [low-
18 income customers] will be asked to pay in the future results in too high a cost for the
19 other ratepayers.” (Id.). That assertion, of course, assumes that in the absence of the
20 fixed credit, low-income customers would actually *pay* the *entire* amount of the rate
21 increase proposed by PWSA. That assumption is contrary to what we know to be the
22 situation of PWSA’s low-income customers. As I documented in my Direct Testimony
23 (based on data provided by PWSA, itself), “over the period May 2021 through May 2023,

1 more than 71% of the customers who enrolled in BDP entered the program with a pre-
2 existing arrears. The average arrears of those having arrears was \$1,226.” (OCA St. 4, at
3 51). Responding to these bill payment problems by increasing bills by 59.5% (Tier 1
4 BDP participants) or by 63.5% (Tier 2 BDP participants) will not make those arrearages
5 decline. Adopting the fixed credits I recommend will lower costs for the “other
6 ratepayers” rather than increasing costs. As I discussed above, even Ms. Mechling stated
7 that she “does not disagree” with my observation that low-income programs can address
8 “the business [problems] faced by PWSA when it finds that it cannot collect in a
9 complete, regular, and timely fashion the bills which it renders to customers who cannot
10 afford to pay them.” (PWSA St. 6-R, at 25).

11 Finally, Ms. Mechling inexplicably argues that future rate increases (in percentage terms)
12 should only be calculated relative to rates in the immediately preceding year, rather than
13 relative to current rates. (PWSA St. 6-R, at 41). In her view, a 60% rate increase by the
14 Year 2026 isn’t *really* a 60% rate increase, but is instead only a 20% rate increase,
15 because the other 40% had occurred in the two prior years. The notion that the
16 cumulative percentage rate increases over time should be ignored when assessing the
17 impacts of rates on PWSA’s low-income customers should be rejected. To examine only
18 a year-over-year percentage increase does not capture the impact of rate increases on
19 low-income customers. Nor is it the way in which other price increases are measured.
20 The Consumer Price Index, for example, published by the U.S. Bureau of Labor Statistics
21 does not examine only year-over-year changes. Rather, it sets a base year equal to “100,”
22 and measures the cumulative impact of price changes relative to that base year as the way

1 to measure inflation. The presentation of the Consumer Price Index (all urban
 2 consumers) in the Table below illustrates.

Consumer Price Index (water, sewer and trash collection) (January 2023 – August 2023) (December 1997 base = 100) ¹⁰								
	Jan. 2023	Feb. 2023	Mar. 2023	Apr. 2023	May 2023	Jun. 2023	Jul. 2023	Aug. 2023
Water and sewer and trash collection services	281.461	283.663	284.166	285.052	286.322	287.457	289.005	290.975

3 I offer this Table not to establish what the increase in water bills has been, but rather to
 4 illustrate that Ms. Mechling’s objection to examining the cumulative price increase over
 5 time should be rejected as unreasonable.

6 **III. Modifications to PWSA’s Arrearage Forgiveness Program (AFP).**

7 **Q. PLEASE EXPLAIN THE PURPOSE OF THIS SECTION OF YOUR**
 8 **TESTIMONY.**

9 A. In this section of my testimony, I respond to the Rebuttal Testimony of Ms. Mechling
 10 regarding recommended modifications to PWSA’s arrearage forgiveness program. Ms.
 11 Mechling opposes every recommended modification. (PWSA St. 6-R, at 42).

12 In advancing her opposition, Ms. Mechling relies first on three statements known to be in
 13 error. She notes, for example, that “the distribution of funding for the Low-Income

¹⁰ U.S. Bureau of Labor Statistics, CPI-U, August 2023, available at <https://www.bls.gov/cpi/tables/supplemental-files/>

1 Household Waer Assistance Program (“LIHWAP”) is continuing. . .” (Id.) That statement
2 is in error. As I observed in my Direct Testimony, when Congress adopted its legislation
3 increasing the federal debt ceiling, it rescinded all unspent LIHWAP funding. Federal
4 funding through LIHWAP no longer exists and expired in Pennsylvania as of August 18,
5 2023.¹¹ The number of PWSA customers who received LIHWAP grants has been
6 insubstantial in 2023. As I noted in my Direct Testimony, from January 2023 through
7 May 2023, only nine (9) PWSA customers received LIHWAP grants. From March 2023
8 through May 2023, three (3) PWSA customers received LIHWAP.

9 Moreover, Ms. Mechling relies on the discredited “cost-benefit analysis” prepared by
10 Edward Barca.¹² Mr. Barca’s only response to the failings of his cost-benefit analysis
11 was that PWSA customers have historically received LIHWAP funding. (PWSA St. 2-R,
12 at 76). He does not explain how that observation corrects or cures the erroneous
13 assumptions and methodology that he utilizes. Indeed, it is interesting to note that while
14 Mr. Barca asserts that LIHWAP is significant in that it is no longer available (Id.), Ms.
15 Mechling asserts that LIHWAP is significant in that it is “continuing.” (PWSA St. 6-R, at
16 42). In fact, the availability or non-availability of LIHWAP does not affect the
17 modifications I recommend for PWSA’s arrearage forgiveness program.

18 Finally, Ms. Mechling argues that forgiving arrears over a 36-month period would result
19 in an estimated loss of \$900,000 in annual revenue. (Id., at 42). She then argues that the

¹¹ Pennsylvania had sufficient funds remaining to *temporarily* reopen applications for LIHWAP. That temporary period ended on August 18, 2023, before PWSA witness Mechling testified on September 8, 2023 that LIHWAP distribution “is continuing.”

¹² OCA St. 4, at 69 – 72.

1 costs of my recommended 24-month forgiveness period “would likely be greater as more
2 debt would be forgiven.” (Id.) She does not even attempt to reconcile that Mr. Barca’s
3 \$1,231,722 cost estimate (PWSA Ex. EB-9) unreasonably assumes that 100% of the debt
4 eligible for forgiveness would, in fact, be forgiven. Not even PWSA believes that
5 number. PWSA claimed only \$240,000 in arrearage forgiveness expenses in this rate
6 case, not the \$1,231,722 calculated by Mr. Barca (see, OCA St. 4, Table 22, page 72).

7 In reality, pre-program arrears would be forgiven pursuant to my recommended
8 modifications only if and when a customer makes a complete payment. PWSA did not
9 dispute either the methodology used in my calculation of arrearage forgiveness costs, or
10 the data I used in making those calculations, or the results that flowed from those
11 calculations. My calculated cost of a 24-month forgiveness period (\$871,461) is
12 substantially less than the cost of the 100% forgiveness advanced by Mr. Barca
13 (\$1,231,722).

14 Finally, Ms. Mechling argues that my recommended 24-month arrearage forgiveness
15 period would “likely be greater” than the annual cost of the 36-month forgiveness period
16 recommended by Pittsburgh United witness Harry Geller “as more debt would be
17 forgiven.” (PWSA St. 6-R, at 42). What she does not state, however, is that even if that
18 were true in the short-term, it would not be true in the long-term. The important word in
19 Ms. Mechling’s Rebuttal Testimony is “annual.” While my cost estimate would spread
20 forgiveness over two years, Mr. Geller’s would spread forgiveness over three years.
21 Comparing the costs per-year (i.e., “annual costs”) of one approach over the other,
22 without acknowledging that my forgiveness period has fewer years, is not appropriate.

1 **Q. PLEASE RESPOND TO MS. MECHLING’S REBUTTAL TESTIMONY**
2 **REGARDING YOUR RECOMMENDED AUTOMATIC ENROLLMENT OF BDP**
3 **PARTICIPANTS IN THE ARREARAGE FORGIVENESS PROGRAM.**

4 A. Ms. Mechling argues that “PWSA is already automatically enrolling customers who are
5 eligible for the Bill Discount Program into the Arrearage Forgiveness Program when they
6 have past due charges and are willing to enter into a payment plan.” (PWSA St. 6-R, at
7 43). Ms. Mechling does not dispute the fact that PWSA’s existing approach to arrearage
8 forgiveness enrollment excludes most of those customers who would be eligible for
9 forgiveness. That is not surprising given that the data was provided by PWSA, itself. As
10 my Direct Testimony documents, while PWSA had 6,497 BDP participants in May 2023,
11 it had only 1,956 BDP participants who were *also* enrolled in arrearage forgiveness.
12 (OCA St. 4, at 55). Under Ms. Mechling’s recommended approach, in other words, 7-of-
13 10 BDP participants do not also participate in arrearage forgiveness.

14 PWSA’s current arrearage forgiveness structure then limits low-income customers who
15 actually receive forgiveness even more. From September 2022 through May 2023,
16 PWSA had an average of 1,704 participants enrolled in its arrearage forgiveness program.
17 During that same time period, PWSA actually provided an average of 631 forgiveness
18 credits each month.

19 Taken individually, but certainly when viewed together, the unreasonable nature of
20 PWSA’s arrearage forgiveness structure can be seen. In April 2023, PWSA had 6,297
21 BDP participants, and yet granted forgiveness to only 696 participant accounts. In
22 February 2023, PWSA had 6,272 BDP participants and yet granted forgiveness to only

1 712 participant accounts. In December 2022, PWSA had 6,081 BDP participants and yet
2 granted forgiveness to only 513 participant accounts.

3 The data thus shows the fallacy of Ms. Mechling’s two conclusions. First, she concludes
4 that “the current Arrearage Forgiveness Program is an incentive for customers to keep
5 paying. . .” (PWSA St. 6-R, at 43). If providing an incentive is the intended objective—
6 Ms. Mechling argues that “PWSA’s Arrearage Forgiveness Program is a valuable tool to
7 incentivize payment”— the data shows that that incentive is failing. The data I cite
8 above¹³ shows that PWSA is providing arrearage credits to only roughly 10% of BDP
9 participants (e.g., $696 / 6,297 = 11\%$ in April 2023; $712 / 6,272 = 11\%$ in February 2023;
10 $513 / 6,081 = 8\%$ in December 2022). The program is failing 90% of the time.

11 Second, she concludes that PWSA’s current structure “offers the appropriate balance
12 between providing a reasonable level of financial assistance to those in need while also
13 requiring them to make fair payments. . .” (PWSA St. 6-R, at 43). As I note immediately
14 above, PWSA’s current structure is not providing “a reasonable level of financial
15 assistance to those in need” nor does it represent an “appropriate balance.” PWSA’s
16 current program provides arrearage forgiveness to only 10% of all BDP participants.
17 Even amongst those low-income customers actually enrolled in the AFP, as I found in my
18 Direct Testimony, from December 2022, when the federal government’s COVID
19 emergency water assistance grant program went away, through April 2023, PWSA would

¹³ The complete data for all months through May 2023 was presented in my Direct Testimony

1 have issued 10,597 AFP bills but made only 3,728 AFP arrearage forgiveness credits.
2 (OCA St. 4, at 57).

3 Finally, Ms. Mechling again argues that the arrearage forgiveness program creates new
4 costs that would need to be borne by other ratepayers. She asserts that the forgiveness
5 modifications recommended by OCA and by Pittsburgh United “will cause our
6 ratepayers to unfairly subsidize these costs.” (PWSA St. 6-R, at 43) (emphasis added).
7 We know, however, that statement is not accurate. The arrearage forgiveness program
8 does not “cause” new costs to be incurred. It instead moves unpaid bills from PWSA’s
9 current unpaid balances to the arrearage forgiveness program. We know that more than
10 70% of new BDP enrollees enter the BDP with pre-existing arrears. We know that the
11 average level of those pre-existing arrears is \$1,226. (OCA St. 4, Table 15, page 53).

12 PWSA’s existing forgiveness program does not “incentivize” changes in those non-
13 payment patterns. Instead, PWSA’s program continues the pattern of nonpayment in
14 90% (or more) of the cases. The modifications to the Arrearage Forgiveness Program
15 that I recommend in my Direct Testimony would create successful incentives. Those
16 modifications should be adopted.

17 **IV. Response to OSBA Witness Kevin Higgins.**

18 **Q. PLEASE RESPOND TO THE REBUTTAL TESTIMONY OF OSBA WITNESS**
19 **KEVIN HIGGINS AS HE ADDRESSES YOUR RECOMMENDED**
20 **MODIFICATIONS TO PWSA’S LOW-INCOME PROGRAMS.**

21 **A.** OSBA witness Kevin Higgins states in his Rebuttal Testimony that “OSBA neither
22 supports nor opposes the multitude of recommendations made by Mr. Colton, so long as

1 all customer assistance program costs are recovered solely from residential customers.”
2 (OSBA St. 1-R, at 4). The merits of my recommended modifications do not depend on
3 cost allocation decisions. As I describe in detail in my Direct Testimony, as well as in
4 this Surrebuttal Testimony, my recommended modifications are designed to make
5 PWSA’s low-income programs achieve the purposes for which they were designed in the
6 first instance. Without my modifications, the PWSA programs not only reach a fraction
7 of the low-income customer population, but even for those customers who do participate,
8 the programs do not promote an improved affordability of bills given PWSA’s proposed
9 rates. Moreover, the PWSA arrearage forgiveness program does not provide meaningful
10 arrearage relief. OSBA's proposal to change the way in which PWSA allocates its
11 universal service costs presents an issue entirely separate from the need to adopt the
12 program modifications I have identified. I addressed the merits of OSBA’s argument that
13 universal service costs should be allocated exclusively to the residential class in my
14 Rebuttal Testimony. (OCA St. 4R).

15 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

16 A. Yes.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

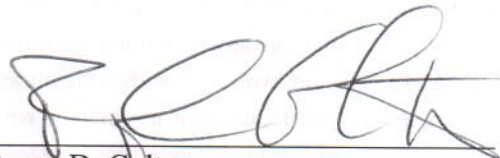
Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Roger D. Colton, hereby state that the facts above set forth in my Surrebuttal Testimony, OCA Statement 4SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 22, 2023

Signature:


Roger D. Colton

Consultant Address: Fisher, Sheehan, & Colton
34 Warwick Road
Belmont, MA 02478
4878-7462-3872, v. 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket No.
	:	R-2023-3039920 (Water)
	:	R-2023-3039921 (Wastewater)
	:	R-2023-3039919 (Stormwater)
v.	:	
	:	
	:	
Pittsburgh Water and Sewer Authority	:	

SURREBUTTAL TESTIMONY

**BARBARA R. ALEXANDER
BARBARA ALEXANDER CONSULTING LLC**

ON BEHALF OF

OFFICE OF CONSUMER ADVOCATE

September 22, 2023

1 Q. PLEASE STATE YOUR NAME, ADDRESS AND OCCUPATION.

2 A. My name is Barbara R. Alexander. I am the sole member manager of Barbara Alexander
3 Consulting LLC. My address is 44 Beech St., Hallowell, ME 04347. I appear in this case
4 as a witness on behalf of the Pennsylvania Office of Consumer Advocate (OCA).

5 Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS PROCEEDING?

6 A. Yes. I submitted Direct Testimony on behalf of the OCA on August 9, 2023.

7 Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

8 A. I am submitting Surrebuttal Testimony on behalf of the OCA in response to the Rebuttal
9 Testimony of Julie A. Mechling (Statement No. 6-R) and the Rebuttal Testimony of
10 Edward Barca (Statement No. 2-R) on behalf of the Pittsburgh Water and Sewer Authority
11 (PWSA) submitted on September 8, 2023. The issues I will address in my Surrebuttal
12 Testimony include the following conclusions and recommendations reflected in my Direct
13 Testimony:

- 14 • Multi-year rate plan's failure to include any customer service performance
15 commitments;
- 16 • PWSA's call center performance;
- 17 • PWSA's root cause complaint analysis;
- 18 • PWSA's processing fees for certain customer payment options; and
- 19 • PWSA's use of a third party debt collection agency.

1 Q. AS A RESULT OF YOUR REVIEW OF PWSA'S REBUTTAL TESTIMONY, DO YOU
2 HAVE ANY CHANGES TO YOUR ORIGINAL CONCLUSIONS AND
3 RECOMMENDATIONS?

4 A. No. I continue to recommend that PWSA's proposal for a multi-year rate increase not be
5 approved due, in part, to the lack of any specific performance standards or consequences
6 for the failure to meet reasonable performance standards. Based on my evaluation of
7 certain other PWSA proposals and service quality performance, I recommend the following
8 requirements that should be imposed if rates are increased:

9 • PWSA's Call Center should meet its internal standards of an average answer time
10 of 1 minute and an abandonment rate of 3% or less for all its customer queues each quarter.

11 • PWSA's "root cause" analysis of customer complaints failed to meet the
12 requirements of its prior commitment due to the failure to include informal and formal BCS
13 complaints. PWSA's should be required to conduct the required complaint analysis at no
14 additional cost to customers or ratepayers and report the results within 6 months.

15 • PWSA's proposal to impose a transaction fee for payment by credit and/or debit
16 cards by residential customers should be rejected.

17 • PWSA's intent to hire a third-party debt collection agency should not be approved
18 at this time or prior to a demonstration that any such proposal will be cost effective
19 compared to internal debt collection and lien authority or that any such proposal will ensure
20 a reduction in collection costs or debt collection efficiency.

1 Q. PLEASE RESPOND TO PWSA’S REBUTTAL TESTIMONY CONCERNING THE
2 LACK OF STATUTORY REQUIREMENTS FOR SERVICE QUALITY OR
3 CUSTOMER SERVICE PERFORMANCE STANDARDS AS PART OF THE MULTI-
4 YEAR RATE PLAN.

5 A. PWSA witnesses Barca and Mechling address the need for service quality or customer
6 service performance standards as part of the multi-year rate plan. Ms. Mechling’s Rebuttal
7 argues that since there is no precedent for this issue in a litigated proceeding, that the
8 Commission should reject my recommendation to link the multi-year plan rate recovery to
9 reasonable service quality and customer service performance criteria.¹ Mr. Barca argues
10 that there is no evidence that PWSA is providing inadequate service.² In response to Ms.
11 Mechling, there is no “alternative rate plan” in effect for Pennsylvania public utilities, that
12 argument has no weight. As to the legal argument, I will defer to OCA’s Brief on that
13 matter. In response to my testimony that PWSA has not provided a “meaningful assurance
14 or mechanism to meet reasonable customer service performance and service quality
15 performance,” Ms. Mechling states that the multi-year rate plan is not being proposed based
16 on the need to assure adequate service quality and customer service and that there is no
17 basis to assume that PWSA would “halt its progress toward becoming a highly responsive
18 and trusted public utility.”³ Mr. Barca’s basis for his rejection of my proposal to link
19 customer service quality to a proposal to increase rates (whether through a multi-year rate
20 plan or with a more traditional rate case) is not correct. I documented that PWSA has
21 routinely not complied with its own internal performance standards and has performed

¹ PWSA St. No. 6-R, page 7, lines 11-14.

² PWSA St. No. 2-R, page 31, lines 14-18.

³ Ibid., page 7, lines 14-16.

1 poorly in several areas compared to other Pennsylvania utilities in my Direct Testimony.
2 It is not necessary to prove violations to raise my concerns. Both Mr. Barca and Ms.
3 Mechling fail to address the obvious purpose of including commitments and measurements
4 of customer service performance in a multi-year rate plan which is that the lack of such a
5 mechanism shifts the risk of degradation of performance for essential customer service to
6 customers while setting in motion automatic rate increases. Rate increase requests are
7 required to include a review of efficiency, effectiveness and adequacy of service⁴ PWSA's
8 Rebuttal does not satisfy the risks and policy concerns that I identified in my Direct
9 Testimony. When faced with such arguments, it is best to "trust but verify" in the world
10 of utility regulation. In fact, PWSA has a history of up and down performance at its call
11 center as I documented in my Direct Testimony and will discuss further below.

12 Q. PLEASE RESPOND TO PWSA'S REBUTTAL WITH REGARD TO YOUR
13 RECOMMENDATION TO ENSURE REASONABLE ONGOING PERFORMANCE AT
14 PWSA'S CALL CENTER.

15 A. Ms. Mechling provides updated information on the performance of PWSA's call center for
16 the period January 1, 2023, through August 31, 2023.⁵ The average performance for this
17 period indicates a continuing concern with the high 4.8% abandonment rate for customers
18 who select the "collections" queue to speak to a representative, as well as 3.3%
19 abandonment rate for calls relating to permits and 3.9% abandonment rate for stormwater
20 calls. Evidently, Ms. Mechling justifies her opposition to my recommendation by relying
21 on overall call average results and ignores the performance for those call queues that are

⁴ 66 Pa. C.S. Sec. 523.

⁵ Ibid., page 9.

1 not in compliance with the internal average performance standard. I do not agree that calls
2 from some customers should be handled at a lesser quality of service than calls from other
3 customers on different topics. Ensuring a performance for each customer queue is a
4 particular concern when dealing with “collections” calls in which customers are responding
5 to a termination notice or other collection-related communications. This performance is
6 relevant to my concern about the lack of any standards for the multi-year rate plan and is
7 also of concern to PWSA’s request for any rate increase in this proceeding. Furthermore,
8 the suggestion that customer satisfaction survey results as described by Ms. Mechling
9 should excuse performance that does not meet reasonable performance standards is not
10 reasonable.⁶ The customer surveys do not link the experience of customers who choose to
11 respond to a survey to the call queues. The use of different customer queues to route
12 incoming calls may be reasonable but, as I have identified, the call center answering
13 performance should be linked to each queue, particularly in months when termination of
14 service is allowed. I continue to recommend that PWSA be required to meet its own internal
15 performance standards for all customer calls as a condition of any rate increase.

⁶ Ibid., page 10, lines 15-25.

1 Q. PLEASE RESPOND TO PWSA’S REBUTTAL CONCERNING THE COMPLIANCE
2 WITH THE PRIOR SETTLEMENT THAT REQUIRES A ROOT CAUSE ANALYSIS
3 OF CUSTOMER COMPLAINTS.

4 A. Ms. Mechling’s Rebuttal confirms that PWSA’s root cause complaint analysis focused on
5 “disputes,” defined as customer contacts directly with PWSA in which the customer was
6 dissatisfied with the initial response at first contact.⁷ I do not dispute that statement and I
7 agree that disputes reflect a larger group of “complaints” than those informally appealed to
8 the BCS or that were evaluated by the BCS to determine “infractions.” I also agree that
9 PWSA took actions internally in response to this analysis of disputes in the root cause
10 report. However, PWSA failed to conduct a root cause analysis pursuant to the language
11 of the stipulation. The exact language of the commitment in the settlement states, “PWSA
12 will undertake a root cause analysis of informal and formal complaints and identify and
13 adopt reforms to reduce formal complaints, verified complaints and justified complaints.”⁸
14 PWSA’s root cause report does not discuss any complaints except “disputes” and does not
15 identify or discuss the pattern of informal complaints submitted to BCS or any formal
16 complaints submitted to the Commission. Ms. Mechling fails to recognize that identifying
17 those disputes that result in informal and/or formal complaints and why such escalation
18 occurred and with what results was clearly an intended part of the root cause analysis. Nor
19 does the report identify or discuss any BCS findings with respect to verified or justified
20 complaints. PWSA’s root cause report failed to conform to the plain language of the

⁷ Ibid., page 12, line 6.

⁸ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021 adopting Recommended Decision dated October 6, 2021 at p. 27 Section 9, E,8,c.

1 settlement. I continue to recommend that PWSA comply with the settlement language and
2 conduct a root cause analysis of the informal and formal complaints, and their relationship
3 to BCS findings as required. As I documented in my Direct Testimony, there are trends
4 and patterns in the BCS findings that need analysis and response by PWSA in this corrected
5 root cause report.

6 Q. TURNING TO PWSA'S PROPOSAL TO CHANGE ITS PRIOR AGREEMENT TO
7 ELIMINATE CREDIT AND DEBIT CARD PROCESSING FEES AND RESUME
8 CHARGING SUCH FEES TO RESIDENTIAL CUSTOMERS, PLEASE RESPOND TO
9 PWSA'S REBUTTAL.

10 A. As a part of the Settlement of its 2021 base rate proceeding, PWSA agreed to eliminate
11 merchant fees for residential customers to make Interactive Voice Response and on-line
12 payments as part of its 2020 rate case settlement.⁹ Beginning in January 2022, PWSA
13 eliminated these payment fees for residential customers. Now, however, PWSA is
14 proposing to reverse that agreement and charge residential customers \$1.95 per transaction
15 for paying their PWSA bill via credit or debit card. As documented by Mr. Geller on behalf
16 of United, PWSA also charges residential customers a \$1.49 fee for cash payments at third
17 party locations. Both Ms. Mechling and Mr. Barca on behalf of PWSA continue to reject
18 recommendations to eliminate specific fees. I do not accept the basis for their proposal or
19 their response to my testimony. PWSA should accept payment by any lawful means
20 without additional fees and reflect reasonable and prudent costs to process these payments
21 in its revenue requirement.

⁹ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2020-3017951 (water) and R-2020-3017970 (wastewater) Final Order entered December 3, 2020 (approving Settlement Section III.G.2.).*

1 Their argument is that those who incur fees must pay them or other ratepayers are
2 forced to subsidize their payment methods.¹⁰ They also argue that these fees, if eliminated
3 for individual customers, will cause the revenue requirement to increase.¹¹ PWSA's
4 reasons are neither logical nor fair. First, every payment method requires costs for
5 processing the payment. In an age in which electronic payments are the norm for many
6 customers for their routine purchases, it is unfair to single out certain payment methods for
7 a penalty by charging the customer an additional fee. Second, the fees are negotiable and
8 PWSA does not apparently recognize that they could either solicit a lower cost contract or
9 take on the internal process of processing debit and credit cards that most merchants handle
10 without a third-party payment processing agent. No such analysis or attempt to explore
11 these options have apparently been implemented by PWSA. Finally, this policy is
12 particularly harmful for lower income customers who may be unbanked and rely on pre-
13 purchase debit cards to make payments.¹² I include a summary of this report with its key
14 findings as Exhibit BA-6. PWSA should encourage every form of lawful payment of their
15 bills and promote these payment methods to support the on-time payment of their bills.

16 While PWSA may not benefit directly from imposing these fees, they are in fact
17 imposed on customers as a condition of payment of the PWSA bill and promoted on
18 PWSA's web portal and result, therefore, in higher costs to these households compared to

¹⁰ Ibid., page 15, lines 8-14.

¹¹ See, e.g., PWSA St. No. 2-R, page 77, lines 22-27.

¹² According to the 2021 FDIC National Survey of Unbanked and Underbanked Households, 6.9% of households were using general purchase reloadable prepaid cards and 46.4% of all households were using nonbank online payment services, such as PayPal, Venmo, and Cash App. The use of prepaid debit cards was much higher among unbanked households. Unbanked households were twice as likely to use prepaid cards or nonbank online payment services to conduct four or more types of transactions compared with banked households.

<https://www.fdic.gov/analysis/household-survey/index.html>

1 those who use PWSA's favored payment methods for which fees are not charged. PWSA's
2 policy is discriminatory. As documented in my Direct Testimony, PWSA's data shows
3 that a substantial percentage of customers are using these fee-based payment options to
4 avoid termination of service, indicating that the impact on vulnerable and disadvantaged
5 customers is greater than those with the ability to pay bills on time and in full. I attach
6 PWSA's Response to OCA-IV-15 as Exhibit BA-7 that I relied upon for those facts. In
7 addition, Mr. Barca's statement that customers who pay by credit and/or debit card have a
8 bank account and could use payment by bank withdrawal for free is not necessarily correct
9 and ignores those who are unbanked as documented in the FDIC Survey I have cited¹³ and
10 does not reflect the difficulties facing vulnerable customers who are forced to make a
11 choice to incur debt or suffer termination of essential water and sewer services. PWSA
12 should eliminate specific fees that are advertised and encouraged by PWSA as a method of
13 bill payment.

14 Q. PLEASE RESPOND TO PWSA'S UPDATED INFORMATION ON ITS USE OF A
15 THIRD-PARTY DEBT COLLECTOR.

16 A. As documented by Ms. Mechling in her Rebuttal, PWSA has issued an RFP for a third
17 party debt collector for certain of its unpaid receivables. Based on my review of these
18 materials¹⁴ PWSA has developed a set of criteria and performance standards that appear to
19 be generally reasonable subject to the concerns that I note below. Of particular importance
20 is that the contractor will focus on unpaid debt from individuals or businesses that are not
21 customers or applicants consistent with Chapters 14 and 56 and who are not, therefore,

¹³ PWSA St. No. 2-R, page 78, lines 1-3.

¹⁴ PWSA Exh. JAM-21. The updated version of the RFP appeared shortly before my Direct was filed and was not, therefore, reviewed at that time.

1 subject to the regular rights and responsibilities associated with Chapter 56 of the
2 Commission's rules. This distinction is crucial to any consideration of my
3 recommendation. However, while the RFP appears to try to distinguish those without
4 service from current customers, more can be done to ensure that any applicant for service
5 is also protected from third party collections rather than the payment requirements provided
6 by Chapter 56.¹⁵ Thus, I continue to have some concerns that the scope of the agreement
7 is too broad. For the reasons outlined below, I do not recommend that PWSA enter into
8 this agreement at this time; however, if they do so, I recommend that the Authority exclude
9 from the scope of collection any individual who is an applicant for service from the scope
10 of third-party collections so that these individuals have the ability to make arrangements
11 directly with PWSA for the re-establishment of service rather than through a third-party
12 collection agency.

13 Having agreed with the overall conditions set forth in the RFP, I nevertheless conclude
14 that entering this contract is neither prudent nor reasonable because there are important
15 aspects to this initiative that are not yet resolved, particularly since there is no obligation
16 under any prior settlement or order that PWSA must pursue this collection tool. First, the
17 cost of the contract is not known and whether the cost of this initiative is "worth" the
18 expenditure of ratepayer funds that could otherwise be targeted to improvements in
19 PWSA's own collection practices is not known. Second, the Authority has also failed to
20 document how any such private agency could achieve the stated goal for a 10% increase in
21 its monthly collection rate compared to the ongoing collection activities that could or

¹⁵ To the extent that any applicant for service (whether or not they have a PFA or medical certificate) is contacted by the third party collection agency, the applicant for service should be warm transferred back to the Authority by the third party collection agency.

1 should be implemented by PWSA employees or more targeted outreach and collection
2 activities by individuals working under PWSA direct supervision. This concern is
3 particularly relevant to PWSA since the Authority can initiate a lien on a nonpaying
4 customer's property to collect overdue bills, an option that, coupled with its Chapter 56
5 rights, provides a greater flexibility to collect overdue bills compared to other investor-
6 owned water, gas, and electric utilities in Pennsylvania.

7 Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

8 A. Yes. However, I reserve the right to supplement this testimony if additional relevant
9 information is received.

Exhibit BA-6



[Home](#) // [Analysis](#) // [Household Survey](#)

Analysis

2021 FDIC National Survey of Unbanked and Underbanked Households

Last Updated: July 24, 2023

Additional Links



The FDIC is committed to expanding Americans' access to safe, secure, and affordable banking services, which is integral to the FDIC's mission of maintaining the stability of and public confidence in the U.S. financial system. The *FDIC National Survey of Unbanked and Underbanked Households* is one contribution to this end. Conducted biennially since 2009 partly in response to a statutory mandate, the survey is administered in partnership with the U.S. Census Bureau and collects information on bank account ownership; use of prepaid cards and nonbank online payment services; use of nonbank money orders, check cashing, and money transfer services; and use of bank and nonbank credit.

2021 Survey Results

All PDF files on this page reference Portable Document Format (PDF) files. Adobe Acrobat, a reader available for free on the Internet, is required to display or print PDF files. ([PDF Help](#))

- [2021 Executive Summary](#) - PDF
- [2021 Report](#) - PDF
- [2021 Appendix Tables](#) - PDF
- [2021 Technical Notes and Survey Revisions](#) - PDF
- [2021 Instrument](#) - PDF

[Click for an interactive map of unbanked rates by geography](#)

Key Findings and Implications from the 2021 Survey

Key Findings

National Unbanked Rate

- An estimated 4.5 percent of U.S. households (approximately 5.9 million) were “unbanked” in 2021, meaning that no one in the household had a checking or savings account at a bank or credit union.
- The unbanked rate in 2021—4.5 percent—was the lowest since the survey began in 2009. Between 2019 and 2021, the unbanked rate fell 0.9 percentage points, corresponding to an increase of approximately 1.2 million banked households.
- Between 2011—when the unbanked rate was at its highest level since the survey began—and 2021, the unbanked rate fell 3.7 percentage points, corresponding to an increase of approximately 5.0 million banked households.

Unbanked Rates by Household Characteristics

- Consistent with the results of previous surveys, unbanked rates in 2021 varied considerably across the U.S. population. For example, unbanked rates were higher among lower-income households, less-educated households, Black households, Hispanic households, working-age households with a disability, and single-mother households.
 - Differences in unbanked rates between Black and White households and between Hispanic and White households in 2021 were present at every income level. For example, among households with income between \$30,000 and \$50,000, 8.0 percent of Black households and 8.4 percent of Hispanic households were unbanked, compared with 1.7 percent of White households.

Unbanked Households: Reasons for Not Having a Bank Account

- “Don't have enough money to meet minimum balance requirements” was cited by 21.7 percent of unbanked households as the main reason for not having an account—the most cited main reason.
- “Don't trust banks” was the second-most cited main reason for not having an account in 2021 (13.2 percent), and “Avoiding a bank gives more privacy” was the third-most cited main reason (8.4 percent).

COVID-19 Pandemic and Transitions in Bank Account Ownership

- New questions in the 2021 survey asked households whether they experienced economic changes since the start of the COVID-19 pandemic in March 2020 and whether those changes contributed to the closing or opening of households' bank accounts.
 - About one in three (34.9 percent) recently banked households reported that receiving a government benefit payment (for example, unemployment benefits or a pandemic stimulus payment) contributed to opening a bank account since March 2020.
 - In other words, among the 77.9 percent of recently banked households that received a government benefit payment, almost half (44.8 percent)—representing approximately 1.9 million households—said that the payment contributed to opening an account.
 - About one in five (21.1 percent) recently unbanked households reported that losing or quitting a job, being furloughed, having reduced hours, or having a significant loss of income contributed to closing a bank account since March 2020.

Banked Households: Primary Method Used to Access Bank Accounts

- Among banked households:
 - Use of mobile banking increased sharply (from 15.1 percent in 2017 to 34.0 percent in 2019 to 43.5 percent in 2021) and remained the most prevalent primary method of account access.
 - Use of a bank teller declined considerably (from 24.8 percent in 2017 to 21.0 percent in

2019 to 14.9 percent in 2021) but remained prevalent among certain segments of the population, including lower-income households, less-educated households, older households, and households that did not live in a metropolitan area.

Prepaid Cards and Nonbank Online Payment Services

- In 2021, 6.9 percent of all households were using general purpose reloadable prepaid cards at the time of the survey, and 46.4 percent of all households were using nonbank online payment services. Examples of nonbank online payment services are PayPal, Venmo, and Cash App.
 - Use of prepaid cards was much higher among unbanked households (32.8 percent) than among banked households (5.7 percent).
 - Use of nonbank online payment services was much lower among unbanked households (18.1 percent) than among banked households (47.7 percent).
 - Unbanked households were twice as likely to use prepaid cards or nonbank online payment services to conduct four or more types of transactions compared with banked households.

Nonbank Money Orders, Check Cashing, and Money Transfer Services

- Use of nonbank money orders and nonbank check cashing declined steadily between 2017 and 2021.
 - In 2021, 9.7 percent of all households used nonbank money orders, down from 14.3 percent in 2017 and 11.9 percent in 2019.
 - In 2021, 3.2 percent of all households used nonbank check cashing, down from 6.4 percent in 2017 and 5.5 percent in 2019.
- In 2021, 7.0 percent of all households used nonbank money transfer services from companies like Western Union, MoneyGram, Walmart Money Center, or Ria Money Transfer.

Bank and Nonbank Credit

- In 2021, 71.5 percent of households had a Visa, MasterCard, American Express, or Discover credit card (i.e., a credit card), similar to the proportion in 2019 (71.3 percent) and above the 2017 level (68.5 percent). The share of households that had a personal loan or line of credit from a bank (i.e., a bank personal loan) decreased from 10.8 percent in 2019 to 8.0 percent in 2021. Altogether, 72.5 percent of households in 2019 and 72.3 percent of households in 2021 had a credit card or bank personal loan. In addition, 2.8 percent of households had a personal loan or line of credit from a company other than a bank (i.e. a nonbank personal loan) in 2021.
 - Differences by race and ethnicity in the likelihood of having a credit card or bank personal loan were present at every income level. For example, even among households with

income between \$50,000 and \$75,000, 64.8 percent of Black households and 71.2 percent of Hispanic households had a credit card or bank personal loan, whereas 81.3 percent of White households did so.

- Use of rent-to-own services and payday, pawn shop, tax refund anticipation, and auto title loans all decreased between 2017 and 2021. About 1 percent of households in 2021 used each product or service. The proportion of households that used at least one of the five products or services declined sharply from 7.4 percent in 2017, to 4.8 percent in 2019, and to 4.4 percent in 2021.
 - The proportion of unbanked households that used at least one of the five products or services decreased substantially between 2017 and 2021. Despite this decline, use of these nonbank credit products or services in 2021 continued to be more prevalent among unbanked households than among banked households.

Underbanked Households

- An estimated 14.1 percent of U.S. households (approximately 18.7 million) were “underbanked” in 2021, meaning that the household was banked and in the past 12 months used at least one of the following nonbank transaction or credit products or services that are disproportionately used by unbanked households to meet their transaction and credit needs:
 - Money orders, check cashing, or international remittances (i.e., nonbank transactions) or
 - Rent-to-own services or payday, pawn shop, tax refund anticipation, or auto title loans (i.e., nonbank credit).
- An estimated 81.5 percent of U.S. households (approximately 107.9 million) were “fully banked” in 2021, meaning that the household was banked and in the past 12 months did not use any of the above nonbank transactions and credit.
- As the primary method of bank account access, use of mobile banking was higher among underbanked households (48.8 percent) than among fully banked households (42.5 percent). Use of online banking as the primary method of account access was much lower among underbanked households (11.6 percent) than among fully banked households (23.8 percent). Similar proportions of underbanked households (15.0 percent) and fully banked households (14.9 percent) used a bank teller as the primary method of account access.
- Almost all underbanked households (96.1 percent) and fully banked households (97.3 percent) used their bank accounts to pay bills or receive income. However, while 81.6 percent of fully banked households exclusively used their bank accounts to conduct these transactions, only 38.1 percent of underbanked households did so.
- Underbanked households were less likely to have a credit card and were more likely to have both bank and nonbank personal loans than fully banked households in 2021. For example, 62.4 percent of underbanked households had a credit card, compared with 76.6 percent of fully banked households. One in ten underbanked households (10.0 percent) had a bank

personal loan, compared with 8.0 percent of fully banked households. And 5.6 percent of underbanked households had a nonbank personal loan, compared with 2.4 percent of fully banked households.

Implications

The financial disruptions due to the COVID-19 pandemic created unique opportunities and challenges for economic inclusion, some of which may be temporary, while others may be longer lasting. The importance of quickly receiving income from Economic Impact Payments or other government relief programs created a unique bankable moment, and consumers benefitted from enhanced online and mobile account opening technologies and the greater availability of safe and affordable bank accounts. This combination of factors resulted in meaningful gains in connecting households to the banking system.

Health and safety concerns regarding in-person interactions during the pandemic may have accelerated the long-term trend of increasing use of mobile and online channels to access financial products and services, such as mobile banking and online payment services. As the pandemic wanes, it will be important to carefully monitor whether the shift from in-person activity continues, stabilizes, or subsides.

Beyond impacts directly tied to the pandemic, the financial services marketplace continues to become more disaggregated, and consumers are bundling services and providers (bank and nonbank) in new and interesting ways. This disaggregation may provide greater choices for consumers but also may make it more difficult for consumers to clearly distinguish differences between bank and nonbank products and to understand the protections available, such as deposit insurance. The economic inclusion implications of disaggregation on different segments of the population bear further research and highlight the need to learn more about how consumers are navigating the choices presented to them by the evolving marketplace.

- + [Despite economic challenges posed by the pandemic, more consumers became banked and sustained their banking relationship through financial distress. The importance of quickly receiving government payments contributed to decisions by many unbanked consumers to open bank accounts. Focusing on opportunities to connect consumers to safe and affordable bank accounts when they are receiving income and other government payments continues to be a promising economic inclusion strategy. Enhancements to online account opening technology deployed during the pandemic and the increased availability of low-cost accounts in recent years also may facilitate these banking efforts. Disruptions in income had a smaller impact in exits from the banking system than previous survey results might suggest, and further research is needed to explore the reasons for this smaller than expected impact, including strategies banks used to assist low- and moderate-income \(LMI\) consumers navigate short-term financial shocks.](#)

+

factors may be driving these trends, including reduced demand from changing needs, increased participation in the banking system, or the increasing supply of other, new nonbank products and services, many of which can be found online or through mobile applications. Much remains to be learned about consumer choices and the factors that are motivating them. Additional research into these choices and motivations is vital to ensuring that economic inclusion efforts evolve to address consumers' changing needs and preferences.

- + While many banked households appear to use nonbank online payment services such as PayPal, Venmo, and Cash App to complement banking products, unbanked households may be using them as substitutes for banking or other financial services. These use cases have different economic inclusion implications but highlight that it is important for all consumers to understand limits and applicability of consumer protections, especially deposit insurance.

Exhibit BA-7

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set IV**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-IV-15 Does PWSA have any information that can link the use of a customer’s payment method to the customer’s bill payment status or presence of credit and collection actions? If so, please provide such analysis or information.

Response: PWSA does not have the requested links established in an existing report, and creation of said report would be at cost to PWSA.

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: June 14, 2023

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039919 (SW)
v.	:	R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority	:	R-2023-3039921 (WW)

VERIFICATION

I, Barbara R. Alexander, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 5SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 22, 2023

Signature:

Barbara Alexander

Barbara R. Alexander

Consultant Address: Barbara Alexander Consulting, LLC
44 Beech Street
Hallowell, ME 04347
4876-8371-7760, v. 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	Docket No. R-2023-3039920 (Water)
	:	
	:	
v.	:	Docket No. R-2023-3039921 (Wastewater)
	:	
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	Docket No. R-2023-3039919 (Stormwater)
	:	

SURREBUTTAL TESTIMONY

OF

TERRY L. FOUGHT

ON BEHALF OF

PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

September 22, 2023

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TABLE OF EXHIBITS

No.	Description
TLF-1SR	2023 Project Summary for Bruecken Pump Station Improvements & Highland 1 Reservoir Liner
TLF-2SR	PWSA Response to OCA-XII-1 re: Construction Projects since 2019 & 2023 Project Summary (all projects)
TLF-3SR	PWSA Complaint Log Summary 2022 through August 2023

1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.**

3 A. Terry L. Fought, 780 Cardinal Drive, Harrisburg, Pennsylvania, 17111.

4

5 **Q. MR. FOUGHT, HAVE YOU ALREADY SUBMITTED TESTIMONY IN THIS**
6 **PROCEEDING ON BEHALF OF THE OFFICE OF CONSUMER ADVOCATE?**

7 A. Yes. I submitted direct testimony.

8

9 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

10 A. The purpose of my surrebuttal testimony is to respond to portions of the rebuttal
11 testimonies by: William J. Pickering, PWSA St. No. 1-R; Edward Barca, PWSA St.
12 No. 2-R; William J. McFaddin, PWSA St. No. 3-R; Barry King, PWSA St. No. 4-R;
13 and Julie A. Mechling, PWSA St. No. 6-R.

14

15 **Q. WHAT ISSUES ARE YOU GOING TO ADDRESS?**

16 A. I am going to address the following issues: (1) Amendment of Cooperation
17 Agreement between the City and PWSA (Cooperation Agreement); (2) Pressures
18 and Pressure Surveys; (3) Microfiltration Plant (MFP) and Highland Reservoir 1
19 (HR1); (4) Unaccounted for Water (UFW); (5) Isolation Valves; (6) Meter Testing
20 and Replacement; (7) Flushing Distribution System; (8) Fire Hydrants; (9)
21 Complaint Log; and (10) Public Input Hearing Testimony.

1 **COOPERATION AGREEMENT**

2 **Q. WHICH PWSA WITNESSES PROVIDED REBUTTAL TESTIMONY**
3 **REGARDING THE COOPERATION AGREEMENT?**

4 A. PWSA witnesses William J. Pickering, PWSA St. No. 1-R and Edward Barca,
5 PWSA St. No. 2-R provided rebuttal testimony about amending the Cooperation
6 Agreement.

7
8 **Q. WHAT IS MR. PICKERING'S POSITION ON AMENDING THE COOPERATION**
9 **AGREEMENT?**

10 A. On page 13 of his Rebuttal Testimony, Mr. Pickering states that: (1) he does not
11 agree that the Cooperation Agreement needs to be amended; (2) the Cooperation
12 Agreement has the effect of law under Act 70 of 2020; (3) no language appears in
13 Act 70 providing for an amendment of the Cooperation Agreement; (4) when the
14 Cooperation Agreement ends on January 1, 2025, the City will be just like any
15 other customer; and (5) the only exception is that although the City will pay for the
16 utility services it receives and other services on an arms-length transactional basis,
17 billing may continue to be handled through existing arrangements.

18
19 **Q. WHAT IS YOUR RESPONSE TO MR. PICKERING'S POSITION?**

20 A. The following responses are in the same numerical order as Mr. Pickering's
21 position noted above.

22 1. As identified in my Direct Testimony, an Amendment to the Cooperation
23 Agreement is needed prior to any PWSA rate increase after January 1, 2025 to

1 clarify who is responsible for the many items discussed in the Cooperation
2 Agreement.¹

3 2. The Cooperation Agreement has the effect of law under Act 70 of 2020 until
4 January 1, 2025.

5 3. I agree; but nothing in Act 70 prevents amending the Cooperation
6 Agreement.

7 4 & 5. I agree with Mr. Pickering's position that after January 1, 2025, the City
8 should be just like any other customer; however I disagree with his position that
9 the City should be allowed to continue pay for the utility services it receives and
10 other services on an arms-length transactional basis, billing may continue to be
11 handled through existing arrangements.

12
13 **Q. WHY DO YOU DISAGREE THAT THE CITY CONTINUE TO PAY FOR**
14 **SERVICES IT RECEIVES THROUGH EXISTING ARRANGEMENTS?**

15 A. All the existing arrangements that are proposed to continue after January 1, 2025
16 should be clearly explained with financial audits for the previous three years. The
17 water and wastewater customers of PWSA should not be responsible for owning,
18 repairing and maintaining: (1) water and sewer lines within any City Park; (2)
19 combined and sanitary sewer mains and laterals within any City Park; and (3)
20 water and sewer mains, service lines and laterals to other City Properties.

¹ OCA Statement 6, pg. 36.

1 **Q. WHAT IS MR. BARCA'S POSITIONS ON AMENDING THE COOPERATION**
2 **AGREEMENT?**

3 A. On page 34 of his Rebuttal Testimony, Mr. Barca stated that: (1) I recommended
4 that PWSA be required to amend its Cooperation Agreement to prevent its
5 customers from paying for service restoration of all City Streets; (2) the City is not
6 forcing PWSA to pave all City Streets; (3) the proposed surface restoration
7 includes PWSA costs to restore its construction sites to the City specifications; and
8 (4) PWSA is not being held to a different standard than all utilities doing work in
9 the City.

10

11 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S POSITION?**

12 A. On page 36 of my Direct Testimony, I recommended that the Cooperation
13 Agreement be amended prior to any PWSA rate increase after January 1, 2025 to
14 indicate who is responsible for the many cost items discussed in that agreement
15 after PWSA has sole ownership of the systems. Surface Restoration is an
16 example of the lack of cooperation by the City to share in the surface restoration
17 costs in accordance with PWSA's Long-Term Infrastructure Improvement Plan.

18

19 **Q. HAVE YOU CHANGED YOUR RECOMMENDATIONS OF AMENDING THE**
20 **COOPERATION AGREEMENT?**

21 A. No. The Cooperation Agreement should be amended and approved by the
22 Commission prior to any rate increase after January 1, 2025 so that it is clear who

1 is responsible for the many items discussed in the existing Agreement after PWSA
2 has sole ownership of the systems.

3
4 **PRESSURES AND PRESSURE SURVEYS**

5 **Q. WHICH PWSA WITNESSES PROVIDED REBUTTAL TESTIMONY**
6 **REGARDING PRESSURES AND PRESSURE SURVEYS?**

7 A. PWSA witnesses William J. Pickering, PWSA St. No. 1-R and William J. McFaddin,
8 PWSA St. No. 3-R provided rebuttal testimony about pressures and pressure
9 surveys.

10
11 **Q. WHAT IS MR. PICKERING'S POSITION ON PRESSURE AND PRESSURE**
12 **SURVEYS?**

13 **A.** On page 5 of his rebuttal testimony, Mr. Pickering stated "For instance, without
14 presenting any allegations as to inadequate service or even pointing to specific
15 problems, OCA witness Fought is seeking to require PWSA to reduce operating
16 pressures and submit pressure surveys for each zone."

17
18 **Q. WHAT IS YOUR RESPONSE TO MR. PICKERING'S POSITIONS?**

19 A. In regard to reducing high pressures, the purpose of my testimony is to inform the
20 reviewer that PWSA provides some customers higher pressures than permitted by
21 52 Pa. Code § 65.6 Pressures and what may be necessary to bring the high
22 pressures into the range in the regulations. So far, I have not been informed of the
23 highest pressures provided to customers in each pressure zone. As noted on

1 Pages 10 and 11 of my direct testimony, for purposes of evaluating pressures, I
2 have generally accepted utility statements based on pressure information from
3 hydraulic models and SCADA systems when the utility submits a complete
4 customer log that includes all pressure complaints.

5 If a utility has properly responded to high pressure complaints, then it is not an
6 issue. Until PWSA submits a complete complaint log that includes all pressure
7 complaints, they should be required to submit pressure surveys for each pressure
8 zone in compliance with 52 Pa. Code § 65.6 Pressures.

9 It should be noted that on September 11, 2023, PWSA submitted a Supplemental
10 Response to OCA Set V-30 that included 135 and 72 “Low Pressure” complaints
11 in 2022 and 2023, respectively. PWSA’s response did not include any “High
12 Pressure” complaints. Upon an informal request, PWSA verified that there were
13 no “High Pressure” complaints.

14 **Q. DO YOU CONSIDER THAT PWSA’S SUPPLEMENTAL RESPONSES TO OCA**
15 **SET V-30 TO BE A COMPLETE COMPLAINT LOG?**

16 A. No. A complete complaint log would include all non-billing complaints. Those
17 complaints not specifically categorized would be included in an “other” or
18 “miscellaneous” category that could also be searched. As discussed later in this
19 testimony, PWSA uses a “Work Order Log” that files complaints in a separate file
20 for each customer. It is possible that a “Work Order Log” search for “Pressures”
21 may include more pressure complaints than a search for “Low Pressures”.
22

1 **Q. WHAT IS MR. MCFADDIN'S POSITIONS ON PRESSURE AND PRESSURE**
2 **SURVEYS?**

3 **A.** On page 4 of his rebuttal testimony, Mr. McFaddin states that: (1) I acknowledge
4 that less than 5% of PWSA's customers, or fewer than 3,774 customers have water
5 pressures higher or lower than the Commission's regulations; (2) the Authority's
6 tariff requires PWSA to maintain service at historic pressures at the main and
7 permits PWSA to furnish service at other pressures where necessary to supply
8 adequate service; (3) the tariff also requires the customers to install and maintain
9 a pressure regulator to reduce pressures; (4) the Allegheny County Code requires
10 a water pressure regulator to be installed when the pressure exceeds 80 psi; (5) I
11 have not identified the number of customers whose pressure is over 125 psi or
12 explain any issues that have arisen due to or harm that has been caused by high
13 pressures; (6) there is no evidence of a pressure problem; (7) reducing pressures
14 over 125 psi is challenging due to the terrain and hills throughout the City and
15 requires funds for new pump stations, tank and piping; (8) PWSA is capturing
16 pressure inquiries in its work order logs; and (9) PA DEP Administrative Order
17 dated October 15, 2017 is involved in PWSA's low pressures.

18
19 **Q. WHAT IS YOUR RESPONSE TO MR. MCFADDIN'S POSITIONS?**

20 **A.** The following responses are in the same numerical order as Mr. McFaddin's
21 position noted above.

22 1. My acknowledgment that less than 5% of PWSA's customers have water
23 pressures above or below Commission's regulations is based on information

1 provided by PWSA.² Just less than 5% non-compliance is not an acceptable
2 standard.

3 2. Agreed; however PWSA's tariff can be revised and it should be noted that
4 PA DEP is not satisfied with PWSA's historic low pressures.³

5 3. Agreed that the tariff requires the customers to install and maintain a
6 pressure regulator to reduce pressures.

7 4. Agreed that the Allegheny County Code requires a water pressure regulator
8 to be installed when the pressure exceeds 80 psi.

9 5. Agreed that I have not identified the number of customers whose pressure
10 is over 125 psi or provided further details that have arisen due to or harm that
11 has been caused by high pressures; however, I have been unable to provide
12 those details because PWSA has not appropriately logged them. As I discussed
13 in my Direct Testimony, it is necessary to evaluate the pressure issue from a
14 complete Customer Complaint Log (that includes all pressure complaints) for
15 systems located in an area having terrain as Pittsburgh does.

16 6. Disagree that there is no evidence of a pressure problem. PA DEP has
17 identified areas having low pressure problems.⁴

18 7. Agreed that reducing pressures over 125 psi is challenging due to the
19 terrain and hills throughout the City and it will require funds for new pump
20 stations, tank and piping.

² OCA Statement 6, pg. 11.

³ OCA Statement 6, pg. 11.

⁴ OCA Statement 6, pg. 11.

1 8. Agreed PWSA is capturing pressure inquiries in its work order logs;
2 however, PWSA's work order logs files all customer complaints in a file for each
3 customer file instead of a complaint log. It appears that complaints are found by
4 using "key words" for each type of complaint.

5 9. Agreed that the PA DEP Administrative Order dated October 15, 2017 is
6 involved in PWSA's low pressures.

7
8 **Q. HAVE YOU CHANGED YOUR RECOMMENDATIONS REGARDING**
9 **PRESSURES AND PRESSURE SURVEYS?**

10 A. No. Just because the PWSA's tariff and Allegheny Code require customers to
11 install pressure regulators does not eliminate the need for utility oversight of high
12 pressures. The OCA has been accepting a complete complaint log instead of
13 pressure surveys for that utility oversight and to review pressure complaints.
14 PWSA should be required to submit pressure surveys for each pressure zone in
15 accordance with 52 Pa. Code § 65.6 until they provide a complete complaint log.

16
17 **MICROFILTRATION PLANT AND HIGHLAND RESERVOIR 1**

18 **Q. WHICH PWSA WITNESS PROVIDED REBUTTAL TESTIMONY REGARDING**
19 **THE MICROFILTRATION PLANT AND HIGHLAND RESERVOIR 1?**

20 A. PWSA witnesses Barry King, PWSA St. No. 4-R provided rebuttal testimony
21 regarding the Microfiltration Treatment Plant and covering Highland Reservoir 1.

1 **Q. WHAT IS MR. KING'S POSITION ON YOUR PROPOSAL TO COVER**
2 **HIGHLAND RESERVOIR 1 (HR1) IF THE CITY DOESN'T PAY FOR ALL**
3 **WATER TREATED BY THE MICROFILTRATION PLANT (MFP)?**

4 A. On pages 10 and 11 of his rebuttal testimony, Mr. King states that PWSA cannot
5 require the City to pay for the water treated at the MFP because: (1) prior to PWSA
6 coming under the regulation of the Commission, the decision was made to keep
7 HR 1 uncovered; (2) in the 2018 base rate case settlement, PWSA committed to
8 providing a cost-benefit analysis (Exhibit BK-5 attached to his Rebuttal Testimony)
9 of operating the MFP instead of covering and placing a physical barrier around
10 HR1; (3) in his Direct Testimony offered in support of PWSA's 2020 base rate
11 request, he detailed the importance of the MFP to the delivery of water supply and
12 explained that a decision of whether to cover HR1 is not one that can be made
13 based solely on costs; (4) the feasibility of covering the existing HR1 is not
14 reasonable in terms of constructability, water quality, and cost; and (5) I provided
15 no basis for reconsidering that decision now.

16
17 **Q. WHAT IS YOUR RESPONSE TO MR. KING'S POSITIONS?**

18 A. The following responses are in the same numerical order as Mr. King's position
19 noted above.

20 1. Mr. King provided no evidence that the decision to keep HR1 uncovered
21 cannot be changed.

22 2. Changes in the water system have been made since the memo included in
23 Exhibit BK-5 was drafted. Mr. King did not dispute that the Highland 1 service area

1 can be served by the pumping facilities at Highland Reservoir 2 when the on-going
2 construction is completed. Also, when some of the constant speed pumps in the
3 Bruecken Pumping Station that presently serve the Highland 1 service area with
4 Aspinwall Treatment Plant water are replaced with variable frequency (flow) drives,
5 both HR1 and MFP are no longer necessary for normal operation. HR1 is presently
6 filled when the flow from the constant speed Bruecken pumps exceed the water
7 demands of Highland 1 service area.

8 3. The importance of the MFP to the delivery of water supply will be greatly
9 reduced in the near future due to proposed variable frequency drives at the
10 Bruecken Pump Station that is budgeted to be completed in FY 2027, just one year
11 later than a new liner is budgeted for HR1. See Exhibit TLF-1SR.

12 4. Covering HR1 is just as reasonable as installing a new liner and continuing
13 to use the MFP. If covered, the Aspinwall water quality can be maintained in HR1
14 by pumping enough water from the MFP existing pump station to keep the water
15 fresh. It should be noted that the following problems in covering HR1, as noted in
16 the Exhibit BK-5 Memo, seem to have reasonable alternatives or are no longer
17 important: (1) uncertainties about the existing reservoir structural/physical
18 concrete conditions; (2) modifications needed to HR1's "dam-related" physical
19 elements; (3) hydraulics of pumping Aspinwall treated water from a covered HR1
20 is no different than pumping MFP treated water from an uncovered HR1; (4) water
21 quality can be addressed similar to the other three PWSA covered reservoirs; (5)
22 removing trees and vegetation from the embankment around a covered reservoir
23 is not different than for an uncovered reservoir; (6) regrading the embankment

1 slope would be the same for either a covered or uncovered reservoir; (7) public
2 acceptance; (8) PWSA is leaning towards replacing the three reservoirs with
3 structural tanks (but has relined and re-covered all three between 2018 and 2022).
4 It should be noted that a review of all PWSA construction contracts that started
5 after January 1, 2019 and budgeted for FY 2023 through 2027 does not show any
6 work at HR1 except for repairs to a parapet wall. See Exhibit TLF-2SR.

7 5. The above discussion should be enough to reconsider covering HR1 unless
8 the City decides to pay for all water treated at the MFP. Reconsideration should
9 include a neutral, third-party report of covering or not covering HR1 prior to relining
10 HR1.

11
12 **Q. WILL THE EXISTING HR1 RESERVOIR AND MFP HAVE ANY USE TO THE**
13 **PWSA WATER SYSTEM UPON COMPLETION OF THE HIGHLAND**
14 **RESERVOIR 2 PUMPING FACILITIES AND THE INSTALLATION OF**
15 **BRUECKEN VARIABLE FREQUENCY PUMPS?**

16 A. Not for normal operation including as a backing up for service to the Highland 1
17 service area. HR1 does contain 130.5 million gallons of water that may be useful
18 in some system wide emergencies. A covered reservoir containing Aspinwall
19 treated water would have the same benefits.

1 **Q. IF THE CITY DECIDES TO PAY FOR WATER TREATED BY THE MFP TO KEEP**
2 **HR1 UNCOVERED, HOW MUCH WATER WOULD THEY HAVE TO PAY FOR?**

3 A. I don't know, but it would only be for the amount of water needed to keep the MFP
4 in operating condition.

5

6 **OTHER ISSUES ADDRESSED BY MR. MCFADDIN**

7 **UNACCOUNTED FOR WATER (UFW)**

8 **Q. WHAT IS MR. MCFADDIN'S POSITION ON YOUR UFW TESTIMONY?**

9 A. On pages 2 and 3 of his rebuttal testimony, Mr. McFaddin states that: (1) PWSA
10 will eventually reduce reliance on the AWWA Audit defaults for estimating volumes
11 of water used for blow-offs and main flushing because it is already capturing better
12 information through the Spry Mobil application and (2) he expects that PWSA's
13 estimates will be lower than AWWA's defaults.

14

15 **Q. DO YOU AGREE WITH MR. MCFADDIN'S RESPONSE AND DOES THIS**
16 **RESOLVE YOUR CONCERNS IDENTIFIED IN DIRECT TESTIMONY?**

17 A. Yes.

18 **ISOLATION VALVES**

19 **Q. WHAT IS MR. MCFADDIN'S POSTION ON ISOLATION VALVES?**

20 A. On pages 7 and 8 of his rebuttal testimony, Mr. McFaddin states that: (1) PWSA
21 has developed and implemented a valve exercising program where all valves are
22 inspected and exercised on a 5-year cycle; (2) PWSA has identified critical valves

1 and expects to inspect and exercise critical valves on a 3-year cycle by the fourth
2 quarter of 2024; and (3) it is unnecessary to impose any additional obligations on
3 PWSA as part of this base case.

4
5 **Q. DO YOU AGREE WITH PWSA'S PLANS TO EXERCISE ISOLATION VALVES**
6 **AS STATED BY MR. MCFADDIN?**

7 A. Yes, and I hope PWSA will implement those plans as stated.

8
9 **METER TESTING AND REPLACEMENT**

10 **Q. WHAT IS MR. MCFADDIN'S POSTION ON METER TESTING AND**
11 **REPLACEMENT?**

12 A. On pages 8 and 9 of his rebuttal testimony, Mr. McFaddin states that: (1) PWSA
13 cannot test and replace 10,000 meters per year and is doing everything within its
14 power to achieve its target of 8,000 meters per year and (2) stated that factors
15 preventing PWSA from replacing 10,000 meters per year include getting into
16 customer's homes, debugging the ERP system (makes customer appointments),
17 supply chain problems and recruiting plumbers.

18
19 **Q. DO YOU AGREE WITH PWSA IS DOING ALL IT CAN TEST AND REPLACE**
20 **AND REPLACE CUSTOMER METERS?**

21 A. No. PWSA should consider contracting out the testing and replacing of the
22 additional 2,000 meters per year until its three plumbers on long-term leave return
23 to work.

1 **FLUSHING THE DISTRIBUTION SYSTEM**

2 **Q. WHAT IS MR. MCFADDIN'S POSTION ON LOCATING DEAD-END LINES AND**
3 **MAKING SURE THAT THEY HAVE A BLOW-OFF VALVE OR HYDRANT SO**
4 **THEY CAN BE FLUSHED?**

5 A. On pages 9 and 10 of his rebuttal testimony, Mr. McFaddin states that: (1) PWSA
6 is making every effort to identify, locate and track the dead-end lines; (2) due to
7 the topography of Pittsburgh many dead-end lines cannot be fixed; and (3) he does
8 not believe it is feasible to direct PWSA to do more than it is already doing.

9
10 **Q. DO YOU HAVE ANY COMMENTS ON MR. MCFADDIN'S POSITION?**

11 A. Yes. I recommend that PWSA submit a quarterly report to the Commission and
12 other parties on its progress in finding its dead-end lines, including identification of
13 those dead-end lines that the Authority does not believe can be fixed, and installing
14 a flushing device.

15 **FIRE HYDRANTS**

16 **Q. WHAT IS MR. MCFADDIN'S POSTION ON FIRE HYDRANTS THAT CANNOT**
17 **PROVIDE THE MINIMUM FIRE FLOW?**

18 A. On pages 10 and 11 of his rebuttal testimony, Mr. McFaddin states that: (1) PWSA
19 already marks these hydrants with a color-coded ring on the front nozzle that
20 identifies the flow; (2) it is up to the Pittsburgh Fire Department to decide whether
21 the color of the ring means that is should be used for a fire; and (3) this approach
22 has been working.

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Q. DO YOU AGREE WITH MR. MCFADDIN THAT THE PRESENT COLOR-CODING IS ACCEPTABLE AND THAT IT RESOLVES YOUR CONCERNS IDENTIFIED IN DIRECT TESTIMONY?

A. Yes.

COMPLAINT LOGS

Q. IS MR. MCFADDIN AWARE THAT THE PUC HAS A REQUIREMENT FOR A UTILITY TO KEEP A COMPLAINT LOG?

A. It is apparent from his rebuttal testimony that Mr. McFaddin was not aware that the PUC has a requirement for complaint logs. I am submitting the following Q & A for his information when he reviews this Surrebuttal Testimony.

Q. WHAT ARE THE PUC'S REQUIREMENTS FOR CUSTOMER COMPLAINTS?

A. According to 52 Pa. Code § 65.3. Complaints.

- (a) *Investigations.* A public utility shall make a full and prompt investigation of complaints made by the Commission or by others, including customers, relating to service or facilities.
- (b) *Records of complaints.* A public utility shall preserve for a period of at least 5 years, written service complaints showing the name and address of the complainant, the date and character of the complaint and the final disposition of the complaint.

1 **Q. WHAT IS MR. MCFADDIN'S POSTION ON WORK ORDER/COMPLAINT**
2 **LOGS?**

3 A. In his rebuttal testimony Mr. McFaddin states: (1) PWSA already captures the data
4 in the Spry Mobile application that I wished to receive but since I referred to a
5 "customer complaint log", this information was not produced; (2) a driver reporting
6 a missing manhole cover is not a complaint; (3) the best way forward is to rename
7 complaint logs as "Work Order Logs" and PWSA can provide data in the requested
8 categories; and (4) PWSA is already in the process of including the information
9 requested.

10

11 **Q. WHAT ARE YOUR RESPONSES TO MR. MCFADDIN'S COMMENTS?**

12 A. The following responses are in the same numerical order as Mr. King's position
13 noted above: (1) the PUC's regulations require the utility to keep a complaint log –
14 not a work order log; (2) the example of a driver reporting a missing manhole cover
15 is a complaint and it is important to track in a complaint log in order to know how
16 long it takes the utility to replace the lid because of safety issues; (3) the Spry
17 Mobile application may have many desirable features for an unregulated utility; but
18 is not very suitable for providing a Complaint Log for a utility regulated by the PUC;
19 (4) the additional information provided was not sortable by house number, street,
20 and zip code.

1 **Q. DID YOU TABULATE THE CONFIDENTIAL COMPLAINT INFORMATION**
2 **PWSA PROVIDED IN RESPONSE TO OCA SET V-30?**

3 A. Yes. Exhibit TLF-3SR is a non-confidential tabulation of the complaint information
4 PWSA provided in response to OCA Set V-30 that can be used as reference and
5 provide a template for a PWSA complaint log in future base rate cases.

6 **Q. WHAT DO YOU CONSIDER THE MAJOR PROBLEMS WITH USING SPRY**
7 **MOBILE APPLICATION FOR COMPLAINT LOGS?**

8 A. It is not complete and easily sortable by location.

9 PWSA submitted data on the complaint categories (issues) as shown on Exhibit
10 TLF-3SR and provided that information on an Excel spreadsheet; but it was not
11 sortable by house number, street, and zip code. It is my understanding that (1)
12 Spry Mobile was used to capture the information by “key words” for each category
13 (issue) that was stored in every customer’s file and (2) with great difficulty some
14 other method was used put that information into an Excel format for submission as
15 a complaint log.

16 The Spry Mobile complaint log is not complete because there are many other
17 consumer non-billing issues that have not been sorted by the “key words”.

18 Also, there may be a difference of opinion regarding what is or is not a complaint.

19
20 **Q. DO HAVE ANY SUGGESTIONS?**

21 A. Yes. If PWSA continues using Spry Mobile for developing a complaint log, it is
22 possible to reduce the number of Categories that need to be sorted by house

1 number, street, and zip code; but all other non-billing customer interaction must be
2 made available for sorting by other “key words” in some readily available format.

3 **PUBLIC INPUT HEARING TESTIMONY**

4 **Q. DID YOU REVIEW MS. MECHLING’S REBUTTAL TESTIMONY REGARDING**
5 **PWSA’S RESPONSES TO WITNESS TESTIMONY AT THE PUBLIC INPUT**
6 **HEARINGS?**

7 A. Yes. PWSA’s responses were acceptable.

8

9 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

10 A. Yes. I reserve the right to revise this testimony if new or newly discovered
11 information becomes available.

**Exhibit TLF-1SR
(2023 Project Summary)**



2023-2027 Project Summary



Water Pumping and Storage

Bruecken Pump Station Improvements

PROJECT NUMBER: 2017-323-106-0

DSIC Eligible: No

PHASE: Construction – Project Close
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems.
PROJECT JUSTIFICATION: The pump station was constructed in 1931. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff. Additionally, installation of variable frequency drives will reduce water pressure surges during start-up, allow the pumps to operate more efficiently over a wide range of flow demands, and will reduce the required size of the new Clearwell.
RISK(S): Exposes PWSA to higher capital costs to address emergency facility failures and its customers to a potentially deficient water supply.
IMPACT ON OPERATIONS: Increased operating efficiency, flexibility, reliability, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$8,653,054	\$30,991,126	\$30,991,126	\$31,037,546	\$5,188,398	\$106,861,250	WIFIA/PENN VEST

Water Pumping and Storage

Highland 1 Reservoir Liner

PROJECT NUMBER: 2026-300-100-0

DSIC Eligible: No

PHASE: Not Started – Project Close
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Replacement of existing Highland 1 Reservoir liner.
PROJECT JUSTIFICATION: The reservoir liner is past it's useful design life and is in need of replacement.
RISK(S): Failure to replace the liner could result an emergency repairs or replacement.
IMPACT ON OPERATIONS: Increased operating efficiency, flexibility, reliability, and life expectancy,.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$0	\$0	\$704,981	\$0	\$704,981	Debt (Revenue Bonds)

**Exhibit TLF-2SR
(Response to OCA XII-1)**

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XII (12)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

- Request: OCA-XII-1** Please provide the following information on PWSA projects:
- A. Authority Construction projects started and completed since January 1, 2019
 - B. Authority Construction projects started since January 1, 2019 but still uncompleted.

Response: See below, if a project has been Board approved for award, then it is included response to Part B.

- A. Authority Construction projects started and completed since January 1, 2019
- Other
 - 2019 Surface Restoration Contract -1
 - 2019 Surface Restoration Contract -2
 - 2020 Surface Restoration (Capital) - Mele & Mele
 - 2020 Surface Restoration (Capital)- A. Folino
 - 2020 Surface Restoration (Operations) - A. Folino
 - 2020 Surface Restoration (Operations) - A. Liberoni
 - 2021 Surface Restoration (Operations) - Independent
 - 2021 Surface Restoration (Operations) Mele&Mele
 - 2022 Surface Restoration (Operations) - A. Folino
 - 2022 Surface Restoration (Operations) - Mele & Mele
 - Stormwater
 - 2019 Catch Basin and Inlet Replacement- A. Folino
 - 2019 Catch Basin and Inlet Replacement- Zottola
 - 2020 Catch Basin and Inlet Replacement - A. Folino
 - 2020 Catch Basin and Inlet Replacement - M. Facchiano
 - 2022 Catch Basin and Inlet Replacement
 - Fleury Way Stormwater Infrastructure Improvements -Capital
 - Lawn and Ophelia Green Infrastructure
 - Maryland Avenue Green Infrastructure
 - Nobles Lane Stormsystem Improvements- Capital
 - Phillips Park Green Infrastructure
 - SMR Streambank Stabilization Project
 - Thomas Boulevard & McPherson Boulevard Green Infrastructure
 - Volunteers Field Ballfield Regrading
 - Wightman Park Phase 1 Project
 - Wightman Park Phase 2 Project
 - Winchester Drive at Grovemount Stormsystem Improvements-Capital
 - Woodland Road Green Infrastructure
 - Woods Run Stream Inflow - Phase 1
 - Wastewater
 - 2016 Forbes/Darlington
 - 2018 Sewers Under Structures - Phase 1
 - 2019 Manhole and Point Repair
 - 2019 Sewer Reconstruction
 - 2019 Small Diameter Sewer Rehabilitation
 - 2019 Small Diameter Sewer Rehabilitation (IDIQ)

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XII (12)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

2019 Small Diameter Sewer Rehabilitation Contract 2 - Brownsville
Road Storm Sewer
2019 Urgent Sewer Repair
2019 Urgent Sewer Repair A. Merante
2020 Large Diameter Sewer Rehabilitation
2020 Manhole and Point Repair
2020 Sewer Reconstruction
2020 Small Diameter Sewer Rehabilitation - Contract 1
2020 Urgent Sewer Repair Contract - A. Folino
2020 Urgent Sewer Repair Contract - Independent
2021 ALCOSAN Regionalization Sewer Repairs
2021 Manhole and Point Repair
2021 Sewer Reconstruction
2021 Small Diameter Sewer Rehabilitation - Contract 3
2021 Small Diameter Sewer Rehabilitation (IDIQ)
2021 Urgent Sewer Repair Contract - Independent Enterprise
2021 Urgent Sewer Repair Contract -M. O Herron
2022 Small Diameter Sewer Rehabilitation (IDIQ)
2022 Urgent Sewer Repair- Independent
2022 Urgent Sewer Repair -M.O'herron
31st Ward Sewer Rehabilitation and Separation
31st Ward Sewer Rehabilitation and Separation Project - Nollhill
Street
6122 and 6150 Mifflin Road Demolition
Ivyglen and Odette Sewer Reconstruction
M-29 Outfall Improvements

Water Distribution
System

2019 Large Diameter Water Main Improvements - Rising Main 3
2019 Lead Service Line Replacement Program (Independent)-1
2019 Lead Service Line Replacement Program (Petraakis) -2
2019 Lead Service Line Replacement Program (Zottola) -3
2019 Small Diameter Water Main Replacement - Mele & Mele
2019 Small Diameter Water Main Replacement - Second Ave &
Tecumseh St
2019 Urgent Water - Independent
2019 Urgent Water Repair
2019 Valve Replacement
2019 Water Relay
2020 Lead Service Line Identification Program Project
2020 Small Diameter Water Main Replacement - Zotolla
2020 Small Diameter Water Main Replacement -Folino
2020 Urgent Water Repair Contract - A. Folino
2020 Urgent Water Repair Contract - Independent
2020 Valve Replacement

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XII (12)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

	2020 Water Relay
	2021 Urgent Water Repair Contract - Folino
	2021 Urgent Water Repair Contract - Independent Enterprise
	2021 Valve Replacement
	2022 Priority LSLR
	2022 Urgent Water Repair Contract- Folino
	2022 Urgent Water Repair Contract- Independent
	2022 Valve Replacement
	2022 Water Relay
	Bates Street Relay Project
	District Water and Pressure Meters - A. Folino
	Ft. Duquesne Bridge Water Air Release Valve Repair
Water Pumping and Storage	Highland No. 2 Reservoir Liner and Cover Replacement
	Highland No. 2 Reservoir Liner and Cover Replacement - Electrical
	Highland Reservoir #1 Parapet Wall Repairs
	Lanpher Supply Main Leak Assessment and Repair
Water Treatment Plant	Aspinwall Utility Water Improvements - Electrical
	Aspinwall Utility Water Improvements - General/Mechanical
	Aspinwall WTP Filter Building Sodium Hypochlorite Improvements - Plumbing
	Emergency Clarifier Repairs - Clarifiers No. 1, 2 & 4
	Powdered Activated Carbon System Improvements - Electrical
	Powdered Activated Carbon System Improvements - General/Mechanical
	WTP Sodium Hypochlorite Tank Emergency Replacement
B.	Authority Construction projects started since January 1, 2019 but still uncompleted
Other	2023 Surface Restoration (Operations) - A. Folino
	2023 Surface Restoration (Operations) - Mele & Mele
Stormwater	2023 Catch Basin and Inlet Replacement (A. Merante)
	2023 Catch Basin and Inlet Replacement (Facchiano)
Wastewater	2020 Small Diameter Sewer Rehabilitation (Defined Sites) Contract 2
	2021 Small Diameter Sewer Rehabilitation - Contract 1
	2021 Small Diameter Sewer Rehabilitation - Contract 2
	2022 Sewer Reconstruction
	2022 Small Diameter Sewer Rehabilitation - Contract 1
	2022 Small Diameter Sewer Rehabilitation - Contract 2
	2023 Manhole and Point Repair Contract
	2023 Sewer Reconstruction
	2023 Small Diameter Sewer Rehabilitation IDIQ
	2023 Urgent Sewer Repair – Independent
	2023 Urgent Sewer Repair - M. O'Herron

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XII (12)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Water Distribution System	Queenston Sewer Improvements 2019 Large Diameter Water Main Improvements - Rising Main 4 2021 Small Diameter Water Main Replacement - Contract B 2021 Small Diameter Water Main Replacement - Contract C 2022 Neighborhood Lead Service Line Replacement Program 2022 Small Diameter Water Main Replacement - Contract B 2022 Small Diameter Water Main Replacement - Contract C 2022 Urgent Lead Service Line Replacement 2023 Neighborhood LSLR 2023 Urgent Lead Service Line Replacement 2023 Urgent Water Repair – Independent 2023 Urgent Water Repair -Mele and Mele 2023 Valve Replacement 2023 Water Relay Bus Rapid Transit (BRT) Water Distribution Improvements Water and Wastewater Safety and Security Improvements
Water Pumping and Storage	Bruecken Pumps No. 4, 5 & 7 Starter Replacements Herron Hill Reservoir Improvements Herron Hill Reservoir Improvements: Sodium Hypochlorite Building – Electrical Herron Hill Reservoir Improvements: Sodium Hypochlorite Building – General Herron Hill Reservoir Improvements: Sodium Hypochlorite Building – HVAC Herron Hill Reservoir Improvements: Sodium Hypochlorite Building – Plumbing Highland Reservoir Pump Station Supply and Rising Mains Project Lincoln Pump Station: Bypass Pump Station Project – Electrical Lincoln Pump Station: Bypass Pump Station Project – General
Water Treatment Plant	Aspinwall WTP Filter Building Sodium Hypochlorite Improvements – Electrical Aspinwall WTP Filter Building Sodium Hypochlorite Improvements - General/Mechanical Aspinwall WTP Filter Building Sodium Hypochlorite Improvements – HVAC Corrosion Control Chemical Storage & Feed Systems

Response Provided by: Barry King, PE, Director of Engineering
Kate Mechler, P.E., Deputy Director of Engineering

Dated: July 7, 2023



2023-2027 Project Summary



Page	Project Name	2023 Budget	2024 Budget	2025 Budget	2026 Budget	2027 Budget	Total
11	Algae Control for Open Basins	\$360,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$360,000.00
12	Aspinwall Water Treatment Plant Electrical and Backup Power Improvements	\$0.00	\$866,981.00	\$1,087,515.00	\$7,794,745.00	\$14,874,582.00	\$24,623,823.00
13	Aspinwall Water Treatment Plant Filter Improvements	\$123,706.90	\$164,942.53	\$246,599.62	\$1,208,045.99	\$1,006,704.99	\$2,750,000.02
14	Aspinwall Water Treatment Plant Filter Building Sodium Hypochlorite Improvements	\$3,222,924.72	\$0.00	\$0.00	\$0.00	\$0.00	\$3,222,924.72
15	Aspinwall Water Treatment Plant Raw Water Intakes - East Intake	\$0.00	\$465,000.00	\$1,116,000.00	\$756,000.00	\$36,000.00	\$2,373,000.00
16	Aspinwall Water Treatment Plant Raw Water Intakes - West Intake	\$469,736.84	\$1,127,368.42	\$767,368.42	\$5,747,368.42	\$8,597,368.42	\$16,709,210.53
17	Chemical Feed Modernization Project/Rapid Mix and Clarifier Improvements	\$1,252,063.75	\$2,789,028.23	\$2,936,058.88	\$16,350,331.00	\$19,072,483.58	\$42,399,965.45
18	Clearwell Emergency Response Project	\$2,741,630.73	\$7,408,660.00	\$7,408,660.00	\$7,408,660.00	\$1,234,457.00	\$26,202,067.73
19	Clearwell Improvements	\$4,293,312.12	\$2,448,008.62	\$1,077,717.51	\$1,077,717.51	\$16,708,182.43	\$23,664,938.19
20	Corrosion Control Chemical Storage & Feed Systems	\$50,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50,000.00
21	Highland Park Membrane Filtration Plant Assessments and Critical Process Improvements	\$150,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$150,000.00
22	Highland Park Microfiltration Plant Improvements Project	\$14,128.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14,128.00
23	Hydraulic Valve Replacement Program	\$89,942.53	\$302,298.85	\$2,144,252.89	\$713,505.75	\$0.00	\$3,250,000.02
24	Line Slurry System Improvements	\$756,079.00	\$3,548,360.00	\$1,182,787.00	\$0.00	\$0.00	\$5,487,226.00
25	Overhead Crane Modernization	\$0.00	\$375,000.00	\$440,000.00	\$0.00	\$0.00	\$815,000.00
26	Phase 1 Sedimentation Basin Rehabilitation and Water Treatment Plant Gate Valve and 84-inch Coupling Project	\$224,921.63	\$299,895.51	\$448,362.94	\$2,196,447.25	\$1,830,372.70	\$5,000,000.03
27	Phase 2 Sedimentation Basin Rehabilitation Project	\$0.00	\$0.00	\$0.00	\$562,304.08	\$749,738.77	\$1,312,042.85
28	Post-Filter Chemical System Improvements	\$0.00	\$0.00	\$0.00	\$607,288.41	\$809,717.87	\$1,417,006.28
29	Powdered Activated Carbon System Improvements	\$40,588.77	\$0.00	\$0.00	\$0.00	\$0.00	\$40,588.77
30	Ross Pump Station	\$0.00	\$1,249,655.17	\$2,499,310.34	\$1,299,310.34	\$13,232,110.34	\$18,280,386.21
31	Sludge Chamber Pump Project	\$386,721.63	\$869,343.78	\$0.00	\$0.00	\$0.00	\$1,256,065.41
32	Water Treatment Plant Filter Backwash System Improvements	\$740,054.00	\$883,290.00	\$2,996,022.00	\$8,880,634.00	\$0.00	\$13,500,000.00
33	Water Treatment Plant Filter Building Roof	\$0.00	\$3,500,000.00	\$0.00	\$0.00	\$0.00	\$3,500,000.00
34	Water Treatment Plant HVAC Improvements	\$0.00	\$163,333.00	\$358,333.00	\$858,333.00	\$0.00	\$1,379,999.00
35	Water Treatment Plant NPDES Permit Autosamplers and Flow Meters	\$164,400.00	\$124,500.00	\$0.00	\$0.00	\$0.00	\$288,900.00
36	Water Treatment Plant Rail Siding Improvements	\$800,000.00	\$300,000.00	\$300,000.00	\$300,000.00	\$300,000.00	\$2,000,000.00
37	WTP Sodium Hypochlorite Tank Emergency Replacement	\$150,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$150,000.00
38	Water Treatment Plant Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Total: Water Treatment Plant	\$16,030,210.63	\$26,885,665.11	\$24,038,987.61	\$54,790,690.74	\$78,451,718.12	\$200,197,272.21

Project Name	2023 Budget	2024 Budget	2025 Budget	2026 Budget	2027 Budget	Total	
40	Aspinwall Pump Station Improvements	\$4,748,965.78	\$15,197,171.56	\$15,197,171.56	\$15,227,973.56	\$2,548,262.93	\$52,919,545.37
41	Aspinwall Pump Station to Lanpher Reservoir Rising Main	\$2,147,166.98	\$29,622,031.14	\$44,331,726.56	\$44,331,726.56	\$14,777,242.19	\$135,209,893.42
42	Aspinwall WTP Chemical Unloading Area Improvements, Underground Storage Tank Removal & Replacement	\$1,352,161.22	\$0.00	\$0.00	\$0.00	\$0.00	\$1,352,161.22
43	Bruecken Pump Station Concealed Gutters	\$0.00	\$175,000.00	\$0.00	\$0.00	\$0.00	\$175,000.00
44	Bruecken Pump Station Improvements	\$8,653,054.00	\$30,991,126.00	\$30,991,126.00	\$31,037,546.00	\$5,188,398.00	\$106,861,250.00
45	Chlorine Booster Station Improvements	\$311,268.79	\$6,436,147.83	\$7,007,549.12	\$583,962.43	\$0.00	\$14,338,928.16
46	Disinfection By-Products Mitigation	\$5,183,170.61	\$1,426,705.77	\$0.00	\$0.00	\$0.00	\$6,609,876.38
47	Garfield Tank Improvements	\$0.00	\$122,198.00	\$244,397.00	\$314,224.00	\$2,246,121.00	\$2,926,940.00
48	Herron Hill Pump Station Improvements	\$409,195.41	\$818,390.81	\$496,551.73	\$12,275,862.15	\$0.00	\$14,000,000.09
49	Herron Hill Reservoir Improvements	\$198,631.00	\$0.00	\$0.00	\$0.00	\$0.00	\$198,631.00
50	Herron Hill Reservoir Improvements - Sodium Hypochlorite Building	\$828,429.11	\$0.00	\$0.00	\$0.00	\$0.00	\$828,429.11
51	Herron Hill Tank Pump Station Improvements	\$0.00	\$164,077.30	\$195,528.61	\$1,320,197.05	\$0.00	\$3,000,000.02
52	Highland 1 Reservoir Liner	\$0.00	\$0.00	\$0.00	\$704,981.00	\$0.00	\$704,981.00
53	Highland No. 2 Reservoir Liner and Cover Replacements	\$2,122,235.00	\$6,515,354.50	\$4,072,096.57	\$0.00	\$0.00	\$12,709,686.07
54	Highland Reservoir Pump Station and Rising Main	\$23,789,287.16	\$14,537,145.09	\$8,983,409.85	\$0.00	\$0.00	\$47,309,842.10
55	Howard Pump Station Improvements	\$0.00	\$0.00	\$577,266.93	\$1,154,533.85	\$694,763.73	\$2,426,564.51
56	Inline Pump Station (Coral and Pacific) Improvements	\$0.00	\$32,979.66	\$39,434.13	\$264,367.82	\$263,218.39	\$600,000.00

Project Class: Water Pumping and Storage Cont.									
57	Laipher Reservoir Improvements	\$2,778,963.09	\$6,370,326.38	\$3,716,023.72	\$0.00	\$0.00	\$0.00	\$0.00	\$12,865,313.19
58	Lincoln Pump Station Improvements	\$288,633.46	\$2,109,323.13	\$1,258,748.41	\$0.00	\$0.00	\$0.00	\$1,054,661.57	\$5,000,000.03
59	Lincoln Pump Station: Bypass Pump Station Project	\$2,155,907.00	\$2,164,264.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,320,171.00
60	Lincoln Tank Improvements	\$337,528.74	\$203,588.76	\$3,680,670.52	\$0.00	\$0.00	\$0.00	\$0.00	\$4,221,788.02
61	Mission Pump Station Improvements	\$0.00	\$0.00	\$577,267.00	\$1,154,534.00	\$2,500,000.00	\$694,764.00	\$0.00	\$2,426,565.00
62	Pump Station Architectural	\$0.00	\$0.00	\$0.00	\$192,422.00	\$2,500,000.00	\$288,633.00	\$0.00	\$2,500,000.00
63	Saline Pump Station Improvements	\$0.00	\$0.00	\$122,669.00	\$73,819.00	\$933,589.00	\$0.00	\$0.00	\$481,055.00
64	Spring Hill Tank Improvements	\$0.00	\$62,335.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,192,412.00
65	Water Pumping and Storage Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Water Pumping and Storage		\$55,304,597.34	\$115,127,475.27	\$121,491,636.70	\$113,245,472.55	\$30,009,850.86	\$435,179,032.71		

Project Class: Water Distribution									
67	2019 Large Diameter Water Main Improvements - Rising Main 3/4	\$3,062,142.13	\$240,769.90	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,302,912.04
68	2019 Large Diameter Water Main Improvements - Rising Main 4	\$12,529,326.00	\$4,176,441.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16,705,767.00
69	Bus Rapid Transit Water Distribution	\$1,500,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,500,000.00
70	District Metering Program	\$0.00	\$0.00	\$2,600,000.02	\$3,380,000.02	\$3,380,000.02	\$0.00	\$0.00	\$9,360,000.06
71	Hazelwood Backup Feed (formerly Duck Hollow Main Replacement)	\$175,156.10	\$175,156.10	\$1,115,470.61	\$1,534,487.21	\$0.00	\$0.00	\$0.00	\$3,000,270.02
72	Herron Hill - Squirrel Hill Boundary Adjustments	\$0.00	\$0.00	\$52,928.57	\$355,186.81	\$635,884.62	\$0.00	\$0.00	\$1,044,000.00
73	Interconnection Vault Stormwater Removal	\$453,007.96	\$1,225,931.03	\$611,310.34	\$0.00	\$0.00	\$0.00	\$0.00	\$2,290,249.34
74	Intermediate Diameter Water Main Replacement Program	\$143,076.92	\$84,307.69	\$86,538.46	\$4,488,230.43	\$42,775,187.01	\$87,000.00	\$0.00	\$49,867,250.52
75	Intermediate Meter Replacement Program	\$2,980,665.80	\$4,820,095.96	\$23,316,701.96	\$38,087,876.89	\$33,256,579.29	\$0.00	\$0.00	\$102,461,919.89
76	Large Diameter Water Main Replacement Program	\$1,557,508.32	\$1,341,456.69	\$567,307.69	\$337,000.00	\$337,000.00	\$0.00	\$0.00	\$4,140,272.71
77	Large Meter Replacement Program	\$0.00	\$0.00	\$23,277.57	\$279,330.90	\$1,393,833.02	\$0.00	\$0.00	\$1,696,441.49
78	Low Pressure Area Remediation	\$13,582,757.48	\$27,792,500.00	\$55,585,000.00	\$27,792,500.00	\$0.00	\$0.00	\$0.00	\$124,752,757.48
79	Neighborhood Lead Service Line Replacement Program	\$0.00	\$0.00	\$79,392.86	\$532,780.22	\$953,826.92	\$0.00	\$0.00	\$1,566,000.00
80	North Side Boundary Adjustments	\$3,000,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,000,000.00
81	Priority LSLR	\$400,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$400,000.00
82	Private Lead Service Line Reimbursement	\$378,494.08	\$1,839,360.70	\$3,446,738.96	\$4,173,179.80	\$3,439,080.48	\$0.00	\$0.00	\$13,276,854.01
83	Regulator Valve and Vault Replacement Program	\$83,515,128.68	\$75,057,893.92	\$7,763,375.00	\$53,807,131.41	\$89,408,775.74	\$0.00	\$0.00	\$359,552,304.75
84	Small Diameter Water Main Replacement Program	\$1,723,171.54	\$1,351,089.38	\$480,769.23	\$250,000.00	\$291,667.00	\$0.00	\$0.00	\$4,096,697.15
85	Small Meter Replacement Program	\$0.00	\$0.00	\$79,392.86	\$532,780.22	\$953,826.92	\$0.00	\$0.00	\$1,566,000.00
86	South Side Slopes Boundary Adjustments	\$327,250.00	\$635,250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$962,500.00
87	Unmetered and Flat Rate Properties	\$1,778,653.60	\$1,749,194.10	\$1,670,085.73	\$1,590,751.08	\$1,246,677.20	\$0.00	\$0.00	\$8,035,361.70
88	Urgent Lead Service Line Replacement	\$2,505,485.32	\$2,800,000.00	\$2,674,358.97	\$2,800,000.00	\$2,925,641.03	\$0.00	\$0.00	\$13,705,485.32
89	Valve Replacement Program	\$1,567,547.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,567,547.00
90	Water and Wastewater Safety and Security Improvements	\$2,150,000.00	\$2,150,000.00	\$2,712,307.69	\$3,254,769.23	\$3,440,140.58	\$0.00	\$0.00	\$9,978,156.00
91	Water and Wastewater Safety and Security Improvements (Pennvest)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
92	Water Relay Program	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
93	Water Distribution Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Water Distribution		\$143,302,526.93	\$125,439,446.48	\$155,468,789.61	\$143,283,004.22	\$184,525,119.82	\$752,018,887.06		

Project Class: Wastewater System									
95	31st Ward Pump Station and Appurtenances - Phase 2	\$958,333.00	\$726,666.67	\$613,666.67	\$7,447,000.00	\$7,447,000.00	\$0.00	\$0.00	\$17,192,666.33
96	6122 and 6150 Mifflin Road Demolition	\$50,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50,000.00
97	Browns Hill Road Sewer Pump Station Replacement	\$432,000.00	\$1,608,000.00	\$1,880,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,920,000.00
98	Large Diameter Sewer Rehabilitation Program	\$12,774,486.37	\$2,997,238.10	\$4,266,000.00	\$4,897,000.00	\$4,957,000.00	\$0.00	\$0.00	\$29,891,724.46
99	M-29 Outfall Improvements	\$250,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$250,000.00
100	Mayhild Storm and Sanitary Sewer System Improvements	\$118,026.95	\$4,026,497.00	\$1,957,785.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6,102,308.95
101	Queenston Sewer Improvements	\$2,210,550.00	\$243,203.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,453,753.00
102	Sewer Reconstruction Program	\$2,691,769.00	\$1,810,000.00	\$1,810,000.00	\$1,886,458.21	\$2,701,329.79	\$0.00	\$0.00	\$10,899,357.00
103	Sewers Under Structures Program	\$6,786,029.94	\$2,373,663.24	\$2,422,730.16	\$3,530,382.94	\$3,386,507.35	\$0.00	\$0.00	\$18,499,313.62
104	Small Diameter Sewer Rehabilitation Program	\$24,363,045.00	\$17,657,219.00	\$14,629,597.00	\$27,990,467.53	\$36,426,240.26	\$0.00	\$0.00	\$121,066,568.79
105	Wastewater Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Wastewater System		\$50,634,240.26	\$31,442,487.00	\$27,579,778.83	\$45,751,308.67	\$54,918,077.41	\$210,325,892.16		

Project Class: Stormwater									
107	Braywood Stormwater Improvements	\$434,625.00	\$439,375.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$874,000.00
108	Bus Rapid Transit Phase 2	\$0.00	\$500,000.00	\$500,000.00	\$500,000.00	\$0.00	\$0.00	\$0.00	\$1,500,000.00
109	Bus Rapid Transit Stormwater Infrastructure Improvements	\$71,382.00	\$785,634.29	\$703,637.86	\$0.00	\$0.00	\$0.00	\$0.00	\$1,560,654.15
110	Catch Basin and Inlet Replacement Program	\$11,539,876.64	\$16,007,303.03	\$14,436,109.17	\$14,867,220.83	\$15,308,750.00	\$0.00	\$0.00	\$72,159,259.67
111	Dragon Way Stormwater Improvements	\$983,000.00	\$95,625.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,078,625.00
112	Fleury Way Stormwater Infrastructure Improvements	\$476,212.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$476,212.00
113	Four Mile Run Stormwater Infrastructure Improvements	\$645,557.00	\$4,500,108.00	\$8,723,924.00	\$6,171,203.00	\$0.00	\$0.00	\$0.00	\$20,040,792.00
114	Haverhill Street Improvements Project	\$1,003,900.00	\$104,500.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,108,400.00
115	Lawn and Ophelia	\$203,741.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$203,741.00
116	Marin Luther King Field Stormwater Infrastructure Improvements	\$3,096,867.00	\$1,324,108.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,420,975.00
117	Maryland Avenue Stormwater Infrastructure Improvements	\$6,925.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6,925.00
118	MS4 Permit PRP Plan Sediment Reduction Project	\$173,000.00	\$605,000.00	\$307,500.00	\$0.00	\$1,500,000.00	\$0.00	\$0.00	\$1,085,500.00
119	Saw Mill Run Municipal Separate Storm Sewer System Compliance	\$0.00	\$0.00	\$500,000.00	\$1,500,000.00	\$0.00	\$0.00	\$0.00	\$3,500,000.00
120	Saw Mill Run Watershed Improvements	\$850,000.00	\$150,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000,000.00
121	Southside Flats Sewer Separation	\$3,327,529.00	\$2,232,587.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5,560,116.00
122	Southside Stormwater Infrastructure Improvements	\$2,029,140.00	\$2,703,667.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,732,807.00
123	Stewart Avenue Stormwater Infrastructure Project	\$1,400,000.00	\$1,515,389.00	\$894,444.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,809,833.00
124	Thomas and McPherson Stormwater Infrastructure Improvements	\$854,905.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$854,905.13
125	Volunteer's Field Stormwater Infrastructure Improvements	\$413,125.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$413,125.42
126	Wet Weather Program Projects	\$500,000.00	\$2,500,000.00	\$10,000,000.00	\$10,000,000.00	\$10,000,000.00	\$0.00	\$0.00	\$33,000,000.00
127	Wightman Park Phase 2 Project	\$182,166.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$182,166.00
128	Woodland Road Stormwater Infrastructure Improvements	\$245,256.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$245,256.31
129	Woods Run Stream Removal Stormwater Infrastructure Improvements	\$1,385,724.66	\$1,364,127.00	\$819,206.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,569,057.66
130	Stormwater Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Stormwater		\$29,822,932.16	\$34,827,423.32	\$36,884,821.02	\$33,038,423.83	\$26,808,750.00	\$0.00	\$0.00	\$161,382,350.34

Project Class: Miscellaneous									
132	2023 Capital Project Reclassification	\$8,639,316.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$8,639,316.00
133	New Headquarters and Operations Facility	\$2,500,000.00	\$15,000,000.00	\$32,500,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50,000,000.00
134	Utility Cost Shares	\$300,000.00	\$500,000.00	\$500,000.00	\$500,000.00	\$500,000.00	\$0.00	\$0.00	\$2,300,000.00
135	Miscellaneous Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Miscellaneous		\$11,439,316.00	\$15,500,000.00	\$33,000,000.00	\$500,000.00	\$500,000.00	\$0.00	\$0.00	\$60,939,316.00

**Exhibit TLF-3SR
(PWSA Complaint Log)**

PWSA Complaint Log Summary 2022 through August 2023

(PWSA Responses to OCA Set V-30)

Issue	Year 2,022	Year 2,023
Water System		
No Water	220	119
Discolored Water	9	7
Low Pressure	135	72
Lead Service Line Replacement	606	312
Material Ver	8,576	5,238
Main Breaks	616	332
Service Line Leaks Frozen	81	46
Meters	9,356	6,704
Curb Stop Inop	901	742
Locate	48	20
Curb Box Leak	77	46
Defect	97	97
Non Access	809	1,575
Total Water	21,531	15,310
Wastewater System		
Surcharge	Not Listed	12
Customer Sewer Backups	323	144
Sewer Line Breaks	84	32
Sewer Line Jetting	219	77
Sewer Odor	64	35
TV Sewer Line	618	323
Repair Catch Basins	48	25
Clean Basins	2,058	1,158
Collapse	20	7
CSO (Combined Sewer Overflow)	19	5
Misc	72	55
Restoration	151	1,820
Sinkholes	372	179
Lids	218	151
Undermine	26	17
Problems	56	2,753
Dye Testing	14	4
Total Wastewater	4,362	6,797
Stormwater System		
Investigate Lid	127	49

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION


Pennsylvania Public Utility Commission : Docket Nos. R-2023-3039919 (SW)
v. : R-2023-3039920 (W)
Pittsburgh Water and Sewer Authority : R-2023-3039921 (WW)

VERIFICATION

I, Terry L. Fought, hereby state that the facts set forth in my Surrebuttal Testimony, OCA Statement 6SR, are true and correct (or are true and correct to the best of my knowledge, information, and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

DATED: September 22, 2023

Signature:



Terry L. Fought

Consultant Address: 780 Cardinal Drive
Harrisburg, PA 17111
4889-4325-4144, v. 1

OSBA Hearing Exhibit List & Testimony to be Admitted on the Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
	:	
	:	
	:	
	:	
Petition of the Pittsburgh Water and Sewer Authority for Authorization to Implement a Customer Assistance Charge	:	Docket No. P-2023-3040578
	:	
	:	
	:	
Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
	:	
	:	
	:	

LIST OF EVIDENCE TO BE ADMITTED INTO THE EVIDENTIARY RECORD BY THE OFFICE OF SMALL BUSINESS ADVOCATE

The Office of Small Business Advocate (“OSBA”) intends to admit the following evidence into the evidentiary record in the above-captioned proceeding at the evidentiary hearings currently scheduled for October 4th, 2023 through October 6th, 2023:

- **DIRECT TESTIMONY**: OSBA Direct Testimony and Exhibits of Kevin Higgins labelled as OSBA Statement No. 1, including 21 pages of Testimony and Exhibits KCH-1 through KCH-4 and Mr. Higgins’ signed verification.
- **REBUTTAL TESTIMONY**: OSBA Surrebuttal Testimony of Kevin Higgins, labeled as OSBA Statement No. 1-R, including four pages of Testimony and Mr. Higgins signed verification .
- **SURREBUTTAL TESTIMONY**: OSBA Surrebuttal Testimony of Kevin Higgins labeled as OSBA Statement No. 1-S, including five pages of Testimony and Mr. Higgins signed verification .

OSBA Hearing Exhibit List & Testimony to be Admitted on the Record

The evidence listed is enclosed herein and included as part of **OSBA HEARING EXHIBIT & TESTIMONY TO BE ADMITTED ON THE RECORD.**

Sharon E. Webb
Assistant Small Business Advocate
Commonwealth of Pennsylvania
Office of Small Business Advocate
Forum Place
555 Walnut Street, 1st Floor
Harrisburg, PA 17101
(717) 783-2525
(717) 783-2831 (fax)
swebb@pa.gov

Dated: October 2, 2023



COMMONWEALTH OF PENNSYLVANIA

August 9, 2023

The Honorable Gail Chiodo
Administrative Law Judge
Pennsylvania Public Utility Commission
400 North Street
Commonwealth Keystone Building
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority / Docket Nos. R-2023-3039920 (Water); R-2023-3039921 (Wastewater); R-2023-3039919 (Stormwater) & Pittsburgh Water and Sewer Authority's Petition to Implement Customer for Assistance Charge / Docket No. P-2023-3040578 & Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5% / Docket Nos. P-2023-3040734 (Water) P-2023-3040735 (Wastewater)

Dear Judge Chiodo:

Enclosed please find the Direct Testimony and Exhibits of Kevin C. Higgins, labeled OSBA Statement No. 1, on behalf of the Office of Small Business Advocate ("OSBA"), in the above-captioned proceedings.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Sharon E. Webb

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995

Enclosures

cc: PA PUC Secretary Rosemary Chiavetta (Cover Letter & Certificate of Service only)
Brian Kalcic
Kevin Higgins
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
	:	
	:	
	:	
	:	
Petition of the Pittsburgh Water and Sewer Authority for Authorization to Implement a Customer Assistance Charge	:	Docket No. P-2023-3040578
	:	
	:	
	:	
Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
	:	
	:	
	:	

OSBA STATEMENT NO. 1

Direct Testimony of Kevin C. Higgins

on behalf of the

Pennsylvania Office of Small Business Advocate

Topics:

Revenue Requirement Adjustments for Workforce Expense and Inflation

Distribution System Improvement Charge

Customer Assistance Charge

Date Served: August 9, 2023

Date Submitted for the Record:

1 **DIRECT TESTIMONY OF KEVIN C. HIGGINS**

2

3 **Section I - Introduction**

4 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

5 A. My name is Kevin C. Higgins. My business address is 111 East Broadway, Suite
6 1200, Salt Lake City, Utah, 84111.

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies is a
9 private consulting firm specializing in economic and policy analysis applicable to
10 energy production, transportation, and consumption.

11 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

12 A. My testimony is being sponsored by the Pennsylvania Office of Small Business
13 Advocate (“OSBA”).

14 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND**
15 **QUALIFICATIONS.**

16 A. My academic background is in economics, and I have completed all coursework
17 and field examinations toward the Ph.D. in Economics at the University of Utah.
18 In addition, I have served on the adjunct faculties of both the University of Utah
19 and Westminster College, where I taught undergraduate and graduate courses in
20 economics. I joined Energy Strategies in 1995, where I assist private and public
21 sector clients in the areas of energy-related economic and policy analysis,
22 including evaluation of electric and gas utility rate matters.

1 Prior to joining Energy Strategies, I held policy positions in state and local
2 government. From 1983 to 1990, I was an economist, then assistant director, for
3 the Utah Energy Office, where I helped develop and implement state energy
4 policy. From 1991 to 1994, I was chief of staff to the chairman of the Salt Lake
5 County Commission, where I was responsible for development and
6 implementation of a broad spectrum of public policy at the local government
7 level. My qualifications are attached in the Appendix to this testimony.

8 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

9 A. Yes. In 2006, I testified in a proceeding concerning the rate transition plans filed
10 by Metropolitan Edison Company and Pennsylvania Electric Company, Docket
11 Nos. P-00062213 et al. In 2022, I filed testimony on behalf of the Pennsylvania
12 OSBA on revenue requirement issues in the Leatherstocking Gas Company LCC
13 general rate case, Docket No. P. R2022-3032764. And earlier this year, I
14 testified in National Fuel Gas Distribution Corporation's 2022 General Base Rate
15 Increase Filing, Docket No. R2022-3035730, and Pennsylvania American Water
16 Company's acquisition of Butler Area Sewer Agency proceeding, Docket No. A-
17 2022-3037047.

18 **Q. HAVE YOU TESTIFIED BEFORE UTILITY REGULATORY**
19 **COMMISSIONS IN OTHER STATES?**

20 A. Yes. I have testified in approximately 285 proceedings on the subjects of utility
21 rates and regulatory policy before state utility regulators in Alaska, Arizona,
22 Arkansas, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky,
23 Michigan, Minnesota, Missouri, Montana, Nevada, New Mexico, New York,

1 North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Texas, Utah, Virginia,
2 Washington, West Virginia, and Wyoming. I have also filed affidavits in
3 proceedings before the Federal Energy Regulatory Commission and prepared
4 expert reports in state and federal court proceedings involving utility matters.

5 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS**
6 **PROCEEDING?**

7 A. My testimony addresses components of the PWSA revenue requirement for the
8 fully projected future test year “FPFTY” comprised of the period from January 1,
9 2024 through December 31, 2024 (FPFTY 2024) as well as the following two
10 future years comprised of the periods from January 1, 2025 through December 31,
11 2025 (FY 2025) and January 1, 2026 through December 31, 2026 (FY 2026). I
12 also make a recommendation regarding the Distribution System Improvement
13 Charge (“DSIC”). In addition, I address the proper way of allocating PWSA’s
14 Customer Assistance Program (“CAP”) costs in FPFTY 2024, FY 2025, and FY
15 2026. The absence of comment on my part regarding a particular issue does not
16 signify support for (or opposition to) the filing with respect to that issue.

17 **Q. ARE YOU MAKING A RECOMMENDATION FOR A SPECIFIC TOTAL**
18 **REVENUE REQUIREMENT IN THIS CASE?**

19 A. No. My revenue requirement recommendations address a limited number of
20 issues. Therefore, I am not offering a recommendation for a specific total
21 revenue requirement.

22 **Q. PLEASE SUMMARIZE YOUR PRIMARY CONCLUSIONS AND**
23 **RECOMMENDATIONS CONCERNING REVENUE REQUIREMENT.**

1 A. I offer the following conclusions and recommendations:

2 1) PWSA’s method of adding labor expenses related to new hires in FPFTY
3 2024 and FY 2025 is an oversimplification and will likely lead to customers
4 paying for new employees before they are hired. My adjustment smooths out the
5 roll out of projected new hires evenly throughout the year rather than assuming all
6 of a year’s new hires begin employment on January 1, as PWSA implicitly
7 assumes. My adjustment results in a revenue requirement reduction of
8 \$1,252,079 in FPFTY 2024 and \$659,330 in FY 2025.

9 2) In some departments, PWSA is building in wage adjustments that are
10 significantly in excess of its planned employee count and its stated cost-of-living
11 adjustments, particularly in FPFTY 2024. Adhering to PWSA’s stated cost of
12 living adjustment of 3% in FPFTY 2024, 3% in FY 2025, and 5% in FY 2026,
13 rather than the excess wage adjustments incorporated into PWSA’s requested
14 revenue requirement, will reduce the revenue requirement by \$1,864,109 in
15 FPFTY 2024, \$1,957,596 in FY 2025, and \$2,088,442 in FY 2026.

16 3) Adjusting the roll out rate of new hires will also affect certain general
17 ledger (“GL”) accounts related to employee count. This adjustment will reduce
18 revenue requirement by \$678,765 in FPFTY 2024, \$565,852 in FY 2025, and
19 \$440,204 in FY 2026.

20 4) The generic inflation escalator of 6% applied by PWSA to non-labor, non-
21 chemical O&M expenses in FPFTY 2024, FY 2025, and FY 2026 is unwarranted
22 and should be removed. Removing the generic escalator will reduce revenue

1 requirement by \$4,143,358 in FPPTY 2024, \$7,491,750 in FY 2025, and
 2 \$12,266,358 in FY 2026.

3 Table KCH-1 summarizes my recommended revenue requirement
 4 adjustments. I will explain these adjustments in Section II of my testimony.

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 6
 7
 8

**Table KCH-1
 OSBA Revenue Requirement Adjustments**

Adjustment Description	FPPTY 2024	FY 2025	FY 2026	Total
PWSA Requested Increase*	\$46,507,280	\$44,131,754	\$52,603,707	\$143,242,741
New Hire Roll Out Adjustment	(\$1,252,079)	(\$659,330)	\$0	(\$1,911,409)
Cost of Living Adjustment	(\$1,864,109)	(\$1,957,596)	(\$2,088,442)	(\$5,910,147)
Other Employee Related Adjustment	(\$678,765)	(\$565,852)	(\$440,204)	(\$1,684,821)
Inflation Adjustment	(\$4,143,358)	(\$7,491,750)	(\$12,266,358)	(\$23,901,466)
Total OSBA Adjustments	(\$7,938,311)	(\$10,674,528)	(\$14,795,005)	(\$33,407,844)

9 *PWSA Exh WJP-1 Rate Case Tables, Worksheet I, Row 26

10

11 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING**
 12 **THE DISTRIBUTION SYSTEM IMPROVEMENT CHARGE.**

13 A. I recommend capping the Distribution System Improvement Charge at the current
 14 level of 5% as discussed in Section III of my testimony.

15 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING**
 16 **THE ALLOCATION OF THE CUSTOMER ASSISTANCE PROGRAM**
 17 **COST'S IN FPPTY 2024 AND THE PROPOSED CUSTOMER**
 18 **ASSISTANCE CHARGE STARTING IN FY 2025.**

1 A. The customer assistance program exists solely for the benefit of the residential
2 class and therefore should be recovered solely by residential customers. I will
3 explain this recommendation in Section IV of my testimony.

4

5 **Section II - Revenue Requirement Adjustments**

6 **Q. BRIEFLY DESCRIBE THE REVENUE REQUIREMENT INCREASE**
7 **BEING REQUESTED BY PWSA IN THIS CASE.**

8 A. PWSA is seeking a multi-year revenue requirement increase of \$146.1 million,
9 inclusive of DSIC. The overall requested increase includes \$46.8 million in fully
10 projected future test year “FPFTY” 2024, \$45.4 million in FY 2025, and \$53.9
11 million in FY 2026¹. This amounts to average increases of 22.5% in FY 2024,
12 17.8% in FY 2025, and 17.9% in FY 2025. As a municipal utility, PWSA utilizes
13 the “Cash Flow Method” to establish revenue requirement for its fully projected
14 future test year ending December 31, 2024 based off of the partially projected test
15 year ending December 31, 2023. Future years ending December 31, 2025 and
16 December 31, 2026 are derived from FPFTY 2024 using assumed escalation
17 factors.

18 **Q. BRIEFLY DESCRIBE THE NEW CHARGES THAT PWSA IS**
19 **PROPOSING IN THIS CASE THAT WOULD BE ADDED TO BASE**
20 **RATES.**

21 A. PWSA is proposing to add two new charges: (1) an Infrastructure Improvement
22 Charge (“IIC”) and (2) a Customer Assistance Charge (“CAC”). The IIC is

¹ Direct Testimony of Edward Barca, pg. 4

1 intended to recover debt service obligations for new loans received from the
2 Pennsylvania Infrastructure Investment Authority (“PENNVEST”) and the federal
3 government loan program known as the Water Infrastructure Finance and
4 Innovation Act (“WIFIA”) between rate case filings. The CAC is being proposed
5 to recover certain costs associated with the residential Customer Assistance
6 Program². Both charges are proposed to being in FY 2025. As proposed, the IIC
7 would be charged to Water and Wastewater customers, and the CAC would be
8 collected from Water, Wastewater, and Stormwater customers. Although not part
9 of the CAC, PWSA is also proposing to collect certain Customer Assistance
10 Program costs, not before approved by the Commission, in base rates from retail
11 customers in FPFTY 2024.

12 **Q. WHAT ADJUSTMENT ARE YOU PROPOSING WITH RESPECT TO**
13 **LABOR EXPENSES INCURRED AS THE RESULT OF NEW HIRES?**

14 A. I am proposing reducing in half the expenses for new hires in the first year of
15 service and then including the full expense in the first full year of their
16 employment.

17 **Q. PLEASE EXPLAIN THE BASIS FOR YOUR ADJUSTMENT.**

18 A. PWSA is proposing a rather large increase in work force by adding 33 new
19 employees in FPFTY 2024 and 19 more in FY 2024³. PWSA is requesting
20 revenue requirement increases of \$2,504,158 in FPFTY 2024 and \$1,318,660 in
21 FY 2025 to cover salaries.⁴ As illustrated in PWSA’s response to the Bureau of

² Direct Testimony of Julie A. Mechling, pgs. 27-28

³ Direct Testimony of Edward Barca, pg.18

⁴ See OSBA Exhibit KCH-1, pgs. 1-2

1 Investigation and Enforcement, all the new employees are assumed by PWSA to
 2 begin employment in January of the respective year.⁵ A more reasonable
 3 approach is to assume the new hires are rolled out smoothly throughout the year,
 4 which is equivalent to assuming they begin mid-year. This treatment is supported
 5 by a review of the historical years 2020-2023, as shown in Table KCH-2, below,
 6 which clearly shows that employees are hired in every month of the year.

7 **Table KCH-2**
 8 **Historical Net Change in Employee Count by Month**

Month	2020	2021	2022
January	0	-3	1
February	4	2	1
March	8	-1	2
April	2	0	7
May	-2	-1	2
June	-1	7	8
July	-2	7	-4
August	-1	6	-1
September	4	4	4
October	0	3	-3
November	3	2	6
December	-2	-3	2

9
 10 **Q. PLEASE EXPLAIN YOUR ADJUSTMENT.**

11 A. To make the adjustment in 2024, I have reduced the requested \$2,504,158 for
 12 FPFTY 2024 by 50%. In FY 2025, I included the full \$2,504,158 for employees
 13 hired in 2024 and reduced salaries for new hires in 2025 by 50% to reflect a
 14 continuous roll out of the new hires. In FY 2026, I included the full \$1,318,600
 15 for employees hired in 2025. No new employees were added in 2026 so no partial

⁵ See OSBA Exhibit KCH-1, pg. 3

1 year adjustments were needed in 2026. Please see OSBA Workpaper 1 – New
2 Hire Rollout & Cost of Living Adjustment for my calculations.

3 **Q. WHAT IS THE IMPACT OF THIS ADJUSTMENT?**

4 A. As reported in Table KCH-1, above, this adjustment results in a revenue
5 requirement reduction in GL account 4001-Salary Wages of \$1,252,079 in
6 FPPTY 2024 and a reduction of \$659,300 in 2025.

7 **Q. IS THIS THE ONLY ADJUSTMENT YOU ARE RECOMMENDING FOR**
8 **GL ACCOUNT 4001 SALARY WAGES?**

9 A. No. PWSA’s response to I&E RE-24-D states that the two underlying factors
10 causing year-over-year increases are 1) workforce expansion and 2) annual cost of
11 living increases.⁶ I attempted to reconcile projected expenses in GL Account
12 4001 using PWSA’s stated costs of living increases of 3% in FY 2024, 3% in FY
13 2025 and 5% in FY 2026, but it appears the cost of living escalators PWSA is
14 using are higher than their stated rates, especially in FY 2024. My adjustment
15 utilizes PWSA’s stated cost of living increases. Please see OSBA Workpaper 1 –
16 New Hire Rollout & Cost of Living Adjustment for my calculations.

17 **Q. WHAT IS THE IMPACT OF THIS ADJUSTMENT?**

18 A. As reported in Table KCH-1, above, this adjustment results in a revenue
19 requirement reduction in GL account 4001-Salary Wages of \$1,864,109 in
20 FPPTY 2024, \$1,957,596 in FY 2025, and \$2,088,442 in FY 2026.

21 **Q. WERE ANY OTHER GL ACCOUNTS IMPACTED BY YOUR**
22 **ADJUSTMENTS FOR EMPLOYEE ROLL OUT AND COST OF LIVING?**

⁶ See OSBA Exhibit KCH-1, pg. 4

1 A. Yes. I also made conforming adjustments to the following GL accounts:

- 2 • 4005-OT Premium Pay
- 3 • 4010-Shift Differential
- 4 • 4025-Bonus
- 5 • 4030-Holiday Pay
- 6 • 4035-Vacation Pay
- 7 • 4050-Personal Time Pay

8
9 These GL accounts are directly tied to underlying employee counts. In shifting the
10 new hires from January to a continuous roll out and using PWSA's stated cost of
11 living increase, it was also necessary to adjust the expenses in these accounts.

12 This adjustment conforms to the methodology used by PWSA in the FPFTY 2024
13 COS and Rate Design Model ⁷.

14 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF THIS**
15 **CONFORMING ADJUSTMENT TO GL ACCOUNTS 4005, 4010, 4025,**
16 **4030, 4035, 4050?**

17 A. As reported in Table KCH-1, above, this adjustment reduces revenue requirement
18 \$678,765 in FPFTY 2024, \$565,852 in FY 2025, and \$440,204 in FY 2026.

19 **Q. PLEASE SUMMARIZE THE AGGREGATE IMPACT OF YOUR**
20 **ADJUSTMENTS RELATED TO NEW HIRES ROLL OUT AND COST OF**
21 **LIVING ESCALATION.**

22 A. Taken together, the impact of these adjustments is a reduction of revenue
23 requirement of \$3,794,953 in FPFTY 2024, \$3,128,778 in FY 2025, and
24 \$2,528,647 in FY 2026, as shown in Table KCH-3, below.

25

⁷ See FPFTY 2024 COS and Rate Design Model as shared 5.9.23, worksheets 910 through 931, column G

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Table KCH-3
OSBA Revenue Requirement Adjustments Related to Accounts 4001-4050

Description of Adjustment	GL Account	FPFTY 2024	FY 2025	FY 2026
Change new hire date from January to mid-year	4001	\$ (1,252,079)	\$ (659,330)	\$ -
Cost of Living escalation of 3% in 2024, 3% in 2025, and 5% in 2026	4001	\$ (1,864,109)	\$ (1,957,596)	\$ (2,088,442)
Adjustment to reflect same escalation for account 4001	4005, 4010, 4025, 4030, 4035, 4050	\$ (678,765)	\$ (565,852)	\$ (440,204)
Total		\$ (3,794,953)	\$ (3,182,778)	\$ (2,528,647)

My calculations for these adjustments are included in OSBA Workpaper 2 – PWSA FPFTY 2024 COS and “Rate Design Model as shared 5.9.23 – RR Adj 0% Inflation.”

Q. WHAT ADJUSTMENT ARE YOU PROPOSING WITH RESPECT TO GENERIC O&M INFLATION?

A. I am proposing removing PWSA’s generic 6% O&M escalator that is used for most GL accounts that are not related to salaries, benefits, or chemicals in FPFTY 2024, FY 2025, and FY 2026. I am not proposing any adjustments to escalation rates for chemicals in GL accounts 5005 – 5085 or employee benefits in GL accounts 4110 – 4170.

Q. PLEASE EXPLAIN THE BASIS FOR YOUR ADJUSTMENT.

A. Except for costs related to salaries, benefits and chemicals, most O&M expenses projected by PWSA for FPFTY 2024, FY 2025 and FY 2026 contain a generic cost escalation component to reflect projected inflation of 6%. To apply this cost escalator, PWSA starts with its partially projected future test year of 2023 and

1 then applies the 6% escalation factor to arrive at costs for the fully projected
2 future test year in 2024 and then applies the 6% escalation factor again for FY
3 2025 values, and then applies 6% one more time to arrive at the FY 2026 values.

4 From a ratemaking perspective, I have serious concerns with this
5 approach. First, at a broad policy level, I have concerns about regulatory pricing
6 formulations that reinforce inflation. This occurs when *projections* of inflation
7 are built into formulas that are used to set administratively-determined prices,
8 such as utility rates. Such pricing mechanisms help to make inflation a self-
9 fulfilling prophecy. As a matter of public policy, this is a serious concern. It is
10 one thing to adjust for inflation after the fact; it is another to help guarantee it.
11 For this reason, I believe that regulators should use extreme caution before
12 approving prices that guarantee inflation before it occurs. In this case, the
13 situation is exacerbated by the fact that PWSA is seeking a multi-year approval of
14 rates.

15 The best evidence of what it costs PWSA for non-labor, non-chemical
16 O&M is the Company's actual costs recorded in the base period, adjusted for
17 certain known and measurable changes. The cost increases represented by the
18 escalation factors may or may not come to fruition. In any case, PWSA should be
19 expected to strive to improve its O&M efficiency on a continuous basis, and
20 thereby lessen the net impact of inflation on its O&M costs.

21 **Q. DO YOU HAVE ADDITIONAL CONCERNS REGARDING PWSA'S**
22 **INFLATION ADJUSTMENT?**

1 A. Yes. The cumulative level of generic inflation that PWSA is attempting to build
2 into its rates over a three-year period – 19.1% – is unwarranted and unreasonable.
3 According to PWSA, its annual escalation factor of 6% was estimated by
4 considering inflation that occurred in 2021, 2022 and through the end of March
5 2023.⁸ However, it is not justifiable to roughly extrapolate the inflation results
6 from that anomalous period and assume that high inflation will persist for the
7 three years 2024-2026 – and then to seek to build those higher costs into customer
8 utility rates.

9 **Q. ARE THERE INDICATIONS THAT FUTURE INFLATION IS LIKELY**
10 **TO BE WELL BELOW THE ESCALATORS USED BY PWSA IN ITS**
11 **FILING?**

12 A. Yes. There are now indications that inflation is easing as Federal policymakers
13 have been taking aggressive action to get inflation under control. Since March of
14 2022, the Federal Reserve has increased the Federal Funds Rate eleven times
15 taking the rate from 0.25% to 5.50%, including a 0.25% increase in the most
16 recent July meeting. Public material from the July meeting is not yet available so I
17 refer to the notes from the June 2023 meeting in my testimony.

18 In the June 2023 Federal Open Market Committee meeting, the committee
19 did not raise rates, determining it was expedient to provide additional time to
20 observe the effects of cumulative tightening and assess their implications for
21 policy. In short, the Fed wants to make sure that past policy decisions were not
22 going to plunge the economy into a recession, or a so-called “hard landing.” In

⁸ See OSBA Exhibit 1, pg. 5

1 the June meeting, 15 of 18 participants projected that PCE, or personal
2 consumption expenditures, the Fed’s preferred measure of inflation will be below
3 2.8% in 2024. All 18 members projected that the PCE would be below 3.0% in
4 2025 and will be closer to the target of 2.0% beyond 2025. All members
5 confirmed that they are strongly committed to returning inflation to their 2%
6 objective.⁹ Please refer to OSBA Exhibit KCH-2 for an illustration of the
7 distribution of FOMC participants projections for PCE inflation in 2024, 2025, and
8 longer term.

9 On July 12, 2023 the Bureau of Labor Statistics (“BLS”) released the
10 Consumer Price Index for All Urban Consumer (“CPI-U”), another closely
11 watched inflation metric. Based on the June release, the index increased 3.0%
12 over the last 12 months before seasonal adjustments. As noted in the BLS
13 announcement, this was the smallest 12-month increase since the period ending
14 March 2021.¹⁰

15 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF REMOVING**
16 **THE GENERIC NON-LABOR, NON-CHEMICAL O&M ESCALATION?**

17 A. Removing the generic 6% escalation rate will reduce revenue requirement
18 \$4,143,358 in FPFTY 2024, \$7,491,750 in FY 2025, and \$12,266,358 in FY
19 2026, as shown in Table KCH-4, below.

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⁹ <https://www.federalreserve.gov/monetarypolicy/fomcminutes20230614.htm>

¹⁰ <https://www.bls.gov/news.release/cpi.nr0.htm#>

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Table KCH-4
Revenue Requirement Impacts of Removing Generic 6% Inflation

<u>GL Account(s)</u>	<u>FPFTY 2024</u>	<u>FY 2025</u>	<u>FY2026</u>
Multiple	\$ (4,143,358)	\$ (7,491,750)	\$ (12,266,358)

OSBA Exhibit KCH-3 shows the impacts of removing the 6% inflation factor in more detail by operating expense sub-accounts. My calculations are included in OSBA Workpaper 2 – PWSA FPFTY 2024 COS and “Rate Design Model as shared 5.9.23 – RR Adj 0% Inflation.”

Q. IF THE COMMISSION IS INCLINED TO APPROVE A GENERIC NON-LABOR, NON-CHEMICAL O&M ESCALATION RATE, WHAT IS THE MAXIMUM ESCALATION RATE THAT SHOULD BE ALLOWED?

A. Based upon the policy intentions of the Federal Open Market Committee to tame inflation as well as the recent CPI-U results, the escalation rate for non-labor, non-chemical O&M should be limited to no greater than 3%. However, my primary recommendation is to remove the inflation escalators entirely from PWSA’s proposed revenue requirement.

Section III – Other Funding Mechanisms

Q. WHAT IS THE DISTRIBUTION SYSTEM IMPROVEMENT CHARGE?

A. The Distribution System Improvement Charge (“DSIC”) is an alternative funding mechanism or revenue source that is assessed as a percentage of revenues collected in base rates from Water and Wastewater retail customers. DSIC

1 revenues are used to fund capital improvement projects. The DSIC is currently set
2 at 5%. In this case, PWSA is proposing to increase the rate to 7.5%

3 **Q. WHAT RECOMMENDATIONS DO YOU HAVE REGARDING PWSA’S**
4 **PROPOSALS CONCERNING THE DISTRIBUTION SYSTEM**
5 **IMPROVEMENT CHARGE?**

6 A. I recommend capping the DSIC at the current level of 5%.

7 **Q. PLEASE EXPLAIN.**

8 A. In this rate case, PWSA is already seeking approval for a three-year rate plan with
9 significant increases in revenue requirement. In PWSA Statement No. 2,
10 Company witness Edward Barca states that, “A multi-year filing permits a better
11 alignment with the levels of expenses and revenues that are reasonably expected
12 to be experienced in the years following the fully projected test year.”¹¹ With the
13 revenue assurance inherent in a multi-year plan, PWSA should be expected to
14 manage within the rates are that pursuant to that plan without resorting to
15 additional extraordinary relief.

16 **Q. WHAT IS THE IMPACT OF THESE RECOMMENDATIONS?**

17 A. Calculating the impacts of capping the DSIC at 5% is a bit of a moving target
18 since the DSIC is assessed as a percentage of revenues and will change based on
19 the underlying revenue requirement. However, based upon the revenue
20 requirement adjustments I am recommending, keeping the DSIC rate at 5% will
21 reduce ratepayer impacts by \$4,840,624 in FPFTY 2024, \$5,692,491 in FY 2025,

¹¹ Direct Testimony of Edward Barca, pg. 45

1 and \$6,715,841 in FY 2026. For calculations, refer to OSBA Workpaper 3 –
2 DSIC Impacts.

3

4 **Section IV – Class Revenue Allocation**

5 **Q. BRIEFLY DESCRIBE PWSA’S PROPOSAL REGARDING RECOVERY**
6 **OF CERTAIN COSTS ASSOCIATED WITH THE CUSTOMER**
7 **ASSISTANCE PROGRAM.**

8 A. PWSA is proposing to collect \$4,663,702 in Customer Assistance Program
9 (“CAP”) costs in FPFTY 2024, \$5,517,017 in FY 2025 and \$6,391,795 as
10 outlined in Table KCH-5

11 **Table KCH-5**
12 **Proposed CAP Costs to be Collected from Customers**

13

Customer Assistance Programs	FPFTY 2024	FY 2025	FY 2026
Forgone Revenue	\$ 4,036,834	\$ 4,651,868	\$ 5,494,825
Direct Operations Costs	\$ 386,869	\$ 408,830	\$ 440,650
Hardship Grant	\$ -	\$ 216,320	\$ 216,320
Arrearage	\$ 240,000	\$ 240,000	\$ 240,000
Total Costs	\$ 4,663,702	\$ 5,517,017	\$ 6,391,795

14

15
16 **Q. HOW DOES PWSA PROPOSE TO COLLECT THESE COSTS?**

17 A. PWSA is proposing to collect the FPFTY 2024 CAP costs shown in Table KCH-5
18 through base rates and is proposing a new charge called the Customer Assistance
19 Charge (“CAC”) to collect these costs in FY 2025 and FY 2026. The costs
20 associated with PWSA’s Customer Assistance Programs benefit residential

1 customers only; however, PWSA is proposing to collect these costs from all
2 customer classes.

3 **Q. BRIEFLY DESCRIBE PWSA’S PROPOSAL REGARDING THE NEW**
4 **CUSTOMER ASSISTANCE CHARGE IN THIS RATE CASE.**

5 A. As designed, the CAC would recover (1) the discounts provided to residential
6 customers pursuant to the Bill Discount Program, (2) the operating costs for the
7 PGH2O Cares team, (3) the costs of PWSA’s residential Hardship Fund, and (4)
8 past due arrearages that would be forgiven pursuant to PWSA’s residential
9 Arrearage Forgiveness Program¹².

10 **Q. ARE THESE CUSTOMER ASSISTANCE PROGRAMS NEW?**

11 A. No, these customer assistance programs are not new. However, collecting CAP
12 costs in base rates in FPFTY 2024 and the proposed CAC are new and are being
13 introduced as PSWA is also proposing to expand some of the programs. Since
14 coming under Commission jurisdiction in 2018, PWSA has advocated having
15 these costs recovered in rates from all customer classes, but doing so would be a
16 change to past Commission precedent.

17 **Q. WHAT DO YOU PROPOSE IN REGARD TO CUSTOMER ASSISTANCE**
18 **PROGRAM COSTS IN FPFTY 2024 AND THE RECOVERY OF CAC IN**
19 **FY 2025 AND FY 2026?**

20 A. My recommendation is that all CAP costs (including CAC in FY 2025 and FY
21 2026) should be recovered solely by the residential class.

22 **Q. PLEASE EXPLAIN THE BASIS FOR YOUR RECOMMENDATION.**

¹² Direct testimony of William J. Pickering, pg. 15

1 A. Consistent with cost allocation principles, customer class should bear the cost of
2 services that directly benefit them. Non-residential customers pay their utility bills
3 based on their usage and requirements, and it is reasonable for them to expect that
4 their payments to support services related to their own consumption, not
5 residential assistance.

6 **Q. DOES THE COMMISSION HAVE A POLICY ON ALLOCATING**
7 **UNIVERSAL SERVICE COSTS?**

8 A. It is my understanding that the Commission has had a longstanding policy of
9 allocating customer assistance program costs only to the customer class whose
10 members are eligible for the program – residential customers. However, more
11 recently the Commission has indicated it would consider recovering the costs of
12 customer assistance programs from all ratepayer classes in utility-specific
13 proceedings in an effort to maintain affordability for non-CAP residential
14 customers.

15 **Q. WHAT WOULD BE THE IMPACT ON EACH CUSTOMER CLASS IN**
16 **FPFTY 2024 IF ALL CAP RELATED COSTS WERE RECOVERED BY**
17 **THE RESIDENTIAL CLASS?**

18 A. The Residential Class would be required to collect an additional \$2,650,585 or
19 2.8%. All other classes would be reduced as shown in Table KCH-6, below.

20

Table KCH-6
Class Impact of Allocating FPFTY 2024 CAP Costs to Residential

Customer Class	Increase/(Decrease)	% Change
Residential	\$ 2,650,585	2.8%
Residential - CAP	\$ (6,768)	-0.3%
Commercial	\$ (1,730,862)	-2.0%
Industrial	\$ (96,848)	-2.3%
Health or Education	\$ (572,450)	-1.8%
Municipal	\$ (131,853)	-1.9%
All Other	\$ (111,803)	-1.0%
Total	\$ -	0%

Q. HAVE YOU QUANTIFIED THE AVERAGE MONTHLY COST TO NON-CAP RESIDENTIAL CUSTOMERS ASSUMING PWSA’S NEWLY PROPOSED CAC WAS RECOVERED SOLELY FROM NON-CAP RESIDENTIAL CUSTOMERS?

A. Yes, I have. These calculations are presented in Exhibit KCH-4. They indicate that if costs associated with the CAC were recovered from non-CAP residential customers, the increase on the monthly bill would be less than \$2.36 in FY 2025 for a customer with two ERUs and would be \$2.74 in FY 2026 for a customer with two ERUs.

My calculations are based on changes made to the PWSA FPFTY COS and “Rate Design Model as shared 5.9.23.” Please see OSBA Workpaper 4 – PWSA FPFTY 2024 COS and “Rate Design Model as shared 5.9.23 – CAP Covered by Residential.”

Q. IN YOUR OPINION, WOULD RECOVERING PWSA’S PROPOSED CAP COSTS FROM NON-CAP RESIDENTIAL CUSTOMERS RENDER

1 **PWSA’S RESIDENTIAL WATER, WASTEWATER, AND**
2 **STORMWATER BILL UNAFFORDABLE?**

3 A. Based on the bill impacts shown in Tables KCH-7 and KCH-8, it would not.

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes, it does.

OSBA EXHIBIT KCH-1

See PWSA response in OCA-VI-6 Number Employees by Category 2020-2026

Employee Group	Position	FY 2024
Non-Union	PUC Compliance Manager	\$75,000
Union	Customer Service Representative 1	\$45,858
Union	Customer Service Representative 1	\$45,858
Non-Union	Senior Project Manager, Wastewater/Stormwater	\$140,000
Non-Union	Project Engineer	\$75,000
Non-Union	Environmental Compliance Specialist	\$75,000
Non-Union	Financial Analyst	\$76,740
Non-Union	Contract Specialist	\$72,100
Non-Union	Director of Human Resources	\$178,190
Non-Union	Training Administrator	\$75,000
Non-Union	Diversity, Equity, & Inclusion Specialist	\$60,000
Union	Scientist	\$57,913
Non-Union	Senior Manager of IT	\$120,000
Non-Union	Senior GIS Analyst	\$80,000
Non-Union	GPS Field Services Tech	\$65,000
Non-Union	Government Affairs Manager	\$75,000
Non-Union	Communications Manager	\$90,000
Non-Union	Security Guard	\$42,436
Non-Union	Security Guard	\$42,436
Union	Foreman	\$75,773
Union	T.V. Truck Specialist	\$68,534
Union	T.V. Truck Specialist	\$68,534
Union	Utility Worker I	\$61,140
Non-Union	Capital Projects Manager	\$85,000
Union	Lead Utility Worker	\$70,000
Union	Utility Worker I	\$67,375
Union	Valve & Hydrant Specialist	\$66,743
Union	Valve & Hydrant Specialist	\$66,743
Union	Truck Driver	\$66,335
Union	Truck Driver	\$66,335
Non-Union	Plant Operations Asset Manager	\$75,115
Non-Union	Plant Operations Project Manager - Production	\$90,000
Union	Plant Maintenance Foreman	\$85,000
	Total	\$2,504,158

See PWSA response in OCA-VI-6 Number Employees by Category 2020-2026

Employee Group	Position	FY 2025
Union	Utility Worker I	\$69,396
Union	Utility Worker I	\$69,396
Union	Utility Worker I	\$69,396
Union	Utility Worker I	\$69,396
Union	Inspector II	\$61,868
Union	Valve & Hydrant Specialist	\$68,745
Union	Valve & Hydrant Specialist	\$68,745
Union	Customer Service Representative 1	\$47,234
Union	Customer Service Representative 1	\$47,234
Non-Union	Human Resources Analyst	\$75,000
Non-Union	Compensation & Benefits Specialist	\$60,000
Non-Union	Instructional Designer	\$60,000
Non-Union	Employment Attorney	\$140,000
Non-Union	Public Affairs Specialist	\$60,000
Non-Union	Public Affairs Administrative Assistant	\$55,000
Non-Union	Public Affairs Specialist	\$60,000
Non-Union	Engineer II	\$75,000
Non-Union	Associate Project Manager	\$85,000
Non-Union	Project Engineer	\$77,250
	Total	\$1,318,660

**Response of the Pittsburgh Water and Sewer Authority ("PWSA")
to the Interrogatories of the Bureau of Investigation and Enforcement ("I&E")
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-24-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail any year-over-year increases of \$25,000 and 10% or greater in the following sub-categories of Wages and Salaries Expense for each calendar year from 2020 through 2026 and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY, FPFTY, FY 2025 and FY 2026:

- A. Salary and Wages (4001).
- B. OT Premium Pay (4005).
- C. Shift Differential (4010).
- D. Bonus (4025).
- E. Holiday Pay (4030).
- F. Vacation Pay (4035).
- G. Personal Time Pay (4050).

Response:

The two underlying factors that are causing year-over-year increases in the GL accounts listed above is 1) workforce expansion and 2) annual cost of living increases.

PWSA has increased its workforce by approximately 60 employees between 2020 and 2023 with the plans to add an additional 52 positions between the FPFTY and FY 2026. The chart below demonstrates the cost of living increases from 2020 through 2026 by non-union and union employees.

	Actual				Projected		
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Non-Union	3%	3%	3%	3%	3%	3%	5%
PJCBC	3%	3%	3%	3%	3%	3%	5%
AFSCME 2719	3%	2%	0%	4%	3%	3%	5%
AFSCME 2037	3%	3%	3%	3%	3%	3%	5%

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

**Response of the Pittsburgh Water and Sewer Authority ("PWSA")
to the Interrogatories of the Bureau of Investigation and Enforcement ("I&E")
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

- Request: I&E-RE-44-D** Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Provide the following:
- A. Basis, calculation, and supporting documentation for applying a 6% inflation increase to the majority of expenses from FTY to FPFTY.
 - B. Basis, calculation, and supporting documentation for any general inflation increase from FPFTY to FY 2025 and from FY 2025 to FY 2026.

Response: See below.

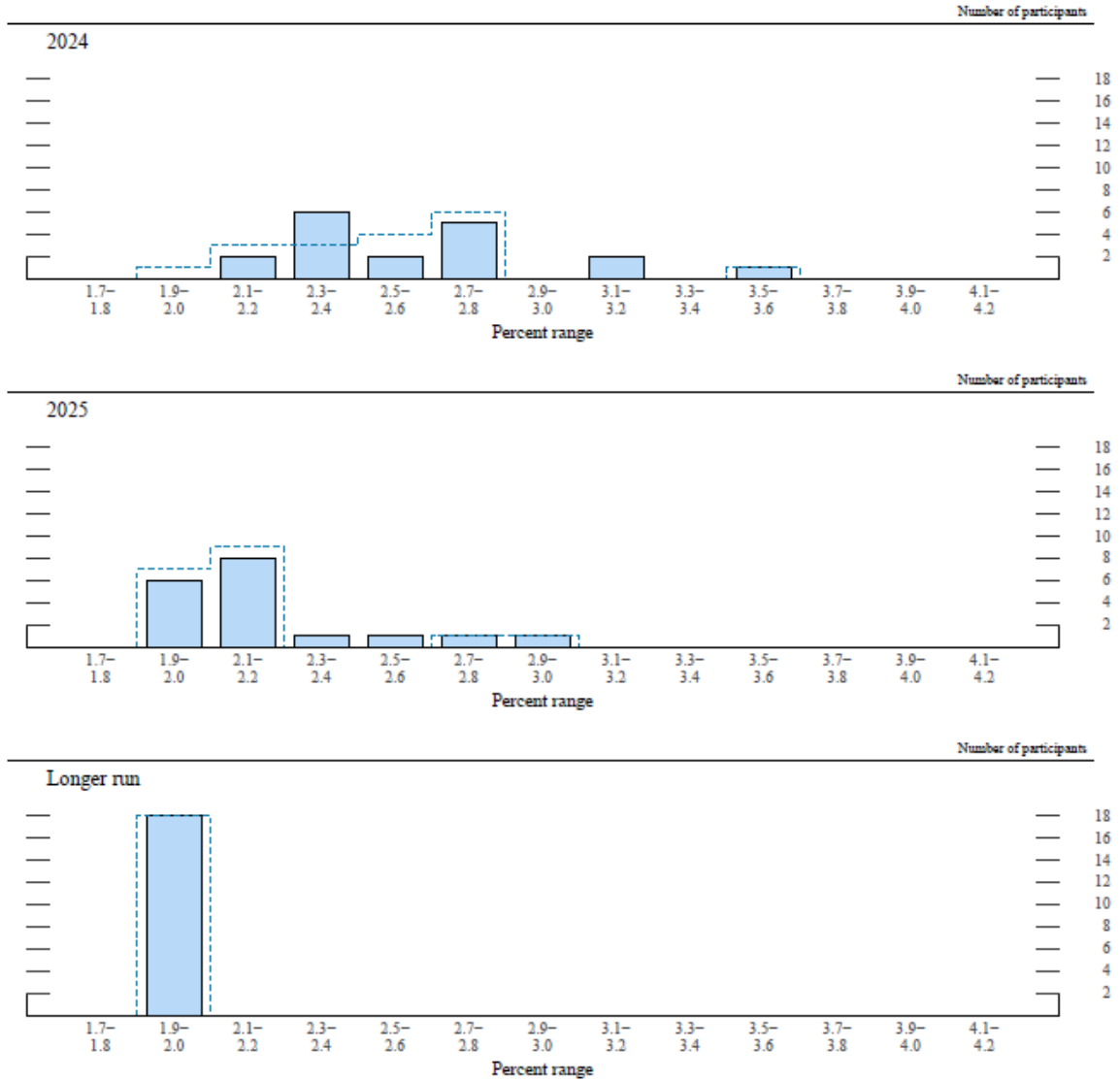
- A. Basis, calculation, and supporting documentation for applying a 6% inflation increase to the majority of expenses from FTY to FPFTY. – See Testimony St. No. 2, pages 10 and 11. PWSA analyzed historical inflationary rates to find an inflationary rate that was reasonable and just for the FTY to FPFTY. 6% is reasonable when you consider it was 4.70% in 2021, 8.00% in 2022, and 6.89% through the end of March 2023.
- B. Basis, calculation, and supporting documentation for any general inflation increase from FPFTY to FY 2025 and from FY 2025 to FY 2026. – See Testimony St. No. 2, pages 10 and 11. PWSA analyzed historical inflationary rates to find an inflationary rate that was reasonable and just for the FPFTY to FY 2025. 6% is reasonable when you consider it was 4.70% in 2021, 8.00% in 2022, and 6.89% through the end of March 2023.

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

OSBA EXHIBIT KCH-2

Distribution of FOMC participants projections for PCE inflation



Source: <https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20230614.pdf>

OSBA EXHIBIT KCH-3

Comparison of FR-III.1 after Removing 6% Inflation

Expenses	PWSA As Filed			OSBA Adjusted Results after Removing 6% Inflation			Difference between PWSA as Filed and OSBA Adjusted		
	FPFTY	FY	FY	FPFTY	FY	FY	FPFTY	FY	FY
	12 Months Ended 12/31/2024	12 Months Ended 12/31/2025	12 Months Ended 12/31/2026	12 Months Ended 12/31/2024	12 Months Ended 12/31/2025	12 Months Ended 12/31/2026	12 Months Ended 12/31/2024	12 Months Ended 12/31/2025	12 Months Ended 12/31/2026
Adjusted Wages & Salaries	\$ 69,957	\$ 74,130	\$ 78,551	\$ 67,797	\$ 69,680	\$ 71,675	\$ (2,160)	\$ (4,450)	\$ (6,877)
Total Employee Benefits	\$ 12,360,967	\$ 13,973,205	\$ 15,938,579	\$ 12,321,491	\$ 13,892,209	\$ 15,814,174	\$ (39,476)	\$ (80,996)	\$ (124,405)
TOTAL SALARIES & BENEFITS	\$ 54,293,361	\$ 58,818,287	\$ 63,043,645	\$ 50,456,772	\$ 55,550,064	\$ 60,383,717	\$ (3,836,589)	\$ (3,268,223)	\$ (2,659,929)
Chemicals	\$ 7,279,440	\$ 8,735,328	\$ 10,482,394	\$ 7,263,440	\$ 8,700,128	\$ 10,424,154	\$ (16,000)	\$ (35,200)	\$ (58,240)
Equipment	\$ 3,411,233	\$ 3,615,907	\$ 3,832,862	\$ 3,335,192	\$ 3,335,192	\$ 3,335,192	\$ (76,041)	\$ (280,715)	\$ (497,670)
Materials	\$ 1,039,947	\$ 1,102,344	\$ 1,168,484	\$ 998,043	\$ 998,043	\$ 998,043	\$ (41,904)	\$ (104,301)	\$ (170,441)
Operating Contracts	\$ 32,537,482	\$ 36,289,731	\$ 40,807,115	\$ 31,126,941	\$ 33,384,017	\$ 36,316,517	\$ (1,410,541)	\$ (2,905,714)	\$ (4,490,598)
Repairs & Maintenance	\$ 14,668,160	\$ 15,548,249	\$ 16,481,144	\$ 13,837,886	\$ 13,837,886	\$ 13,837,886	\$ (830,273)	\$ (1,710,363)	\$ (2,643,258)
Misc. Operating	\$ 333,370	\$ 353,372	\$ 374,575	\$ 314,500	\$ 314,500	\$ 314,500	\$ (18,870)	\$ (38,872)	\$ (60,075)
Inventory - Castings	\$ 246,344	\$ 261,125	\$ 276,792	\$ 232,400	\$ 232,400	\$ 232,400	\$ (13,944)	\$ (28,725)	\$ (44,392)
Inventory - Clarifier	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Inventory - Equipment	\$ 64,872	\$ 68,764	\$ 72,890	\$ 61,200	\$ 61,200	\$ 61,200	\$ (3,672)	\$ (7,564)	\$ (11,690)
Inventory - Hardware	\$ 432,862	\$ 458,833	\$ 486,363	\$ 408,360	\$ 408,360	\$ 408,360	\$ (24,502)	\$ (50,473)	\$ (78,003)
Inventory - Heavy Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Inventory - Miscellaneous	\$ 57,876	\$ 61,349	\$ 65,029	\$ 54,600	\$ 54,600	\$ 54,600	\$ (3,276)	\$ (6,749)	\$ (10,429)
Inventory - Parts	\$ 231,504	\$ 245,394	\$ 260,118	\$ 218,400	\$ 218,400	\$ 218,400	\$ (13,104)	\$ (26,994)	\$ (41,718)
Inventory - Pipe	\$ 812,702	\$ 861,464	\$ 913,152	\$ 766,700	\$ 766,700	\$ 766,700	\$ (46,002)	\$ (94,764)	\$ (146,452)
Inventory - Valves	\$ 231,080	\$ 244,945	\$ 259,641	\$ 218,000	\$ 218,000	\$ 218,000	\$ (13,080)	\$ (26,945)	\$ (41,641)
INVENTORY TOTAL	\$ 2,077,240	\$ 2,201,874	\$ 2,333,986	\$ 1,959,660	\$ 1,959,660	\$ 1,959,660	\$ (117,580)	\$ (242,214)	\$ (374,326)
DIRECT OPERATING TOTAL	\$ 80,673,885	\$ 89,284,545	\$ 99,259,271	\$ 77,445,243	\$ 83,296,883	\$ 90,360,972	\$ (3,228,642)	\$ (5,987,661)	\$ (8,898,299)
Total Fees	\$ 1,178,475	\$ 1,249,184	\$ 1,324,135	\$ 1,113,818	\$ 1,113,818	\$ 1,113,818	\$ (64,657)	\$ (135,366)	\$ (210,317)
Total Freight and Postage	\$ 475,124	\$ 503,631	\$ 533,849	\$ 448,230	\$ 448,230	\$ 448,230	\$ (26,894)	\$ (55,401)	\$ (85,619)
Total Leases & Rents	\$ 2,130,705	\$ 2,258,548	\$ 2,394,060	\$ 2,121,929	\$ 2,121,929	\$ 2,121,929	\$ (8,776)	\$ (136,618)	\$ (272,131)
Total Professional Services	\$ 15,517,397	\$ 13,348,441	\$ 14,149,348	\$ 14,451,157	\$ 12,587,465	\$ 12,587,465	\$ (1,066,241)	\$ (760,976)	\$ (1,561,883)
Total Supplies	\$ 1,574,511	\$ 1,668,981	\$ 1,769,120	\$ 1,524,421	\$ 1,524,421	\$ 1,524,421	\$ (50,089)	\$ (144,560)	\$ (244,699)
Total Travel & Entertainment	\$ 280,932	\$ 297,788	\$ 315,655	\$ 265,030	\$ 265,030	\$ 265,030	\$ (15,902)	\$ (32,758)	\$ (50,625)
Total Utilities	\$ 8,030,402	\$ 9,170,486	\$ 10,477,714	\$ 7,035,851	\$ 7,035,851	\$ 7,035,851	\$ (994,551)	\$ (2,134,635)	\$ (3,441,863)
Total Miscellaneous Admin	\$ (11,246,536)	\$ (11,921,328)	\$ (12,636,608)	\$ (10,609,940)	\$ (10,609,940)	\$ (10,609,940)	\$ 636,596	\$ 1,311,389	\$ 2,026,668
Adjusted Operating Expenses	\$ 91,718,805	\$ 98,469,870	\$ 109,824,963	\$ 87,575,447	\$ 90,978,120	\$ 97,558,605	\$ (4,143,358)	\$ (7,491,750)	\$ (12,266,358)

OSBA Exhibit KCH-4

FY 2025 CAC Allocation to Non-CAP Residential

Allocated CAP Costs	Water	Wastewater	Stormwater
Forgone Revenue	\$2,699,628	\$995,637	\$956,602
Operations	\$244,259	\$82,711	\$81,860
Hardship	\$88,320	\$128,000	\$0
Arrearage	<u>\$97,988</u>	<u>\$142,012</u>	<u>\$0</u>
Total Charge Recovery	\$3,130,195	\$1,348,360	\$1,038,462

Units

Residential Bills	2,592,131	3,469,817	
Tier 1 ERU's			5,819
Tier 2 ERU's			59,136
Tier 3 ERU's			25,806

Residential Increase per Month

per Residential Bill	\$1.21	\$0.39	
per Tier 1 ERU's			\$0.38
per Tier 2 ERU's			\$0.76
per Tier 3 ERU's			\$1.52

FY 2026 CAC Allocation to Non-CAP Residential

Allocated CAP Costs	Water	Wastewater	Stormwater
Forgone Revenue	\$3,201,468	\$1,174,453	\$1,118,904
Operations	\$263,270	\$89,149	\$88,231
Hardship	\$88,320	\$128,000	\$0
Arrearage	<u>\$97,988</u>	<u>\$142,012</u>	<u>\$0</u>
Total Charge Recovery	\$3,651,046	\$1,533,614	\$1,207,135

Units

Residential Bills	2,592,131	3,469,817	
Tier 1 ERU's			5,819
Tier 2 ERU's			59,136
Tier 3 ERU's			25,806

Residential Increase per Month

per Residential Bill	\$1.41	\$0.44	
per Tier 1 ERU's			\$0.44
per Tier 2 ERU's			\$0.89
per Tier 3 ERU's			\$1.77

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Implement a Customer Assistance Charge	:	Docket No. P-2023-3040578
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
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VERIFICATION

I, Kevin C. Higgins, hereby state that the facts set forth in my Direct Testimony labelled OSBA Statement No. 1 are true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 19 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: August 8, 2023



Kevin C. Higgins

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
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	:	P-2023-3040735 (Wastewater)
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CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served via email (*unless other noted below*) upon the following persons, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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DATE: August 9, 2023

/s/ Sharon E. Webb

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995



COMMONWEALTH OF PENNSYLVANIA

September 8, 2023

The Honorable Gail Chiodo
Administrative Law Judge
Pennsylvania Public Utility Commission
400 North Street
Commonwealth Keystone Building
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority / Docket Nos. R-2023-3039920 (Water); R-2023-3039921 (Wastewater); R-2023-3039919 (Stormwater) & Pittsburgh Water and Sewer Authority's Petition to Implement Customer for Assistance Charge / Docket No. P-2023-3040578 & Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5% / Docket Nos. P-2023-3040734 (Water) P-2023-3040735 (Wastewater)

Dear Judge Chiodo:

Enclosed please find the Rebuttal Testimony of Kevin C. Higgins, labeled OSBA Statement No. 1-R, on behalf of the Office of Small Business Advocate ("OSBA"), in the above-captioned proceedings.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Sharon E. Webb

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995

Enclosures

cc: PA PUC Secretary Rosemary Chiavetta (Cover Letter & Certificate of Service only)
Brian Kalcic
Kevin Higgins
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
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OSBA STATEMENT NO. 1-R

Rebuttal Testimony of Kevin C. Higgins

on behalf of the

Pennsylvania Office of Small Business Advocate

September 8, 2023

Topics:

Customer Assistance Charge

Customer Assistance Program

Date Served: September 8, 2023

Date Submitted for the Record: _____

1 **REBUTTAL TESTIMONY OF KEVIN C. HIGGINS**

2

3 **Section I - Introduction**

4 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

5 A. My name is Kevin C. Higgins. My business address is 111 East Broadway, Suite
6 1200, Salt Lake City, Utah, 84111.

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies is a
9 private consulting firm specializing in economic and policy analysis applicable to
10 energy production, transportation, and consumption.

11 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

12 A. My rebuttal is being sponsored by the Pennsylvania Office of Small Business
13 Advocate (“OSBA”).

14 **Q. HAVE YOU PREVIOUSLY SUBMITTED DIRECT TESTIMONY IN THIS**
15 **PROCEEDING?**

16 A. Yes.

17 **Q. WHAT IS THE SUBJECT OF YOUR REBUTTAL TESTIMONY?**

18 A. I will respond to the direct testimony of the following witnesses: (1) Dr. Karl R.
19 Pavlovic on behalf of the OCA; (2) Ms. Vanessa Okum on behalf of BIE, and (3)
20 Mr. Roger D. Colton on behalf of the OCA.

21 **Q. BEFORE PROCEEDING WITH YOUR REBUTTAL, DO YOU HAVE**
22 **ANY PRELIMINARY COMMENTS REGARDING YOUR DIRECT**
23 **TESTIMONY?**

1 A. Yes. On page 21, line 3 of my direct testimony, I erroneously referenced Tables
2 KCH-7 and KCH-8. The reference should instead be to OSBA Exhibit KCH-4.

3

4 **Section II – Customer Assistance Charge**

5 **Q. WHAT DOES OCA WITNESS DR. PAVLOVIC RECOMMEND**
6 **REGARDING PWSA’S PROPOSAL TO INSTITUTE THE CUSTOMER**
7 **ASSISTANCE CHARGE (CAC) STARTING IN FY 2025?**

8 A. In OCA Statement 2, Dr. Pavlovic recommends that the Commission reject
9 PWSA’s proposed Customer Assistance Charge.

10 **Q. WHAT ARGUMENTS DOES DR. PAVLOVIC’S MAKE IN SUPPORT OF**
11 **HIS RECOMMENDATION?**

12 A. Dr. Pavlovic argues that mechanisms that allow for the automatic pass through of
13 costs, commonly called “cost trackers”, weaken a utility’s incentive to control
14 costs. Such mechanisms are generally disfavored by regulators and only
15 appropriate under certain circumstances, namely when costs are (1) largely
16 outside of control of utility, (2) unpredictable and volatile and, (3) substantial and
17 recurring. None of these circumstances are applicable to the customer assistance
18 program costs intended to be collected by the CAC.

19 Dr. Pavlovic also disputes the CAC based on his conclusion that PWSA has
20 made no showing that there are exceptional circumstances that warrant a
21 suspension or waiver of the Public Utility Code to allow a universal service rider.

1 **Q. WHAT DOES BIE WITNESS VANESSA OKUM RECOMMEND**
2 **REGARDING PWSA’S PROPOSAL TO INSTITUTE THE CUSTOMER**
3 **ASSISTANCE CHARGE (CAC) STARTING IN FY 2025?**

4 A. In I&E Statement 2, Ms. Okum also recommends that the CAC be disallowed.

5 **Q. WHY DOES MS. OKUM RECOMMEND THE CAC BE DISALLOWED?**

6 A. Ms. Okum notes that “with the implementation of this charge not proposed before
7 FY 2025, the expectation is that this charge will simple serve as an opportunity to
8 add new revenues between base rate cases”¹ which resembles single-issue
9 ratemaking. Supporting this argument, she notes that PWSA does not propose to
10 keep all program costs with the rider but, instead will use it to adjust for over or
11 under recoveries of the amount included in base rates. Ms. Okum also argues that
12 since the CAC is proposed to be combined with other charges on customer bills, it
13 will reduce transparency.

14 **Q. DO YOU AGREE WITH THE RECOMMENDATIONS MADE BY DR.**
15 **PAVLOVIC AND MS. OKUM?**

16 A. Yes, I agree that the Commission should reject PWSA’s proposed CAC.

17 **Q. WHY DO YOU AGREE?**

18 A. I agree that the CAC is poorly designed, will reduce transparency, and will
19 weaken PWSA’s incentive to control the costs of the customer assistance
20 programs.

¹ BIE Statement No 2, pg. 35, lines 13-15

1 **Section III - Response To OCA Witness Roger Colton**

2 **Q. WHAT SUBJECT MATTER DOES MR. COLTON ADDRESS IN OCA**
3 **STATEMENT 4?**

4 A. As stated by Mr. Colton, the purpose of his testimony is “to review the
5 reasonableness of the design and proposed implementation of the low-income bill
6 payment assistance programs offered by the Pittsburgh Water and Sewer
7 Authority (PWSA)”.² As a result of his review, Mr. Colton makes several
8 recommendations on how to enhance and/or expand components of PWSA’s
9 customer assistance programs some of which are intended to expand eligibility
10 and to increase enrollment and retention.

11 **Q. DO YOU SUPPORT THE RECOMMENDATIONS MADE BY MR.**
12 **COLTON IN OCA STATEMENT 4?**

13 A. OSBA neither supports nor opposes the multitude of recommendations made by
14 Mr. Colton, so long as all customer assistance program costs are recovered solely
15 from residential customers.

16 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

17 A. Yes, it does.

² OCA Statement 4, pg. 4, lines 15-17

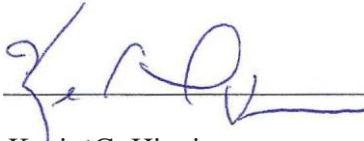
**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
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Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
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VERIFICATION

I, Kevin C. Higgins, hereby state that the facts set forth in my Rebuttal Testimony labelled OSBA Statement No. 1-R are true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 19 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: September 7, 2023


Kevin C. Higgins

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority**

**Docket Nos. R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
R-2023-3039919 (Stormwater)**

**Petition of the Pittsburgh Water and Sewer
Authority for Authorization to Implement a
Customer Assistance Charge**

Docket No. P-2023-3040578

**Petition of the Pittsburgh Water and Sewer
Authority for Authorization to Increase
Water and Wastewater DSIC Charge Caps to
7.5%**

**Docket Nos. P-2023-3040734 (Water)
P-2023-3040735 (Wastewater)**

CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served via email (*unless
other noted below*) upon the following persons, in accordance with the requirements of 52 Pa. Code §
1.54 (relating to service by a participant).

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John.Povilaitis@Bipc.Com

/s/ Sharon E. Webb

DATE: September 8, 2023

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995



COMMONWEALTH OF PENNSYLVANIA

September 22, 2023

The Honorable Gail Chiodo
Administrative Law Judge
Pennsylvania Public Utility Commission
400 North Street
Commonwealth Keystone Building
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority / Docket Nos. R-2023-3039920 (Water); R-2023-3039921 (Wastewater); R-2023-3039919 (Stormwater) & Pittsburgh Water and Sewer Authority's Petition to Implement Customer for Assistance Charge / Docket No. P-2023-3040578 & Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5% / Docket Nos. P-2023-3040734 (Water) P-2023-3040735 (Wastewater)

Dear Judge Chiodo:

Enclosed please find the Surrebuttal Testimony of Kevin C. Higgins, labeled OSBA Statement No. 1-S, on behalf of the Office of Small Business Advocate ("OSBA"), in the above-captioned proceedings.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Sharon E. Webb

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995

Enclosures

cc: PA PUC Secretary Rosemary Chiavetta (Cover Letter & Certificate of Service only)
Brian Kalcic
Kevin Higgins
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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OSBA STATEMENT NO. 1-S

Surrebuttal Testimony of Kevin C. Higgins

on behalf of the

Pennsylvania Office of Small Business Advocate

September 22, 2023

Topics:

Revenue Requirement Adjustments

Customer Assistance Program

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SURREBUTTAL TESTIMONY OF KEVIN C. HIGGINS

Section I - Introduction

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Kevin C. Higgins. My business address is 111 East Broadway, Suite 1200, Salt Lake City, Utah, 84111.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies is a private consulting firm specializing in economic and policy analysis applicable to energy production, transportation, and consumption.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. My surrebuttal is being sponsored by the Pennsylvania Office of Small Business Advocate (“OSBA”).

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS PROCEEDING?

A. Yes. I have submitted both direct and rebuttal testimony.

Q. WHAT IS THE SUBJECT OF YOUR SURREBUTTAL TESTIMONY?

A. I will respond to the rebuttal testimony of the following witnesses: (1) Mr. Edward Barca, Director of Finance for PWSA; and (2) Mr. Roger Colton on behalf of OCA.

1 Section II – Response to Rebuttal of PWSA Witness Edward Barca

2 **Q. ON PAGE 43 OF HIS REBUTTAL TESTIMONY, MR. BARCA**
3 **DISAGREES WITH OSBA’S ADJUSTMENT TO “ROLL OUT” NEW**
4 **HIRES OVER THE COURSE OF THE TEST YEAR, STATING THAT**
5 **“OSBA IS NOT USING A FULLY FORECASTED TEST YEAR.” HOW**
6 **DO YOU RESPOND?**

7 A. I disagree. Section 315(e) of Pennsylvania Statue Title 66 defines a fully
8 projected future test year (FPFTY) as “the 12-month period beginning with the
9 first month that the new rates will be placed in effect after application of the full
10 suspension period permitted under section 1308 (d).”¹ In this docket, the FPFTY
11 has been designated as the “fully forecasted 12 months ending December 31,
12 2024”² as stated in Mr. Barca’s direct testimony. All of the legitimately projected
13 expenses expected to be incurred over the course of the FPFTY should be
14 included in the revenue requirement, but a FPFTY does not imply that all new
15 employees for that year will be hired on the first day of the year.

16 In calculating my revenue requirement adjustment related to new hires, I
17 relied on PWSA’s employee count projections provided in response to I&E Data
18 Request 3Da, entitled “Budgeted and Actual Employee Counts by Months 2022-
19 2026.” The spreadsheet provided by PWSA as the response includes monthly
20 employee counts by department from January 2020 through December 2026. The
21 data for January 2020 through April 2023 represent actual historical counts³ and

¹ 66 Pa. C.S. § 315(e)

² PWSA St. No. 2, pg. 8

³ In Statement 1, pg. 26, PWSA witness William J. Pickering states that “PWSA has 393 employees as of April 23, 2023” which closely ties to the 392 value for April 2023 in Data Response I&E RE-3Da.

1 May 2023 through December 2026 represent budgeted projections. The
2 spreadsheet shows that PWSA assumed that the Authority would have 388
3 employees in December 2023 and 421 employees in January 2024, implying that
4 PWSA assumed all 33 new hires in the FPFTY would occur at once. I do not
5 consider such an assumption to be realistic.

6 While Mr. Barca testifies that PWSA's headcount is now 418, he does not
7 reconcile the current headcount with the budgeted projections provided in the
8 previously cited data response to BI&E, nor does he provide any explanation for
9 the difference.

10 **Q. MR. BARCA CONTENDS THAT PWSA WILL NOT PASS THE**
11 **ADDITIONAL BONDS TEST IF THE FPFTY REVENUE**
12 **REQUIREMENT RECOMMENDATIONS OF OSBA WERE ADOPTED.**
13 **DO YOU AGREE?**

14 A. No, I do not.

15 **Q. WHY NOT?**

16 A. Mr. Barca calculated the additional bond test using revenues adjusted by OSBA's
17 recommended reductions but did not make the corresponding reductions to
18 expenses incorporated into my adjusted revenue requirement. The revenue
19 requirement adjustments I recommended in my direct testimony were related to
20 O&M expenses such as new employee costs, PWSA's overstated cost-of-living
21 adjustment, and PWSA's unreasonable inflation adjustment. If revenues and
22 expenses were adjusted based on the recommendations in my direct testimony, all
23 bond tests, including the additional bond test, would be satisfied.

1 **Q. MR. BARCA CONTENDS THAT “OSBA RECOMMENDS THAT PWSA’S**
2 **INFLATION ADJUSTMENTS BE REMOVED IN THEIR ENTIRETY.”⁴**

3 **WHAT IS YOUR RESPONSE?**

4 A. While I recommend removing PWSA’s 6% generic inflation factor, I did not
5 make any adjustments to the 20% inflation factor that was applied to chemicals
6 (GL Accounts 5005 – 5085), nor did I recommend adjusting the escalation factors
7 applied to employee benefits (GL Accounts 4110 – 4175), such as medical health
8 insurance that PWSA assumes will escalate at 13% in 2024, 18% in 2025, and
9 20% in 2026. I also recommended a cost-of-living adjustment for costs
10 associated with Salaries of 3% in 2024, 3% in 2025, and 5% in 2026 that was
11 equal to the company’s projected annual cost of living increases provided in
12 response to I&E-RE-24-D data request. I stand by my recommendation that the
13 Commission reject PWSA’s exaggerated generic inflation factor.

14 **Section III - Response to Rebuttal of OCA Witness Roger Colton**

15 **Q. MR. COLTON ASSERTS THAT “EVER SINCE PWSA HAS BECOME**
16 **REGULATED BY THE PUC, AS A MUNICIPAL UTILITY, THE**
17 **COMMISSION HAS APPROVED THE ALLOCATION OF CUSTOMER**
18 **ASSISTANCE PROGRAM (“CAP”) OVER ALL CUSTOMER**
19 **CLASSES.”⁵ DO YOU AGREE WITH THIS CHARACTERIZATION?**

20 A. No. It is my understanding that PWSA initiated its CAP on January 1, 2018. Just
21 three months later, PWSA came under the jurisdiction of the Commission, and the
22 Authority filed its first base rate case under Commission jurisdiction on July 2,

⁴ PWSA St. No. 2-R, pg. 68

⁵ OCA Statement 4R, pg. 3

1 2018. It is also my understanding that prior to the current proceeding, PWSA
2 concluded three base rate cases via black box settlements that did not specifically
3 address cost recovery of CAP costs. While I agree it is correct to state that PWSA
4 has consistently advocated for recovering its CAP costs from all customer classes,
5 it is my understanding that the Commission has not ever ruled on the issue for
6 PWSA.

7 **Q. MR. COLTON CITES SEVERAL PHILADELPHIA GAS WORKS**
8 **(“PGW”) CASES AS LONGSTANDING PRECEDENT FOR**
9 **ALLOCATING UNIVERSAL SERVICE COSTS BY A REGULATED**
10 **MUNICIPAL UTILITY. WHAT IS YOUR REPSONSE.**

11 A. It is my understanding that PGW’s CAP program operated for many years before
12 becoming regulated by the Commission, and that prior to being subject to
13 Commission oversight, PGW collected rates to fund its program from all rate
14 classes except Large Industrial. In contrast, PWSA did not have a long history of
15 operating its BDP-CAP program before becoming regulated by the Commission.
16 Nor has PWSA’s requested universal service budget expanded to the point where
17 its services would be unaffordable for non-CAP customers if universal service
18 costs were to be recovered solely from residential ratepayers. The Commission
19 should decide the issue of universal service cost recovery for PWSA based on the
20 evidence presented in their respective base rate proceedings – not on the basis of
21 how PGW recovers universal service costs.

22 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

23 A. Yes, it does.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
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	:	
Petition of the Pittsburgh Water and Sewer Authority for Authorization to Implement a Customer Assistance Charge	:	Docket No. P-2023-3040578
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
	:	
	:	
	:	

VERIFICATION

I, Kevin C. Higgins, hereby state that the facts set forth in my Surrebuttal Testimony labelled OSBA Statement No. 1-S are true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 19 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: September 21, 2023


Kevin C. Higgins

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Implement a Customer Assistance Charge	:	Docket No. P-2023-3040578
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
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CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served via email (*unless other noted below*) upon the following persons, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

The Honorable Gail Chiodo
Administrative Law Judge
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Commonwealth Keystone Building
Harrisburg, PA 17120
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/s/ Sharon E. Webb

DATE: September 22, 2023

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995



COMMONWEALTH OF PENNSYLVANIA

August 9, 2023

The Honorable Gail Chiodo
Administrative Law Judge
Pennsylvania Public Utility Commission
400 North Street
Commonwealth Keystone Building
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority / Docket Nos. R-2023-3039920 (Water); R-2023-3039921 (Wastewater); R-2023-3039919 (Stormwater) & Pittsburgh Water and Sewer Authority's Petition to Implement Customer for Assistance Charge / Docket No. P-2023-3040578 & Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5% / Docket Nos. P-2023-3040734 (Water) P-2023-3040735 (Wastewater)

Dear Judge Chiodo:

Enclosed please find the Direct Testimony and Exhibits of Kevin C. Higgins, labeled OSBA Statement No. 1, on behalf of the Office of Small Business Advocate ("OSBA"), in the above-captioned proceedings.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Sharon E. Webb

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995

Enclosures

cc: PA PUC Secretary Rosemary Chiavetta (Cover Letter & Certificate of Service only)
Brian Kalcic
Kevin Higgins
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
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	:	P-2023-3040735 (Wastewater)
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OSBA STATEMENT NO. 1

Direct Testimony of Kevin C. Higgins

on behalf of the

Pennsylvania Office of Small Business Advocate

Topics:

Revenue Requirement Adjustments for Workforce Expense and Inflation

Distribution System Improvement Charge

Customer Assistance Charge

Date Served: August 9, 2023

Date Submitted for the Record:

1 **DIRECT TESTIMONY OF KEVIN C. HIGGINS**

2

3 **Section I - Introduction**

4 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

5 A. My name is Kevin C. Higgins. My business address is 111 East Broadway, Suite
6 1200, Salt Lake City, Utah, 84111.

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies is a
9 private consulting firm specializing in economic and policy analysis applicable to
10 energy production, transportation, and consumption.

11 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

12 A. My testimony is being sponsored by the Pennsylvania Office of Small Business
13 Advocate (“OSBA”).

14 **Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND
15 QUALIFICATIONS.**

16 A. My academic background is in economics, and I have completed all coursework
17 and field examinations toward the Ph.D. in Economics at the University of Utah.
18 In addition, I have served on the adjunct faculties of both the University of Utah
19 and Westminster College, where I taught undergraduate and graduate courses in
20 economics. I joined Energy Strategies in 1995, where I assist private and public
21 sector clients in the areas of energy-related economic and policy analysis,
22 including evaluation of electric and gas utility rate matters.

1 Prior to joining Energy Strategies, I held policy positions in state and local
2 government. From 1983 to 1990, I was an economist, then assistant director, for
3 the Utah Energy Office, where I helped develop and implement state energy
4 policy. From 1991 to 1994, I was chief of staff to the chairman of the Salt Lake
5 County Commission, where I was responsible for development and
6 implementation of a broad spectrum of public policy at the local government
7 level. My qualifications are attached in the Appendix to this testimony.

8 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

9 A. Yes. In 2006, I testified in a proceeding concerning the rate transition plans filed
10 by Metropolitan Edison Company and Pennsylvania Electric Company, Docket
11 Nos. P-00062213 et al. In 2022, I filed testimony on behalf of the Pennsylvania
12 OSBA on revenue requirement issues in the Leatherstocking Gas Company LCC
13 general rate case, Docket No. P. R2022-3032764. And earlier this year, I
14 testified in National Fuel Gas Distribution Corporation's 2022 General Base Rate
15 Increase Filing, Docket No. R2022-3035730, and Pennsylvania American Water
16 Company's acquisition of Butler Area Sewer Agency proceeding, Docket No. A-
17 2022-3037047.

18 **Q. HAVE YOU TESTIFIED BEFORE UTILITY REGULATORY**
19 **COMMISSIONS IN OTHER STATES?**

20 A. Yes. I have testified in approximately 285 proceedings on the subjects of utility
21 rates and regulatory policy before state utility regulators in Alaska, Arizona,
22 Arkansas, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky,
23 Michigan, Minnesota, Missouri, Montana, Nevada, New Mexico, New York,

1 North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Texas, Utah, Virginia,
2 Washington, West Virginia, and Wyoming. I have also filed affidavits in
3 proceedings before the Federal Energy Regulatory Commission and prepared
4 expert reports in state and federal court proceedings involving utility matters.

5 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS**
6 **PROCEEDING?**

7 A. My testimony addresses components of the PWSA revenue requirement for the
8 fully projected future test year “FPFTY” comprised of the period from January 1,
9 2024 through December 31, 2024 (FPFTY 2024) as well as the following two
10 future years comprised of the periods from January 1, 2025 through December 31,
11 2025 (FY 2025) and January 1, 2026 through December 31, 2026 (FY 2026). I
12 also make a recommendation regarding the Distribution System Improvement
13 Charge (“DSIC”). In addition, I address the proper way of allocating PWSA’s
14 Customer Assistance Program (“CAP”) costs in FPFTY 2024, FY 2025, and FY
15 2026. The absence of comment on my part regarding a particular issue does not
16 signify support for (or opposition to) the filing with respect to that issue.

17 **Q. ARE YOU MAKING A RECOMMENDATION FOR A SPECIFIC TOTAL**
18 **REVENUE REQUIREMENT IN THIS CASE?**

19 A. No. My revenue requirement recommendations address a limited number of
20 issues. Therefore, I am not offering a recommendation for a specific total
21 revenue requirement.

22 **Q. PLEASE SUMMARIZE YOUR PRIMARY CONCLUSIONS AND**
23 **RECOMMENDATIONS CONCERNING REVENUE REQUIREMENT.**

1 A. I offer the following conclusions and recommendations:

2 1) PWSA’s method of adding labor expenses related to new hires in FPFTY
3 2024 and FY 2025 is an oversimplification and will likely lead to customers
4 paying for new employees before they are hired. My adjustment smooths out the
5 roll out of projected new hires evenly throughout the year rather than assuming all
6 of a year’s new hires begin employment on January 1, as PWSA implicitly
7 assumes. My adjustment results in a revenue requirement reduction of
8 \$1,252,079 in FPFTY 2024 and \$659,330 in FY 2025.

9 2) In some departments, PWSA is building in wage adjustments that are
10 significantly in excess of its planned employee count and its stated cost-of-living
11 adjustments, particularly in FPFTY 2024. Adhering to PWSA’s stated cost of
12 living adjustment of 3% in FPFTY 2024, 3% in FY 2025, and 5% in FY 2026,
13 rather than the excess wage adjustments incorporated into PWSA’s requested
14 revenue requirement, will reduce the revenue requirement by \$1,864,109 in
15 FPFTY 2024, \$1,957,596 in FY 2025, and \$2,088,442 in FY 2026.

16 3) Adjusting the roll out rate of new hires will also affect certain general
17 ledger (“GL”) accounts related to employee count. This adjustment will reduce
18 revenue requirement by \$678,765 in FPFTY 2024, \$565,852 in FY 2025, and
19 \$440,204 in FY 2026.

20 4) The generic inflation escalator of 6% applied by PWSA to non-labor, non-
21 chemical O&M expenses in FPFTY 2024, FY 2025, and FY 2026 is unwarranted
22 and should be removed. Removing the generic escalator will reduce revenue

1 requirement by \$4,143,358 in FPPTY 2024, \$7,491,750 in FY 2025, and
 2 \$12,266,358 in FY 2026.

3 Table KCH-1 summarizes my recommended revenue requirement
 4 adjustments. I will explain these adjustments in Section II of my testimony.

5
 6
 7
 8

**Table KCH-1
 OSBA Revenue Requirement Adjustments**

Adjustment Description	FPPTY 2024	FY 2025	FY 2026	Total
PWSA Requested Increase*	\$46,507,280	\$44,131,754	\$52,603,707	\$143,242,741
New Hire Roll Out Adjustment	(\$1,252,079)	(\$659,330)	\$0	(\$1,911,409)
Cost of Living Adjustment	(\$1,864,109)	(\$1,957,596)	(\$2,088,442)	(\$5,910,147)
Other Employee Related Adjustment	(\$678,765)	(\$565,852)	(\$440,204)	(\$1,684,821)
Inflation Adjustment	(\$4,143,358)	(\$7,491,750)	(\$12,266,358)	(\$23,901,466)
Total OSBA Adjustments	(\$7,938,311)	(\$10,674,528)	(\$14,795,005)	(\$33,407,844)

9 *PWSA Exh WJP-1 Rate Case Tables, Worksheet I, Row 26

10

11 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING**
 12 **THE DISTRIBUTION SYSTEM IMPROVEMENT CHARGE.**

13 A. I recommend capping the Distribution System Improvement Charge at the current
 14 level of 5% as discussed in Section III of my testimony.

15 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS CONCERNING**
 16 **THE ALLOCATION OF THE CUSTOMER ASSISTANCE PROGRAM**
 17 **COST'S IN FPPTY 2024 AND THE PROPOSED CUSTOMER**
 18 **ASSISTANCE CHARGE STARTING IN FY 2025.**

1 A. The customer assistance program exists solely for the benefit of the residential
2 class and therefore should be recovered solely by residential customers. I will
3 explain this recommendation in Section IV of my testimony.

4

5 **Section II - Revenue Requirement Adjustments**

6 **Q. BRIEFLY DESCRIBE THE REVENUE REQUIREMENT INCREASE**
7 **BEING REQUESTED BY PWSA IN THIS CASE.**

8 A. PWSA is seeking a multi-year revenue requirement increase of \$146.1 million,
9 inclusive of DSIC. The overall requested increase includes \$46.8 million in fully
10 projected future test year “FPFTY” 2024, \$45.4 million in FY 2025, and \$53.9
11 million in FY 2026¹. This amounts to average increases of 22.5% in FY 2024,
12 17.8% in FY 2025, and 17.9% in FY 2025. As a municipal utility, PWSA utilizes
13 the “Cash Flow Method” to establish revenue requirement for its fully projected
14 future test year ending December 31, 2024 based off of the partially projected test
15 year ending December 31, 2023. Future years ending December 31, 2025 and
16 December 31, 2026 are derived from FPFTY 2024 using assumed escalation
17 factors.

18 **Q. BRIEFLY DESCRIBE THE NEW CHARGES THAT PWSA IS**
19 **PROPOSING IN THIS CASE THAT WOULD BE ADDED TO BASE**
20 **RATES.**

21 A. PWSA is proposing to add two new charges: (1) an Infrastructure Improvement
22 Charge (“IIC”) and (2) a Customer Assistance Charge (“CAC”). The IIC is

¹ Direct Testimony of Edward Barca, pg. 4

1 intended to recover debt service obligations for new loans received from the
2 Pennsylvania Infrastructure Investment Authority (“PENNVEST”) and the federal
3 government loan program known as the Water Infrastructure Finance and
4 Innovation Act (“WIFIA”) between rate case filings. The CAC is being proposed
5 to recover certain costs associated with the residential Customer Assistance
6 Program². Both charges are proposed to being in FY 2025. As proposed, the IIC
7 would be charged to Water and Wastewater customers, and the CAC would be
8 collected from Water, Wastewater, and Stormwater customers. Although not part
9 of the CAC, PWSA is also proposing to collect certain Customer Assistance
10 Program costs, not before approved by the Commission, in base rates from retail
11 customers in FPFTY 2024.

12 **Q. WHAT ADJUSTMENT ARE YOU PROPOSING WITH RESPECT TO**
13 **LABOR EXPENSES INCURRED AS THE RESULT OF NEW HIRES?**

14 A. I am proposing reducing in half the expenses for new hires in the first year of
15 service and then including the full expense in the first full year of their
16 employment.

17 **Q. PLEASE EXPLAIN THE BASIS FOR YOUR ADJUSTMENT.**

18 A. PWSA is proposing a rather large increase in work force by adding 33 new
19 employees in FPFTY 2024 and 19 more in FY 2024³. PWSA is requesting
20 revenue requirement increases of \$2,504,158 in FPFTY 2024 and \$1,318,660 in
21 FY 2025 to cover salaries.⁴ As illustrated in PWSA’s response to the Bureau of

² Direct Testimony of Julie A. Mechling, pgs. 27-28

³ Direct Testimony of Edward Barca, pg.18

⁴ See OSBA Exhibit KCH-1, pgs. 1-2

1 Investigation and Enforcement, all the new employees are assumed by PWSA to
 2 begin employment in January of the respective year.⁵ A more reasonable
 3 approach is to assume the new hires are rolled out smoothly throughout the year,
 4 which is equivalent to assuming they begin mid-year. This treatment is supported
 5 by a review of the historical years 2020-2023, as shown in Table KCH-2, below,
 6 which clearly shows that employees are hired in every month of the year.

7 **Table KCH-2**
 8 **Historical Net Change in Employee Count by Month**

Month	2020	2021	2022
January	0	-3	1
February	4	2	1
March	8	-1	2
April	2	0	7
May	-2	-1	2
June	-1	7	8
July	-2	7	-4
August	-1	6	-1
September	4	4	4
October	0	3	-3
November	3	2	6
December	-2	-3	2

9
 10 **Q. PLEASE EXPLAIN YOUR ADJUSTMENT.**

11 A. To make the adjustment in 2024, I have reduced the requested \$2,504,158 for
 12 FPPTY 2024 by 50%. In FY 2025, I included the full \$2,504,158 for employees
 13 hired in 2024 and reduced salaries for new hires in 2025 by 50% to reflect a
 14 continuous roll out of the new hires. In FY 2026, I included the full \$1,318,600
 15 for employees hired in 2025. No new employees were added in 2026 so no partial

⁵ See OSBA Exhibit KCH-1, pg. 3

1 year adjustments were needed in 2026. Please see OSBA Workpaper 1 – New
2 Hire Rollout & Cost of Living Adjustment for my calculations.

3 **Q. WHAT IS THE IMPACT OF THIS ADJUSTMENT?**

4 A. As reported in Table KCH-1, above, this adjustment results in a revenue
5 requirement reduction in GL account 4001-Salary Wages of \$1,252,079 in
6 FPPTY 2024 and a reduction of \$659,300 in 2025.

7 **Q. IS THIS THE ONLY ADJUSTMENT YOU ARE RECOMMENDING FOR**
8 **GL ACCOUNT 4001 SALARY WAGES?**

9 A. No. PWSA’s response to I&E RE-24-D states that the two underlying factors
10 causing year-over-year increases are 1) workforce expansion and 2) annual cost of
11 living increases.⁶ I attempted to reconcile projected expenses in GL Account
12 4001 using PWSA’s stated costs of living increases of 3% in FY 2024, 3% in FY
13 2025 and 5% in FY 2026, but it appears the cost of living escalators PWSA is
14 using are higher than their stated rates, especially in FY 2024. My adjustment
15 utilizes PWSA’s stated cost of living increases. Please see OSBA Workpaper 1 –
16 New Hire Rollout & Cost of Living Adjustment for my calculations.

17 **Q. WHAT IS THE IMPACT OF THIS ADJUSTMENT?**

18 A. As reported in Table KCH-1, above, this adjustment results in a revenue
19 requirement reduction in GL account 4001-Salary Wages of \$1,864,109 in
20 FPPTY 2024, \$1,957,596 in FY 2025, and \$2,088,442 in FY 2026.

21 **Q. WERE ANY OTHER GL ACCOUNTS IMPACTED BY YOUR**
22 **ADJUSTMENTS FOR EMPLOYEE ROLL OUT AND COST OF LIVING?**

⁶ See OSBA Exhibit KCH-1, pg. 4

1 A. Yes. I also made conforming adjustments to the following GL accounts:

- 2 • 4005-OT Premium Pay
- 3 • 4010-Shift Differential
- 4 • 4025-Bonus
- 5 • 4030-Holiday Pay
- 6 • 4035-Vacation Pay
- 7 • 4050-Personal Time Pay

8
9 These GL accounts are directly tied to underlying employee counts. In shifting the
10 new hires from January to a continuous roll out and using PWSA's stated cost of
11 living increase, it was also necessary to adjust the expenses in these accounts.

12 This adjustment conforms to the methodology used by PWSA in the FPFTY 2024
13 COS and Rate Design Model ⁷.

14 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF THIS**
15 **CONFORMING ADJUSTMENT TO GL ACCOUNTS 4005, 4010, 4025,**
16 **4030, 4035, 4050?**

17 A. As reported in Table KCH-1, above, this adjustment reduces revenue requirement
18 \$678,765 in FPFTY 2024, \$565,852 in FY 2025, and \$440,204 in FY 2026.

19 **Q. PLEASE SUMMARIZE THE AGGREGATE IMPACT OF YOUR**
20 **ADJUSTMENTS RELATED TO NEW HIRES ROLL OUT AND COST OF**
21 **LIVING ESCALATION.**

22 A. Taken together, the impact of these adjustments is a reduction of revenue
23 requirement of \$3,794,953 in FPFTY 2024, \$3,128,778 in FY 2025, and
24 \$2,528,647 in FY 2026, as shown in Table KCH-3, below.

25

⁷ See FPFTY 2024 COS and Rate Design Model as shared 5.9.23, worksheets 910 through 931, column G

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Table KCH-3
OSBA Revenue Requirement Adjustments Related to Accounts 4001-4050

Description of Adjustment	GL Account	FPFTY 2024	FY 2025	FY 2026
Change new hire date from January to mid-year	4001	\$ (1,252,079)	\$ (659,330)	\$ -
Cost of Living escalation of 3% in 2024, 3% in 2025, and 5% in 2026	4001	\$ (1,864,109)	\$ (1,957,596)	\$ (2,088,442)
Adjustment to reflect same escalation for account 4001	4005, 4010, 4025, 4030, 4035, 4050	\$ (678,765)	\$ (565,852)	\$ (440,204)
Total		\$ (3,794,953)	\$ (3,182,778)	\$ (2,528,647)

My calculations for these adjustments are included in OSBA Workpaper 2 – PWSA FPFTY 2024 COS and “Rate Design Model as shared 5.9.23 – RR Adj 0% Inflation.”

Q. WHAT ADJUSTMENT ARE YOU PROPOSING WITH RESPECT TO GENERIC O&M INFLATION?

A. I am proposing removing PWSA’s generic 6% O&M escalator that is used for most GL accounts that are not related to salaries, benefits, or chemicals in FPFTY 2024, FY 2025, and FY 2026. I am not proposing any adjustments to escalation rates for chemicals in GL accounts 5005 – 5085 or employee benefits in GL accounts 4110 – 4170.

Q. PLEASE EXPLAIN THE BASIS FOR YOUR ADJUSTMENT.

A. Except for costs related to salaries, benefits and chemicals, most O&M expenses projected by PWSA for FPFTY 2024, FY 2025 and FY 2026 contain a generic cost escalation component to reflect projected inflation of 6%. To apply this cost escalator, PWSA starts with its partially projected future test year of 2023 and

1 then applies the 6% escalation factor to arrive at costs for the fully projected
2 future test year in 2024 and then applies the 6% escalation factor again for FY
3 2025 values, and then applies 6% one more time to arrive at the FY 2026 values.

4 From a ratemaking perspective, I have serious concerns with this
5 approach. First, at a broad policy level, I have concerns about regulatory pricing
6 formulations that reinforce inflation. This occurs when *projections* of inflation
7 are built into formulas that are used to set administratively-determined prices,
8 such as utility rates. Such pricing mechanisms help to make inflation a self-
9 fulfilling prophecy. As a matter of public policy, this is a serious concern. It is
10 one thing to adjust for inflation after the fact; it is another to help guarantee it.
11 For this reason, I believe that regulators should use extreme caution before
12 approving prices that guarantee inflation before it occurs. In this case, the
13 situation is exacerbated by the fact that PWSA is seeking a multi-year approval of
14 rates.

15 The best evidence of what it costs PWSA for non-labor, non-chemical
16 O&M is the Company's actual costs recorded in the base period, adjusted for
17 certain known and measurable changes. The cost increases represented by the
18 escalation factors may or may not come to fruition. In any case, PWSA should be
19 expected to strive to improve its O&M efficiency on a continuous basis, and
20 thereby lessen the net impact of inflation on its O&M costs.

21 **Q. DO YOU HAVE ADDITIONAL CONCERNS REGARDING PWSA'S**
22 **INFLATION ADJUSTMENT?**

1 A. Yes. The cumulative level of generic inflation that PWSA is attempting to build
2 into its rates over a three-year period – 19.1% – is unwarranted and unreasonable.
3 According to PWSA, its annual escalation factor of 6% was estimated by
4 considering inflation that occurred in 2021, 2022 and through the end of March
5 2023.⁸ However, it is not justifiable to roughly extrapolate the inflation results
6 from that anomalous period and assume that high inflation will persist for the
7 three years 2024-2026 – and then to seek to build those higher costs into customer
8 utility rates.

9 **Q. ARE THERE INDICATIONS THAT FUTURE INFLATION IS LIKELY**
10 **TO BE WELL BELOW THE ESCALATORS USED BY PWSA IN ITS**
11 **FILING?**

12 A. Yes. There are now indications that inflation is easing as Federal policymakers
13 have been taking aggressive action to get inflation under control. Since March of
14 2022, the Federal Reserve has increased the Federal Funds Rate eleven times
15 taking the rate from 0.25% to 5.50%, including a 0.25% increase in the most
16 recent July meeting. Public material from the July meeting is not yet available so I
17 refer to the notes from the June 2023 meeting in my testimony.

18 In the June 2023 Federal Open Market Committee meeting, the committee
19 did not raise rates, determining it was expedient to provide additional time to
20 observe the effects of cumulative tightening and assess their implications for
21 policy. In short, the Fed wants to make sure that past policy decisions were not
22 going to plunge the economy into a recession, or a so-called “hard landing.” In

⁸ See OSBA Exhibit 1, pg. 5

1 the June meeting, 15 of 18 participants projected that PCE, or personal
2 consumption expenditures, the Fed’s preferred measure of inflation will be below
3 2.8% in 2024. All 18 members projected that the PCE would be below 3.0% in
4 2025 and will be closer to the target of 2.0% beyond 2025. All members
5 confirmed that they are strongly committed to returning inflation to their 2%
6 objective.⁹ Please refer to OSBA Exhibit KCH-2 for an illustration of the
7 distribution of FOMC participants projections for PCE inflation in 2024, 2025, and
8 longer term.

9 On July 12, 2023 the Bureau of Labor Statistics (“BLS”) released the
10 Consumer Price Index for All Urban Consumer (“CPI-U”), another closely
11 watched inflation metric. Based on the June release, the index increased 3.0%
12 over the last 12 months before seasonal adjustments. As noted in the BLS
13 announcement, this was the smallest 12-month increase since the period ending
14 March 2021.¹⁰

15 **Q. WHAT IS THE REVENUE REQUIREMENT IMPACT OF REMOVING**
16 **THE GENERIC NON-LABOR, NON-CHEMICAL O&M ESCALATION?**

17 A. Removing the generic 6% escalation rate will reduce revenue requirement
18 \$4,143,358 in FPFTY 2024, \$7,491,750 in FY 2025, and \$12,266,358 in FY
19 2026, as shown in Table KCH-4, below.

20

⁹ <https://www.federalreserve.gov/monetarypolicy/fomcminutes20230614.htm>

¹⁰ <https://www.bls.gov/news.release/cpi.nr0.htm#>

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Table KCH-4
Revenue Requirement Impacts of Removing Generic 6% Inflation

<u>GL Account(s)</u>	<u>FPFTY 2024</u>	<u>FY 2025</u>	<u>FY2026</u>
Multiple	\$ (4,143,358)	\$ (7,491,750)	\$ (12,266,358)

OSBA Exhibit KCH-3 shows the impacts of removing the 6% inflation factor in more detail by operating expense sub-accounts. My calculations are included in OSBA Workpaper 2 – PWSA FPFTY 2024 COS and “Rate Design Model as shared 5.9.23 – RR Adj 0% Inflation.”

Q. IF THE COMMISSION IS INCLINED TO APPROVE A GENERIC NON-LABOR, NON-CHEMICAL O&M ESCALATION RATE, WHAT IS THE MAXIMUM ESCALATION RATE THAT SHOULD BE ALLOWED?

A. Based upon the policy intentions of the Federal Open Market Committee to tame inflation as well as the recent CPI-U results, the escalation rate for non-labor, non-chemical O&M should be limited to no greater than 3%. However, my primary recommendation is to remove the inflation escalators entirely from PWSA’s proposed revenue requirement.

Section III – Other Funding Mechanisms

Q. WHAT IS THE DISTRIBUTION SYSTEM IMPROVEMENT CHARGE?

A. The Distribution System Improvement Charge (“DSIC”) is an alternative funding mechanism or revenue source that is assessed as a percentage of revenues collected in base rates from Water and Wastewater retail customers. DSIC

1 revenues are used to fund capital improvement projects. The DSIC is currently set
2 at 5%. In this case, PWSA is proposing to increase the rate to 7.5%

3 **Q. WHAT RECOMMENDATIONS DO YOU HAVE REGARDING PWSA’S**
4 **PROPOSALS CONCERNING THE DISTRIBUTION SYSTEM**
5 **IMPROVEMENT CHARGE?**

6 A. I recommend capping the DSIC at the current level of 5%.

7 **Q. PLEASE EXPLAIN.**

8 A. In this rate case, PWSA is already seeking approval for a three-year rate plan with
9 significant increases in revenue requirement. In PWSA Statement No. 2,
10 Company witness Edward Barca states that, “A multi-year filing permits a better
11 alignment with the levels of expenses and revenues that are reasonably expected
12 to be experienced in the years following the fully projected test year.”¹¹ With the
13 revenue assurance inherent in a multi-year plan, PWSA should be expected to
14 manage within the rates are that pursuant to that plan without resorting to
15 additional extraordinary relief.

16 **Q. WHAT IS THE IMPACT OF THESE RECOMMENDATIONS?**

17 A. Calculating the impacts of capping the DSIC at 5% is a bit of a moving target
18 since the DSIC is assessed as a percentage of revenues and will change based on
19 the underlying revenue requirement. However, based upon the revenue
20 requirement adjustments I am recommending, keeping the DSIC rate at 5% will
21 reduce ratepayer impacts by \$4,840,624 in FPFTY 2024, \$5,692,491 in FY 2025,

¹¹ Direct Testimony of Edward Barca, pg. 45

1 and \$6,715,841 in FY 2026. For calculations, refer to OSBA Workpaper 3 –
2 DSIC Impacts.

3

4 **Section IV – Class Revenue Allocation**

5 **Q. BRIEFLY DESCRIBE PWSA’S PROPOSAL REGARDING RECOVERY**
6 **OF CERTAIN COSTS ASSOCIATED WITH THE CUSTOMER**
7 **ASSISTANCE PROGRAM.**

8 A. PWSA is proposing to collect \$4,663,702 in Customer Assistance Program
9 (“CAP”) costs in FPFTY 2024, \$5,517,017 in FY 2025 and \$6,391,795 as
10 outlined in Table KCH-5

11 **Table KCH-5**
12 **Proposed CAP Costs to be Collected from Customers**

13

Customer Assistance Programs	FPFTY 2024	FY 2025	FY 2026
Forgone Revenue	\$ 4,036,834	\$ 4,651,868	\$ 5,494,825
Direct Operations Costs	\$ 386,869	\$ 408,830	\$ 440,650
Hardship Grant	\$ -	\$ 216,320	\$ 216,320
Arrearage	\$ 240,000	\$ 240,000	\$ 240,000
Total Costs	\$ 4,663,702	\$ 5,517,017	\$ 6,391,795

14

15
16 **Q. HOW DOES PWSA PROPOSE TO COLLECT THESE COSTS?**

17 A. PWSA is proposing to collect the FPFTY 2024 CAP costs shown in Table KCH-5
18 through base rates and is proposing a new charge called the Customer Assistance
19 Charge (“CAC”) to collect these costs in FY 2025 and FY 2026. The costs
20 associated with PWSA’s Customer Assistance Programs benefit residential

1 customers only; however, PWSA is proposing to collect these costs from all
2 customer classes.

3 **Q. BRIEFLY DESCRIBE PWSA’S PROPOSAL REGARDING THE NEW**
4 **CUSTOMER ASSISTANCE CHARGE IN THIS RATE CASE.**

5 A. As designed, the CAC would recover (1) the discounts provided to residential
6 customers pursuant to the Bill Discount Program, (2) the operating costs for the
7 PGH2O Cares team, (3) the costs of PWSA’s residential Hardship Fund, and (4)
8 past due arrearages that would be forgiven pursuant to PWSA’s residential
9 Arrearage Forgiveness Program¹².

10 **Q. ARE THESE CUSTOMER ASSISTANCE PROGRAMS NEW?**

11 A. No, these customer assistance programs are not new. However, collecting CAP
12 costs in base rates in FPFTY 2024 and the proposed CAC are new and are being
13 introduced as PSWA is also proposing to expand some of the programs. Since
14 coming under Commission jurisdiction in 2018, PWSA has advocated having
15 these costs recovered in rates from all customer classes, but doing so would be a
16 change to past Commission precedent.

17 **Q. WHAT DO YOU PROPOSE IN REGARD TO CUSTOMER ASSISTANCE**
18 **PROGRAM COSTS IN FPFTY 2024 AND THE RECOVERY OF CAC IN**
19 **FY 2025 AND FY 2026?**

20 A. My recommendation is that all CAP costs (including CAC in FY 2025 and FY
21 2026) should be recovered solely by the residential class.

22 **Q. PLEASE EXPLAIN THE BASIS FOR YOUR RECOMMENDATION.**

¹² Direct testimony of William J. Pickering, pg. 15

1 A. Consistent with cost allocation principles, customer class should bear the cost of
2 services that directly benefit them. Non-residential customers pay their utility bills
3 based on their usage and requirements, and it is reasonable for them to expect that
4 their payments to support services related to their own consumption, not
5 residential assistance.

6 **Q. DOES THE COMMISSION HAVE A POLICY ON ALLOCATING**
7 **UNIVERSAL SERVICE COSTS?**

8 A. It is my understanding that the Commission has had a longstanding policy of
9 allocating customer assistance program costs only to the customer class whose
10 members are eligible for the program – residential customers. However, more
11 recently the Commission has indicated it would consider recovering the costs of
12 customer assistance programs from all ratepayer classes in utility-specific
13 proceedings in an effort to maintain affordability for non-CAP residential
14 customers.

15 **Q. WHAT WOULD BE THE IMPACT ON EACH CUSTOMER CLASS IN**
16 **FPFTY 2024 IF ALL CAP RELATED COSTS WERE RECOVERED BY**
17 **THE RESIDENTIAL CLASS?**

18 A. The Residential Class would be required to collect an additional \$2,650,585 or
19 2.8%. All other classes would be reduced as shown in Table KCH-6, below.

20

Table KCH-6
Class Impact of Allocating FPFTY 2024 CAP Costs to Residential

Customer Class	Increase/(Decrease)	% Change
Residential	\$ 2,650,585	2.8%
Residential - CAP	\$ (6,768)	-0.3%
Commercial	\$ (1,730,862)	-2.0%
Industrial	\$ (96,848)	-2.3%
Health or Education	\$ (572,450)	-1.8%
Municipal	\$ (131,853)	-1.9%
All Other	\$ (111,803)	-1.0%
Total	\$ -	0%

Q. HAVE YOU QUANTIFIED THE AVERAGE MONTHLY COST TO NON-CAP RESIDENTIAL CUSTOMERS ASSUMING PWSA’S NEWLY PROPOSED CAC WAS RECOVERED SOLELY FROM NON-CAP RESIDENTIAL CUSTOMERS?

A. Yes, I have. These calculations are presented in Exhibit KCH-4. They indicate that if costs associated with the CAC were recovered from non-CAP residential customers, the increase on the monthly bill would be less than \$2.36 in FY 2025 for a customer with two ERUs and would be \$2.74 in FY 2026 for a customer with two ERUs.

My calculations are based on changes made to the PWSA FPFTY COS and “Rate Design Model as shared 5.9.23.” Please see OSBA Workpaper 4 – PWSA FPFTY 2024 COS and “Rate Design Model as shared 5.9.23 – CAP Covered by Residential.”

Q. IN YOUR OPINION, WOULD RECOVERING PWSA’S PROPOSED CAP COSTS FROM NON-CAP RESIDENTIAL CUSTOMERS RENDER

1 **PWSA’S RESIDENTIAL WATER, WASTEWATER, AND**
2 **STORMWATER BILL UNAFFORDABLE?**

3 A. Based on the bill impacts shown in Tables KCH-7 and KCH-8, it would not.

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes, it does.

OSBA EXHIBIT KCH-1

See PWSA response in OCA-VI-6 Number Employees by Category 2020-2026

Employee Group	Position	FY 2024
Non-Union	PUC Compliance Manager	\$75,000
Union	Customer Service Representative 1	\$45,858
Union	Customer Service Representative 1	\$45,858
Non-Union	Senior Project Manager, Wastewater/Stormwater	\$140,000
Non-Union	Project Engineer	\$75,000
Non-Union	Environmental Compliance Specialist	\$75,000
Non-Union	Financial Analyst	\$76,740
Non-Union	Contract Specialist	\$72,100
Non-Union	Director of Human Resources	\$178,190
Non-Union	Training Administrator	\$75,000
Non-Union	Diversity, Equity, & Inclusion Specialist	\$60,000
Union	Scientist	\$57,913
Non-Union	Senior Manager of IT	\$120,000
Non-Union	Senior GIS Analyst	\$80,000
Non-Union	GPS Field Services Tech	\$65,000
Non-Union	Government Affairs Manager	\$75,000
Non-Union	Communications Manager	\$90,000
Non-Union	Security Guard	\$42,436
Non-Union	Security Guard	\$42,436
Union	Foreman	\$75,773
Union	T.V. Truck Specialist	\$68,534
Union	T.V. Truck Specialist	\$68,534
Union	Utility Worker I	\$61,140
Non-Union	Capital Projects Manager	\$85,000
Union	Lead Utility Worker	\$70,000
Union	Utility Worker I	\$67,375
Union	Valve & Hydrant Specialist	\$66,743
Union	Valve & Hydrant Specialist	\$66,743
Union	Truck Driver	\$66,335
Union	Truck Driver	\$66,335
Non-Union	Plant Operations Asset Manager	\$75,115
Non-Union	Plant Operations Project Manager - Production	\$90,000
Union	Plant Maintenance Foreman	\$85,000
	Total	\$2,504,158

See PWSA response in OCA-VI-6 Number Employees by Category 2020-2026

Employee Group	Position	FY 2025
Union	Utility Worker I	\$69,396
Union	Utility Worker I	\$69,396
Union	Utility Worker I	\$69,396
Union	Utility Worker I	\$69,396
Union	Inspector II	\$61,868
Union	Valve & Hydrant Specialist	\$68,745
Union	Valve & Hydrant Specialist	\$68,745
Union	Customer Service Representative 1	\$47,234
Union	Customer Service Representative 1	\$47,234
Non-Union	Human Resources Analyst	\$75,000
Non-Union	Compensation & Benefits Specialist	\$60,000
Non-Union	Instructional Designer	\$60,000
Non-Union	Employment Attorney	\$140,000
Non-Union	Public Affairs Specialist	\$60,000
Non-Union	Public Affairs Administrative Assistant	\$55,000
Non-Union	Public Affairs Specialist	\$60,000
Non-Union	Engineer II	\$75,000
Non-Union	Associate Project Manager	\$85,000
Non-Union	Project Engineer	\$77,250
	Total	\$1,318,660

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-24-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail any year-over-year increases of \$25,000 and 10% or greater in the following sub-categories of Wages and Salaries Expense for each calendar year from 2020 through 2026 and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY, FPFTY, FY 2025 and FY 2026:

- A. Salary and Wages (4001).
- B. OT Premium Pay (4005).
- C. Shift Differential (4010).
- D. Bonus (4025).
- E. Holiday Pay (4030).
- F. Vacation Pay (4035).
- G. Personal Time Pay (4050).

Response:

The two underlying factors that are causing year-over-year increases in the GL accounts listed above is 1) workforce expansion and 2) annual cost of living increases.

PWSA has increased its workforce by approximately 60 employees between 2020 and 2023 with the plans to add an additional 52 positions between the FPFTY and FY 2026. The chart below demonstrates the cost of living increases from 2020 through 2026 by non-union and union employees.

	Actual				Projected		
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Non-Union	3%	3%	3%	3%	3%	3%	5%
PJCBC	3%	3%	3%	3%	3%	3%	5%
AFSCME 2719	3%	2%	0%	4%	3%	3%	5%
AFSCME 2037	3%	3%	3%	3%	3%	3%	5%

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

**Response of the Pittsburgh Water and Sewer Authority ("PWSA")
to the Interrogatories of the Bureau of Investigation and Enforcement ("I&E")
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

- Request: I&E-RE-44-D** Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Provide the following:
- A. Basis, calculation, and supporting documentation for applying a 6% inflation increase to the majority of expenses from FTY to FPFTY.
 - B. Basis, calculation, and supporting documentation for any general inflation increase from FPFTY to FY 2025 and from FY 2025 to FY 2026.

Response: See below.

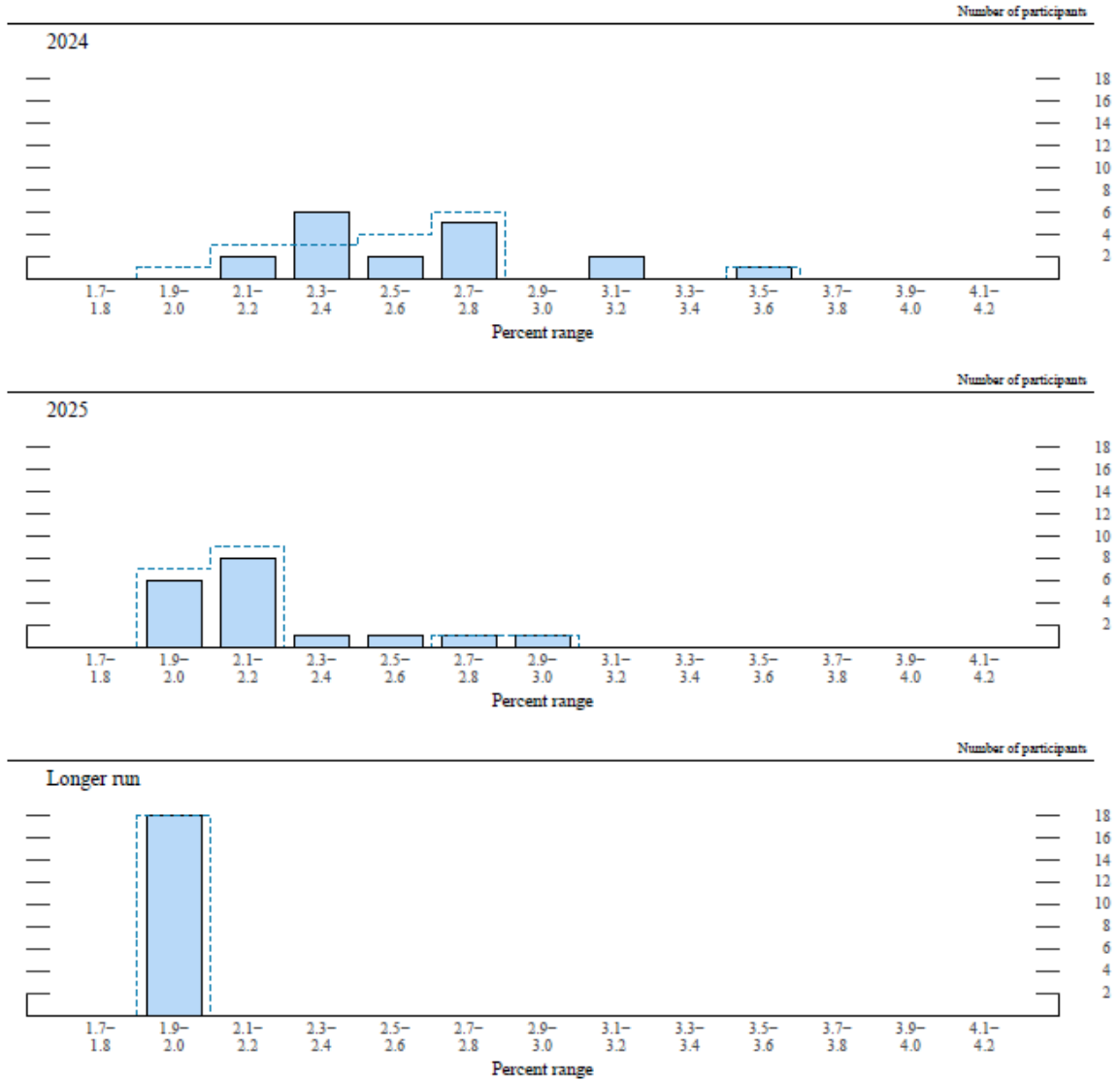
- A. Basis, calculation, and supporting documentation for applying a 6% inflation increase to the majority of expenses from FTY to FPFTY. – See Testimony St. No. 2, pages 10 and 11. PWSA analyzed historical inflationary rates to find an inflationary rate that was reasonable and just for the FTY to FPFTY. 6% is reasonable when you consider it was 4.70% in 2021, 8.00% in 2022, and 6.89% through the end of March 2023.
- B. Basis, calculation, and supporting documentation for any general inflation increase from FPFTY to FY 2025 and from FY 2025 to FY 2026. – See Testimony St. No. 2, pages 10 and 11. PWSA analyzed historical inflationary rates to find an inflationary rate that was reasonable and just for the FPFTY to FY 2025. 6% is reasonable when you consider it was 4.70% in 2021, 8.00% in 2022, and 6.89% through the end of March 2023.

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

OSBA EXHIBIT KCH-2

Distribution of FOMC participants projections for PCE inflation



Source: <https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20230614.pdf>

OSBA EXHIBIT KCH-3

Comparison of FR-III.1 after Removing 6% Inflation

Expenses	PWSA As Filed			OSBA Adjusted Results after Removing 6% Inflation			Difference between PWSA as Filed and OSBA Adjusted		
	FPFTY	FY	FY	FPFTY	FY	FY	FPFTY	FY	FY
	12 Months Ended 12/31/2024	12 Months Ended 12/31/2025	12 Months Ended 12/31/2026	12 Months Ended 12/31/2024	12 Months Ended 12/31/2025	12 Months Ended 12/31/2026	12 Months Ended 12/31/2024	12 Months Ended 12/31/2025	12 Months Ended 12/31/2026
Adjusted Wages & Salaries	\$ 69,957	\$ 74,130	\$ 78,551	\$ 67,797	\$ 69,680	\$ 71,675	\$ (2,160)	\$ (4,450)	\$ (6,877)
Total Employee Benefits	\$ 12,360,967	\$ 13,973,205	\$ 15,938,579	\$ 12,321,491	\$ 13,892,209	\$ 15,814,174	\$ (39,476)	\$ (80,996)	\$ (124,405)
TOTAL SALARIES & BENEFITS	\$ 54,293,361	\$ 58,818,287	\$ 63,043,645	\$ 50,456,772	\$ 55,550,064	\$ 60,383,717	\$ (3,836,589)	\$ (3,268,223)	\$ (2,659,929)
Chemicals	\$ 7,279,440	\$ 8,735,328	\$ 10,482,394	\$ 7,263,440	\$ 8,700,128	\$ 10,424,154	\$ (16,000)	\$ (35,200)	\$ (58,240)
Equipment	\$ 3,411,233	\$ 3,615,907	\$ 3,832,862	\$ 3,335,192	\$ 3,335,192	\$ 3,335,192	\$ (76,041)	\$ (280,715)	\$ (497,670)
Materials	\$ 1,039,947	\$ 1,102,344	\$ 1,168,484	\$ 998,043	\$ 998,043	\$ 998,043	\$ (41,904)	\$ (104,301)	\$ (170,441)
Operating Contracts	\$ 32,537,482	\$ 36,289,731	\$ 40,807,115	\$ 31,126,941	\$ 33,384,017	\$ 36,316,517	\$ (1,410,541)	\$ (2,905,714)	\$ (4,490,598)
Repairs & Maintenance	\$ 14,668,160	\$ 15,548,249	\$ 16,481,144	\$ 13,837,886	\$ 13,837,886	\$ 13,837,886	\$ (830,273)	\$ (1,710,363)	\$ (2,643,258)
Misc. Operating	\$ 333,370	\$ 353,372	\$ 374,575	\$ 314,500	\$ 314,500	\$ 314,500	\$ (18,870)	\$ (38,872)	\$ (60,075)
Inventory - Castings	\$ 246,344	\$ 261,125	\$ 276,792	\$ 232,400	\$ 232,400	\$ 232,400	\$ (13,944)	\$ (28,725)	\$ (44,392)
Inventory - Clarifier	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Inventory - Equipment	\$ 64,872	\$ 68,764	\$ 72,890	\$ 61,200	\$ 61,200	\$ 61,200	\$ (3,672)	\$ (7,564)	\$ (11,690)
Inventory - Hardware	\$ 432,862	\$ 458,833	\$ 486,363	\$ 408,360	\$ 408,360	\$ 408,360	\$ (24,502)	\$ (50,473)	\$ (78,003)
Inventory - Heavy Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Inventory - Miscellaneous	\$ 57,876	\$ 61,349	\$ 65,029	\$ 54,600	\$ 54,600	\$ 54,600	\$ (3,276)	\$ (6,749)	\$ (10,429)
Inventory - Parts	\$ 231,504	\$ 245,394	\$ 260,118	\$ 218,400	\$ 218,400	\$ 218,400	\$ (13,104)	\$ (26,994)	\$ (41,718)
Inventory - Pipe	\$ 812,702	\$ 861,464	\$ 913,152	\$ 766,700	\$ 766,700	\$ 766,700	\$ (46,002)	\$ (94,764)	\$ (146,452)
Inventory - Valves	\$ 231,080	\$ 244,945	\$ 259,641	\$ 218,000	\$ 218,000	\$ 218,000	\$ (13,080)	\$ (26,945)	\$ (41,641)
INVENTORY TOTAL	\$ 2,077,240	\$ 2,201,874	\$ 2,333,986	\$ 1,959,660	\$ 1,959,660	\$ 1,959,660	\$ (117,580)	\$ (242,214)	\$ (374,326)
DIRECT OPERATING TOTAL	\$ 80,673,885	\$ 89,284,545	\$ 99,259,271	\$ 77,445,243	\$ 83,296,883	\$ 90,360,972	\$ (3,228,642)	\$ (5,987,661)	\$ (8,898,299)
Total Fees	\$ 1,178,475	\$ 1,249,184	\$ 1,324,135	\$ 1,113,818	\$ 1,113,818	\$ 1,113,818	\$ (64,657)	\$ (135,366)	\$ (210,317)
Total Freight and Postage	\$ 475,124	\$ 503,631	\$ 533,849	\$ 448,230	\$ 448,230	\$ 448,230	\$ (26,894)	\$ (55,401)	\$ (85,619)
Total Leases & Rents	\$ 2,130,705	\$ 2,258,548	\$ 2,394,060	\$ 2,121,929	\$ 2,121,929	\$ 2,121,929	\$ (8,776)	\$ (136,618)	\$ (272,131)
Total Professional Services	\$ 15,517,397	\$ 13,348,441	\$ 14,149,348	\$ 14,451,157	\$ 12,587,465	\$ 12,587,465	\$ (1,066,241)	\$ (760,976)	\$ (1,561,883)
Total Supplies	\$ 1,574,511	\$ 1,668,981	\$ 1,769,120	\$ 1,524,421	\$ 1,524,421	\$ 1,524,421	\$ (50,089)	\$ (144,560)	\$ (244,699)
Total Travel & Entertainment	\$ 280,932	\$ 297,788	\$ 315,655	\$ 265,030	\$ 265,030	\$ 265,030	\$ (15,902)	\$ (32,758)	\$ (50,625)
Total Utilities	\$ 8,030,402	\$ 9,170,486	\$ 10,477,714	\$ 7,035,851	\$ 7,035,851	\$ 7,035,851	\$ (994,551)	\$ (2,134,635)	\$ (3,441,863)
Total Miscellaneous Admin	\$ (11,246,536)	\$ (11,921,328)	\$ (12,636,608)	\$ (10,609,940)	\$ (10,609,940)	\$ (10,609,940)	\$ 636,596	\$ 1,311,389	\$ 2,026,668
Adjusted Operating Expenses	\$ 91,718,805	\$ 98,469,870	\$ 109,824,963	\$ 87,575,447	\$ 90,978,120	\$ 97,558,605	\$ (4,143,358)	\$ (7,491,750)	\$ (12,266,358)

OSBA Exhibit KCH-4

FY 2025 CAC Allocation to Non-CAP Residential

Allocated CAP Costs	Water	Wastewater	Stormwater
Forgone Revenue	\$2,699,628	\$995,637	\$956,602
Operations	\$244,259	\$82,711	\$81,860
Hardship	\$88,320	\$128,000	\$0
Arrearage	<u>\$97,988</u>	<u>\$142,012</u>	<u>\$0</u>
Total Charge Recovery	\$3,130,195	\$1,348,360	\$1,038,462

Units

Residential Bills	2,592,131	3,469,817	
Tier 1 ERU's			5,819
Tier 2 ERU's			59,136
Tier 3 ERU's			25,806

Residential Increase per Month

per Residential Bill	\$1.21	\$0.39	
per Tier 1 ERU's			\$0.38
per Tier 2 ERU's			\$0.76
per Tier 3 ERU's			\$1.52

FY 2026 CAC Allocation to Non-CAP Residential

Allocated CAP Costs	Water	Wastewater	Stormwater
Forgone Revenue	\$3,201,468	\$1,174,453	\$1,118,904
Operations	\$263,270	\$89,149	\$88,231
Hardship	\$88,320	\$128,000	\$0
Arrearage	<u>\$97,988</u>	<u>\$142,012</u>	<u>\$0</u>
Total Charge Recovery	\$3,651,046	\$1,533,614	\$1,207,135

Units

Residential Bills	2,592,131	3,469,817	
Tier 1 ERU's			5,819
Tier 2 ERU's			59,136
Tier 3 ERU's			25,806

Residential Increase per Month

per Residential Bill	\$1.41	\$0.44	
per Tier 1 ERU's			\$0.44
per Tier 2 ERU's			\$0.89
per Tier 3 ERU's			\$1.77

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
	:	
	:	
	:	
	:	
	:	
Petition of the Pittsburgh Water and Sewer Authority for Authorization to Implement a Customer Assistance Charge	:	Docket No. P-2023-3040578
	:	
	:	
	:	
Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
	:	
	:	
	:	

VERIFICATION

I, Kevin C. Higgins, hereby state that the facts set forth in my Direct Testimony labelled OSBA Statement No. 1 are true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 19 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: August 8, 2023



Kevin C. Higgins

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
v.	:	R-2023-3039921 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2023-3039919 (Stormwater)
	:	
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Implement a Customer Assistance Charge	:	Docket No. P-2023-3040578
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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
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CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served via email (*unless other noted below*) upon the following persons, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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DATE: August 9, 2023

/s/ Sharon E. Webb

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Assistant Small Business Advocate
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COMMONWEALTH OF PENNSYLVANIA

September 8, 2023

The Honorable Gail Chiodo
Administrative Law Judge
Pennsylvania Public Utility Commission
400 North Street
Commonwealth Keystone Building
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority / Docket Nos. R-2023-3039920 (Water); R-2023-3039921 (Wastewater); R-2023-3039919 (Stormwater) & Pittsburgh Water and Sewer Authority's Petition to Implement Customer for Assistance Charge / Docket No. P-2023-3040578 & Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5% / Docket Nos. P-2023-3040734 (Water) P-2023-3040735 (Wastewater)

Dear Judge Chiodo:

Enclosed please find the Rebuttal Testimony of Kevin C. Higgins, labeled OSBA Statement No. 1-R, on behalf of the Office of Small Business Advocate ("OSBA"), in the above-captioned proceedings.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Sharon E. Webb

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995

Enclosures

cc: PA PUC Secretary Rosemary Chiavetta (Cover Letter & Certificate of Service only)
Brian Kalcic
Kevin Higgins
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
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OSBA STATEMENT NO. 1-R

Rebuttal Testimony of Kevin C. Higgins

on behalf of the

Pennsylvania Office of Small Business Advocate

September 8, 2023

Topics:

Customer Assistance Charge

Customer Assistance Program

Date Served: September 8, 2023

Date Submitted for the Record: _____

1 **REBUTTAL TESTIMONY OF KEVIN C. HIGGINS**

2

3 **Section I - Introduction**

4 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

5 A. My name is Kevin C. Higgins. My business address is 111 East Broadway, Suite
6 1200, Salt Lake City, Utah, 84111.

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies is a
9 private consulting firm specializing in economic and policy analysis applicable to
10 energy production, transportation, and consumption.

11 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

12 A. My rebuttal is being sponsored by the Pennsylvania Office of Small Business
13 Advocate (“OSBA”).

14 **Q. HAVE YOU PREVIOUSLY SUBMITTED DIRECT TESTIMONY IN THIS**
15 **PROCEEDING?**

16 A. Yes.

17 **Q. WHAT IS THE SUBJECT OF YOUR REBUTTAL TESTIMONY?**

18 A. I will respond to the direct testimony of the following witnesses: (1) Dr. Karl R.
19 Pavlovic on behalf of the OCA; (2) Ms. Vanessa Okum on behalf of BIE, and (3)
20 Mr. Roger D. Colton on behalf of the OCA.

21 **Q. BEFORE PROCEEDING WITH YOUR REBUTTAL, DO YOU HAVE**
22 **ANY PRELIMINARY COMMENTS REGARDING YOUR DIRECT**
23 **TESTIMONY?**

1 A. Yes. On page 21, line 3 of my direct testimony, I erroneously referenced Tables
2 KCH-7 and KCH-8. The reference should instead be to OSBA Exhibit KCH-4.

3

4 **Section II – Customer Assistance Charge**

5 **Q. WHAT DOES OCA WITNESS DR. PAVLOVIC RECOMMEND**
6 **REGARDING PWSA’S PROPOSAL TO INSTITUTE THE CUSTOMER**
7 **ASSISTANCE CHARGE (CAC) STARTING IN FY 2025?**

8 A. In OCA Statement 2, Dr. Pavlovic recommends that the Commission reject
9 PWSA’s proposed Customer Assistance Charge.

10 **Q. WHAT ARGUMENTS DOES DR. PAVLOVIC’S MAKE IN SUPPORT OF**
11 **HIS RECOMMENDATION?**

12 A. Dr. Pavlovic argues that mechanisms that allow for the automatic pass through of
13 costs, commonly called “cost trackers”, weaken a utility’s incentive to control
14 costs. Such mechanisms are generally disfavored by regulators and only
15 appropriate under certain circumstances, namely when costs are (1) largely
16 outside of control of utility, (2) unpredictable and volatile and, (3) substantial and
17 recurring. None of these circumstances are applicable to the customer assistance
18 program costs intended to be collected by the CAC.

19 Dr. Pavlovic also disputes the CAC based on his conclusion that PWSA has
20 made no showing that there are exceptional circumstances that warrant a
21 suspension or waiver of the Public Utility Code to allow a universal service rider.

1 **Q. WHAT DOES BIE WITNESS VANESSA OKUM RECOMMEND**
2 **REGARDING PWSA’S PROPOSAL TO INSTITUTE THE CUSTOMER**
3 **ASSISTANCE CHARGE (CAC) STARTING IN FY 2025?**

4 A. In I&E Statement 2, Ms. Okum also recommends that the CAC be disallowed.

5 **Q. WHY DOES MS. OKUM RECOMMEND THE CAC BE DISALLOWED?**

6 A. Ms. Okum notes that “with the implementation of this charge not proposed before
7 FY 2025, the expectation is that this charge will simple serve as an opportunity to
8 add new revenues between base rate cases”¹ which resembles single-issue
9 ratemaking. Supporting this argument, she notes that PWSA does not propose to
10 keep all program costs with the rider but, instead will use it to adjust for over or
11 under recoveries of the amount included in base rates. Ms. Okum also argues that
12 since the CAC is proposed to be combined with other charges on customer bills, it
13 will reduce transparency.

14 **Q. DO YOU AGREE WITH THE RECOMMENDATIONS MADE BY DR.**
15 **PAVLOVIC AND MS. OKUM?**

16 A. Yes, I agree that the Commission should reject PWSA’s proposed CAC.

17 **Q. WHY DO YOU AGREE?**

18 A. I agree that the CAC is poorly designed, will reduce transparency, and will
19 weaken PWSA’s incentive to control the costs of the customer assistance
20 programs.

¹ BIE Statement No 2, pg. 35, lines 13-15

1 **Section III - Response To OCA Witness Roger Colton**

2 **Q. WHAT SUBJECT MATTER DOES MR. COLTON ADDRESS IN OCA**
3 **STATEMENT 4?**

4 A. As stated by Mr. Colton, the purpose of his testimony is “to review the
5 reasonableness of the design and proposed implementation of the low-income bill
6 payment assistance programs offered by the Pittsburgh Water and Sewer
7 Authority (PWSA)”.² As a result of his review, Mr. Colton makes several
8 recommendations on how to enhance and/or expand components of PWSA’s
9 customer assistance programs some of which are intended to expand eligibility
10 and to increase enrollment and retention.

11 **Q. DO YOU SUPPORT THE RECOMMENDATIONS MADE BY MR.**
12 **COLTON IN OCA STATEMENT 4?**

13 A. OSBA neither supports nor opposes the multitude of recommendations made by
14 Mr. Colton, so long as all customer assistance program costs are recovered solely
15 from residential customers.

16 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

17 A. Yes, it does.

² OCA Statement 4, pg. 4, lines 15-17


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PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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VERIFICATION

I, Kevin C. Higgins, hereby state that the facts set forth in my Rebuttal Testimony labelled OSBA Statement No. 1-R are true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 19 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: September 7, 2023


Kevin C. Higgins

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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CERTIFICATE OF SERVICE

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Alan.Seltzer@Bipc.Com
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/s/ Sharon E. Webb

DATE: September 8, 2023

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995



COMMONWEALTH OF PENNSYLVANIA

September 22, 2023

The Honorable Gail Chiodo
Administrative Law Judge
Pennsylvania Public Utility Commission
400 North Street
Commonwealth Keystone Building
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v. The Pittsburgh Water and Sewer Authority / Docket Nos. R-2023-3039920 (Water); R-2023-3039921 (Wastewater); R-2023-3039919 (Stormwater) & Pittsburgh Water and Sewer Authority's Petition to Implement Customer for Assistance Charge / Docket No. P-2023-3040578 & Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5% / Docket Nos. P-2023-3040734 (Water) P-2023-3040735 (Wastewater)

Dear Judge Chiodo:

Enclosed please find the Surrebuttal Testimony of Kevin C. Higgins, labeled OSBA Statement No. 1-S, on behalf of the Office of Small Business Advocate ("OSBA"), in the above-captioned proceedings.

As evidenced by the enclosed Certificate of Service, all known parties will be served, as indicated.

If you have any questions, please do not hesitate to contact me.

Sincerely,

/s/ Sharon E. Webb

Sharon E. Webb
Assistant Small Business Advocate
Attorney ID No. 73995

Enclosures

cc: PA PUC Secretary Rosemary Chiavetta (Cover Letter & Certificate of Service only)
Brian Kalcic
Kevin Higgins
Parties of Record

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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OSBA STATEMENT NO. 1-S

Surrebuttal Testimony of Kevin C. Higgins

on behalf of the

Pennsylvania Office of Small Business Advocate

September 22, 2023

Topics:

Revenue Requirement Adjustments

Customer Assistance Program

1 **SURREBUTTAL TESTIMONY OF KEVIN C. HIGGINS**

2

3 **Section I - Introduction**

4 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

5 A. My name is Kevin C. Higgins. My business address is 111 East Broadway, Suite
6 1200, Salt Lake City, Utah, 84111.

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am a Principal in the firm of Energy Strategies, LLC. Energy Strategies is a
9 private consulting firm specializing in economic and policy analysis applicable to
10 energy production, transportation, and consumption.

11 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

12 A. My surrebuttal is being sponsored by the Pennsylvania Office of Small Business
13 Advocate (“OSBA”).

14 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS**
15 **PROCEEDING?**

16 A. Yes. I have submitted both direct and rebuttal testimony.

17 **Q. WHAT IS THE SUBJECT OF YOUR SURREBUTTAL TESTIMONY?**

18 A. I will respond to the rebuttal testimony of the following witnesses: (1) Mr.
19 Edward Barca, Director of Finance for PWSA; and (2) Mr. Roger Colton on
20 behalf of OCA.

1 **Section II – Response to Rebuttal of PWSA Witness Edward Barca**

2 **Q. ON PAGE 43 OF HIS REBUTTAL TESTIMONY, MR. BARCA**
3 **DISAGREES WITH OSBA’S ADJUSTMENT TO “ROLL OUT” NEW**
4 **HIRES OVER THE COURSE OF THE TEST YEAR, STATING THAT**
5 **“OSBA IS NOT USING A FULLY FORECASTED TEST YEAR.” HOW**
6 **DO YOU RESPOND?**

7 A. I disagree. Section 315(e) of Pennsylvania Statue Title 66 defines a fully
8 projected future test year (FPFTY) as “the 12-month period beginning with the
9 first month that the new rates will be placed in effect after application of the full
10 suspension period permitted under section 1308 (d).”¹ In this docket, the FPFTY
11 has been designated as the “fully forecasted 12 months ending December 31,
12 2024”² as stated in Mr. Barca’s direct testimony. All of the legitimately projected
13 expenses expected to be incurred over the course of the FPFTY should be
14 included in the revenue requirement, but a FPFTY does not imply that all new
15 employees for that year will be hired on the first day of the year.

16 In calculating my revenue requirement adjustment related to new hires, I
17 relied on PWSA’s employee count projections provided in response to I&E Data
18 Request 3Da, entitled “Budgeted and Actual Employee Counts by Months 2022-
19 2026.” The spreadsheet provided by PWSA as the response includes monthly
20 employee counts by department from January 2020 through December 2026. The
21 data for January 2020 through April 2023 represent actual historical counts³ and

¹ 66 Pa. C.S. § 315(e)

² PWSA St. No. 2, pg. 8

³ In Statement 1, pg. 26, PWSA witness William J. Pickering states that “PWSA has 393 employees as of April 23, 2023” which closely ties to the 392 value for April 2023 in Data Response I&E RE-3Da.

1 May 2023 through December 2026 represent budgeted projections. The
2 spreadsheet shows that PWSA assumed that the Authority would have 388
3 employees in December 2023 and 421 employees in January 2024, implying that
4 PWSA assumed all 33 new hires in the FPFTY would occur at once. I do not
5 consider such an assumption to be realistic.

6 While Mr. Barca testifies that PWSA's headcount is now 418, he does not
7 reconcile the current headcount with the budgeted projections provided in the
8 previously cited data response to BI&E, nor does he provide any explanation for
9 the difference.

10 **Q. MR. BARCA CONTENDS THAT PWSA WILL NOT PASS THE**
11 **ADDITIONAL BONDS TEST IF THE FPFTY REVENUE**
12 **REQUIREMENT RECOMMENDATIONS OF OSBA WERE ADOPTED.**
13 **DO YOU AGREE?**

14 A. No, I do not.

15 **Q. WHY NOT?**

16 A. Mr. Barca calculated the additional bond test using revenues adjusted by OSBA's
17 recommended reductions but did not make the corresponding reductions to
18 expenses incorporated into my adjusted revenue requirement. The revenue
19 requirement adjustments I recommended in my direct testimony were related to
20 O&M expenses such as new employee costs, PWSA's overstated cost-of-living
21 adjustment, and PWSA's unreasonable inflation adjustment. If revenues and
22 expenses were adjusted based on the recommendations in my direct testimony, all
23 bond tests, including the additional bond test, would be satisfied.

1 **Q. MR. BARCA CONTENDS THAT “OSBA RECOMMENDS THAT PWSA’S**
2 **INFLATION ADJUSTMENTS BE REMOVED IN THEIR ENTIRETY.”⁴**

3 **WHAT IS YOUR RESPONSE?**

4 A. While I recommend removing PWSA’s 6% generic inflation factor, I did not
5 make any adjustments to the 20% inflation factor that was applied to chemicals
6 (GL Accounts 5005 – 5085), nor did I recommend adjusting the escalation factors
7 applied to employee benefits (GL Accounts 4110 – 4175), such as medical health
8 insurance that PWSA assumes will escalate at 13% in 2024, 18% in 2025, and
9 20% in 2026. I also recommended a cost-of-living adjustment for costs
10 associated with Salaries of 3% in 2024, 3% in 2025, and 5% in 2026 that was
11 equal to the company’s projected annual cost of living increases provided in
12 response to I&E-RE-24-D data request. I stand by my recommendation that the
13 Commission reject PWSA’s exaggerated generic inflation factor.

14 **Section III - Response to Rebuttal of OCA Witness Roger Colton**

15 **Q. MR. COLTON ASSERTS THAT “EVER SINCE PWSA HAS BECOME**
16 **REGULATED BY THE PUC, AS A MUNICIPAL UTILITY, THE**
17 **COMMISSION HAS APPROVED THE ALLOCATION OF CUSTOMER**
18 **ASSISTANCE PROGRAM (“CAP”) OVER ALL CUSTOMER**
19 **CLASSES.”⁵ DO YOU AGREE WITH THIS CHARACTERIZATION?**

20 A. No. It is my understanding that PWSA initiated its CAP on January 1, 2018. Just
21 three months later, PWSA came under the jurisdiction of the Commission, and the
22 Authority filed its first base rate case under Commission jurisdiction on July 2,

⁴ PWSA St. No. 2-R, pg. 68

⁵ OCA Statement 4R, pg. 3

1 2018. It is also my understanding that prior to the current proceeding, PWSA
2 concluded three base rate cases via black box settlements that did not specifically
3 address cost recovery of CAP costs. While I agree it is correct to state that PWSA
4 has consistently advocated for recovering its CAP costs from all customer classes,
5 it is my understanding that the Commission has not ever ruled on the issue for
6 PWSA.

7 **Q. MR. COLTON CITES SEVERAL PHILADELPHIA GAS WORKS**
8 **(“PGW”) CASES AS LONGSTANDING PRECEDENT FOR**
9 **ALLOCATING UNIVERSAL SERVICE COSTS BY A REGULATED**
10 **MUNICIPAL UTILITY. WHAT IS YOUR REPSONSE.**

11 A. It is my understanding that PGW’s CAP program operated for many years before
12 becoming regulated by the Commission, and that prior to being subject to
13 Commission oversight, PGW collected rates to fund its program from all rate
14 classes except Large Industrial. In contrast, PWSA did not have a long history of
15 operating its BDP-CAP program before becoming regulated by the Commission.
16 Nor has PWSA’s requested universal service budget expanded to the point where
17 its services would be unaffordable for non-CAP customers if universal service
18 costs were to be recovered solely from residential ratepayers. The Commission
19 should decide the issue of universal service cost recovery for PWSA based on the
20 evidence presented in their respective base rate proceedings – not on the basis of
21 how PGW recovers universal service costs.

22 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

23 A. Yes, it does.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket Nos. R-2023-3039920 (Water)
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VERIFICATION

I, Kevin C. Higgins, hereby state that the facts set forth in my Surrebuttal Testimony labelled OSBA Statement No. 1-S are true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 19 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: September 21, 2023


Kevin C. Higgins

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PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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Petition of the Pittsburgh Water and Sewer Authority for Authorization to Increase Water and Wastewater DSIC Charge Caps to 7.5%	:	Docket Nos. P-2023-3040734 (Water)
	:	P-2023-3040735 (Wastewater)
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CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of the foregoing have been served via email (*unless other noted below*) upon the following persons, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

WILLIAM J. PICKERING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Overview of Filing

Description of PWSA and Process of Transition

Organizational Structure, Management Quality Updates

Accomplishments Since Last Rate Case

May 9, 2023

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TABLE OF EXHIBITS

WJP-1	Rate Case Tables
WJP-2	2019 Cooperation Agreement

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND CURRENT POSITION WITH PWSA.**

3 A. My name is William J. Pickering. My position with The Pittsburgh Water & Sewer
4 Authority (“PWSA” or “Authority”) is Chief Executive Officer.

5 **Q. HOW LONG HAVE YOU HELD THIS POSITION?**

6 A. I assumed the position of Executive Director for PWSA on June 1, 2020. On November
7 13, 2020, my title changed to Chief Executive Officer, through modifications made by
8 the Board to the Bylaws.

9 **Q. WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES?**

10 A. In my present position, my responsibilities include executing policy goals and objectives
11 established by the Board of Directors; preparing an annual business plan and budget;
12 developing, supervising and administering the PWSA’s staff and programs; directing the
13 operation of the water system; overseeing the operation of the sewer system and related
14 stormwater system; developing and implementing a capital improvement and
15 maintenance plan; directing water Customer Assistance Program efforts; and interacting
16 with customers, elected officials, consumer groups, governmental entities and the media.

17 **Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.**

18 A. Prior to joining PWSA in fall 2016, I was Manager of Communications and Government
19 Relations at DC Water. There, I managed the communications program and spearheaded
20 DC Water’s interactions with the federal, District and neighboring local governments. I
21 have also held several positions in the local and federal government. I have a Bachelor of
22 Science in Political Science from Santa Clara University and received my Certificate in
23 Public Management from George Washington University.

1 **Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THIS COMMISSION?**

2 A. Yes. In PWSA’s 2021 base rate proceeding, I submitted direct testimony on April 13,
 3 2021 and rebuttal testimony on July 29, 2021.¹ Also, in PWSA’s 2020 rate case, I
 4 submitted rebuttal testimony and adopted the direct testimony of Robert A. Weimar,
 5 PWSA’s former Executive Director, in that rate proceeding.²

6 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

7 A. The purpose of my testimony is to offer a high-level synopsis of this rate filing while
 8 introducing the other PWSA witnesses presenting testimony and explaining the scope of
 9 their testimony. I will also provide an overview about PWSA to include its continuing
 10 transition process to Commission jurisdiction and the current status of various projects
 11 and initiatives that have occurred since PWSA’s 2021 rate case filing.

12 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

13 A. Yes. I am sponsoring PWSA Exhibit WJP-1, which includes the Rate Case Tables; and
 14 PWSA Exhibit WJP-2, which is the 2019 Cooperation Agreement.

15 **Q. WHO ARE THE OTHER WITNESSES PROVIDING TESTIMONY ON BEHALF**
 16 **OF PWSA?**

17 A. The other witnesses providing testimony on behalf of PWSA are:

Witness	St. No.	Topics
Edward Barca	2	Support for Proposed Rate Increase, Support for DSIC Cap Increase, <i>Pro Forma</i> Financial Results, Rate Structure Changes & New Charges, Calculation of Revenue Requirements, Development of Operating Budget & Capital Needs
William J. McFaddin	3	Valve Maintenance, Meter Replacement, Flushing Distribution System

¹ Docket Nos. R-2021-3024773, R-2021-3024774 and R-2021-3024779.

² Docket Nos. R-2020-3017951, R-2020-3017970 and P-2020-3019019.

Witness	St. No.	Topics
Barry King	4	Capital Projects, Wastewater Laterals, Minimum Warranty
Tony Igwe	5	Stormwater
Julie A. Mechling	6	Customer Service and Collections Updates, Rate Mitigation Efforts, Prior Settlement Commitments, Water, Wastewater and Storm Water Tariffs
Harold J. Smith	7	Allocation of Total System Revenue Requirements, Water Cost Allocation and Rate Design, Wastewater Cost Allocation and Rate Design, Stormwater Cost Allocation and Rate Design, Gradualism Adjustment
Keith Readling	8	Stormwater Program Revenue Requirements, Identifying Impervious Area, Stormwater Fee Structure, Stormwater Fee Billing, Stormwater Credit Program
Christine Fay	9	Support for Proposed Rate Increase, Financial Policies and Goals, Capital Markets Consideration, Peer Review of Financial Metrics

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I also wish to note, although she is not providing direct testimony in support of the rate case filing, on April 19, 2022, PWSA announced that Monica Walaan, Esquire, had joined the organization as Chief Legal Officer. In this role, Ms. Walaan oversees the legal affairs of PWSA and serves as an advisor to counsel, support and guide the organization on a comprehensive range of legal and strategic issues. As part of PWSA’s robust focus on environmental compliance and ethics, Ms. Walaan also serves as an important internal resource to help guide PWSA employees in acting with the highest ethical standards.

Q. DO YOU HAVE ANY GENERAL OBSERVATIONS ABOUT PWSA’S PROPOSED RATE INCREASE?

A. Yes. At the outset, I wish to emphasize that PWSA understands that this request for rate relief is larger than it has submitted in the past. The Authority did not make the decision lightly to seek rate relief at the level of \$146 million, over a three-year period. While I

1 expect that this amount seems like an extraordinary request, the reason is that PWSA is
2 making extraordinary strides in every area of our operations to be the water, wastewater
3 and stormwater utility of the future. The many accomplishments of PWSA in recent
4 years, some of which I will highlight, demonstrate that PWSA has devoted itself to
5 making the most of the prior rate relief approved by the Commission. The combination
6 of PWSA's commitments to excellence, and the steady revenue stream afforded by the
7 Commission's approvals, have placed PWSA on a trajectory toward becoming "best in
8 class" in terms of providing excellent customer service, implementing a robust
9 construction program, replacing lead service lines throughout Pittsburgh and continuing
10 to excel in all areas of its operations. Of particular note, PWSA has completed a number
11 of construction projects designed to provide more reliable service to customers, meet
12 stricter water quality standards and improve water quality and stormwater management.

13 A compelling example that demonstrates the commitment to excellence
14 throughout PWSA's organization is the Strategic Planning Project on which the
15 Authority embarked on March 29, 2022 to guide its priorities over the next five years.
16 The first phase of this project was to define our Mission, Vision and Core Values, which
17 are listed below:

- 18 • PWSA's Mission is: To support its region by protecting public health and the
19 environment through the delivery of safe and reliable water services with a
20 commitment to future generations.
- 21 • PWSA's Vision is: To transform Pittsburgh's water system while being recognized
22 by its customers as a trusted service provider and a steadfast steward of a vital
23 public asset.
- 24 • PWSA's Core Values are:
 - 25 (a) **Stewardship:** As a public utility, PWSA is responsible for serving as mindful
26 stewards of its water system and continuing to provide essential and
27 dependable water services now and for generations to come. Right now,
28 PWSA is making decisions that will impact Pittsburgh for the next 100 years.

- 1 (b) **Ethics & Integrity:** PWSA acts ethically and with integrity in all instances,
2 both as individuals and as an organization. This means modeling honesty,
3 transparency and professionalism in everything we do.
- 4 (c) **Accountability:** PWSA is held accountable, both individually in everyday
5 roles and as one organization. Only by doing what PWSA promised can
6 PWSA rebuild trust with the community.
- 7 (d) **Safety:** PWSA ensures a safe working environment for employees, the safety
8 of its infrastructure assets and the safety of the millions of gallons of water
9 delivered to customers every day.
- 10 (e) **Equity:** PWSA strives to deliver quality and affordable water services to
11 every community in its service area and to create a workplace that reflects the
12 diversity of those communities.

13 While PWSA has made significant achievements, we need to continue these
14 efforts so that we are a utility of the future that delivers the highest possible quality of
15 services to our customers. In this vein, it is fitting to point out that in March 2020, less
16 than two years after assuming jurisdiction over the Authority, the Commission found that
17 PWSA had presented a plan for compliance that would adequately ensure and maintain
18 the provision of adequate, efficient, safe, reliable and reasonable service. In reaching this
19 finding, the Commission recognized that “PWSA’s transition to Commission jurisdiction
20 is a vast and complex undertaking requiring prioritization and allocation of resources and
21 the redevelopment of operations.”³ It is against this backdrop that PWSA urges the
22 Commission to view the current request for rate relief.

23 **Q. IS PWSA PROPOSING SPECIFIC MEASURES TO MODERATE THE IMPACT**
24 **OF THE RATE INCREASE ON CUSTOMERS?**

25 A. Yes. Since PWSA recognizes that the rate increases it is seeking over the next three-year
26 period are significant, we have also considered the impact on future affordability and are

³ *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage I*, Docket Nos. M-2018-2640802 (water) and M-2018-2640803 (wastewater); and *Petition of Pittsburgh Water and Sewer Authority for Approval of its Long-Term Infrastructure Improvement Plan*, Docket Nos. P-2018-3005037 (water) and P-2018-3005039 (wastewater) (Order entered March 26, 2020), at 23.

1 offering several proposals in an effort to mitigate these impacts as part of this rate
 2 request. These mitigation measures include: (1) a request for a three-year multi-year
 3 increase; (2) a proposed two-year transition period for the removal of the minimum
 4 allowance; (3) introduction of two new charges, to include one to timely and accurately
 5 recover the actual costs of our low income programs; (4) new stormwater rate mitigation
 6 measures; (5) removal of the COVID-19 policy to recover the costs of third party
 7 payment processing fees from all ratepayers; and (6) additional enhancements for our
 8 low-income customer assistance programs. More details about each of these measures
 9 are explained in the testimony of PWSA witness Julie Mechling.

10 **Q. PLEASE HIGHLIGHT EXAMPLES OF THE POSITIVE STRIDES THAT PWSA**
 11 **MADE IN 2022 AND HAS CONTINUED TO MAKE IN 2023.**

12 A. Certainly. I will highlight examples of the many positive strides that PWSA made in
 13 2022 and has made in 2023. Since the last rate case in 2021, PWSA has continued to
 14 enhance the quality and effectiveness of its customer service, provide responsible and
 15 responsive operations service, improve infrastructure reliability, and maintain regulatory
 16 compliance. These accomplishments have been made throughout the Authority’s system
 17 and fall into each category of its operations.

18 *Lead Levels and Lead Service Line Replacement*

19 On January 24, 2023, the Authority announced that the most recent round of
 20 testing shows that the lead levels continue to be well below the state and federal action
 21 levels, which has been the case since water quality came back into compliance in the
 22 summer of 2020. In April 2019, we began adding orthophosphate to reduce lead levels
 23 in drinking water while continuing to replace thousands of lead service lines.

24 Orthophosphate is a food-grade additive that forms a protective layer inside of lead

1 service lines, creating an anti-corrosive barrier between the lead pipes and the water
2 flowing through them. It is approved by the EPA and successfully used in water systems
3 across the world. Combined with PWSA’s aggressive lead service line replacement, the
4 use of orthophosphate has resulted in the compliance levels now achieved by the
5 Authority.

6 Earlier this year, PWSA celebrated the removal of its 10,000th public lead service
7 line. Since 2016, PWSA has replaced approximately 59 miles of lead lines, including
8 6,900 private lead lines. PWSA has invested over \$100 million in the removal of lead
9 lines throughout its water service area because it is one of the most proactive ways to
10 reduce lead exposure and provide Pittsburgh residents with safe, high-quality drinking
11 water. As a result, PWSA is committed to this program and will continue to aggressively
12 replace lead service lines with the goal of replacing all of them by 2026. For its work on
13 the Community Lead Response in 2022, PWSA received an award from the U.S.
14 Environmental Protection Agency (“EPA”) through the Aquarius Recognition Program,
15 which annually issues awards to exceptional projects in five different categories.⁴ The
16 award received by PWSA was in the category of “Excellence in Environmental and
17 Public Health Protection,” and was made possible through a nomination from the
18 Pennsylvania Infrastructure Investment Authority (“PENNVEST”), which recognizes
19 PWSA’s commitment to public health and drinking water safety at the national level.

20 Water System

21 Another notable accomplishment improving PWSA’s water service was the
22 completion of the Highland II Reservoir and Cover Replacement project in 2022, which

⁴ See [Aquarius Recognition Program](#).

1 was the largest project of its type in North America that year. Through this project,
2 PWSA reinstated the 125 million-gallon covered reservoir after replacing the liner and
3 cover, which ensured the reliability and security of the reservoir and will play a key role
4 in the Authority’s Water Reliability Plan. The project involved draining the reservoir,
5 removing the previous materials, and installing a new liner, floating cover, and
6 supplemental equipment like rainwater removal pumps. This work will add 25 more
7 years of service to the structure and improve its reliability as other Water Reliability Plan
8 projects take place. For this project, the American Society of Civil Engineers (“ASCE”)
9 presented an Award of Merit to PWSA, and gave individual awards for specific
10 accomplishments to three PWSA employees, including Barry King who is providing
11 direct testimony in this proceeding on PWSA’s Capital Improvement Plan. This
12 recognition from within the industry reflects how PWSA has evolved as an organization
13 in recent years, focusing on modernizing infrastructure, maintaining water quality, and
14 growing talent from within.

15 Another significant project that has been completed is the Rising Main 3
16 Rehabilitation, which revitalized a large diameter pipe that moves water from the
17 Bruecken Pump Station into the Highland II Reservoir. This project is also part of
18 PWSA’s Water Reliability Plan and was the first of several once-in-a-generation projects
19 that will renew key components of our water production and distribution systems. The
20 rehabilitation of Rising Main 3 has improved the reliability of the water system and
21 hydraulic performance needed to distribute water throughout the system. Work is already
22 underway on the next phase of this project, Rising Main 4 Rehabilitation and
23 Replacement, which PWSA began constructing in 2022.

1 Wastewater System

2 In 2022, PWSA completed the rehabilitation of the 100+ year old M-29 combined
3 sewer outfall and replaced the endwall on the Monongahela River. These project
4 improvements will extend the useful life of the outfall, reduce river flow entering the
5 combined sewer system, and begin to mitigate backups into the lower Four Mile Run
6 neighborhoods.

7 Another impressive measure regarding our sewer system is that in August 2022,
8 PWSA completed an extensive infrastructure upgrade on Centre Avenue, between
9 Morewood Avenue and Devonshire Street, in the Shadyside neighborhood. This
10 four-month-long project replaced an aging sewer main and water main, as well as any
11 lead service lines found during the work. The \$2 million investment ensures reliable
12 sewer service for customers on the block while also relocating and completing upgrades
13 to the water main and replacing any lead service lines found during the work. This
14 project was part of PWSA's Sewer Under Structures Program, which addresses aging
15 sewers that are obstructed by structures like other utilities or buildings.

16 Notably, in April of this year, PWSA received a \$59.1 million low-interest loan
17 from PENNVEST for a sewer rehabilitation project. This funding supports PWSA's
18 2023-2025 Small and Large Sewer Rehabilitation programs, which will evaluate and
19 rehabilitate approximately 56 miles of aging sewer mains throughout the city. With this
20 funding, the Authority can more quickly complete needed work on our sewer system,
21 with some sewers being more than a century old and in need of repair, while improving
22 services that are essential to everyone in Pittsburgh.

1 Stormwater System

2 As of April 2023, PWSA has constructed (or partnered with) twenty-six
3 stormwater infrastructure projects in the City of Pittsburgh. In addition, nine projects are
4 currently in various stages of planning and design. PWSA has also released the final
5 draft of a Stormwater Strategic Plan that will set the stage for how stormwater is
6 managed in the service area. This Plan builds off past planning efforts by using climate
7 data, previous regional studies, community input, and best practices of our peer utilities
8 to provide recommendations that consider equity, the environment, priority sites and
9 water quality. Important components of the Plan include increasing transparency of
10 PWSA’s strategy and enhancing coordination with other entities in the City for more
11 coordinated and effective management of stormwater. PWSA intends to use the Plan,
12 which is currently open for community feedback, to eventually design and implement
13 specific projects that meet a determined level of service to manage stormwater quantity at
14 a rate PWSA customers can afford.

15 These accomplishments are a natural extension of numerous projects that have
16 been completed. For example, in August 2020, PWSA completed construction on two
17 new green infrastructure projects to help manage stormwater within Four Mile Run,
18 which consists of building two engineered drainage channels in Schenley Park along
19 Overlook Drive and next to the Bridle Trail. Without these improvements, stormwater is
20 mostly unmanaged, flowing off the steep hillside from Overlook Drive to the Bridle Trail
21 below and further downhill, where it causes the combined sewer system to overflow into,
22 and flood, downstream neighborhoods and properties. The channels will create a path
23 where water can flow. These two “Early Action Projects” were part of the larger Four
24 Mile Run Stormwater Project that has a total project cost of approximately \$28 million

1 and encompasses Schenley Park and several City of Pittsburgh neighborhoods, including
2 Greenfield, Hazelwood, Oakland, Squirrel Hill, and the Run.

3 Customer Service

4 Customer service continues to be major area of focus for PWSA, particularly in
5 providing excellent customer service and in administering programs that are designed to
6 assist our most vulnerable low-income customers who face challenges in paying their
7 utility bills. PWSA witness Julie Mechling provides additional details about the many
8 measures that the Authority is taking to become a trusted public utility that is recognized
9 for excellence and valued by the customers it serves. She also discusses the
10 enhancements that PWSA has made to its low-income customer programs to improve the
11 availability of assistance to customers in need. In my testimony, I am highlighting only a
12 few initiatives in each area.

13 Through the use of technology and the streamlining of day-to-day operations,
14 PWSA has significantly improved customer access since 2021. On August 8, 2022,
15 PWSA's enterprise resource system SAP and its accompanying Customer Advantage
16 portal went live. This is an entirely new system that has enhanced customer access. The
17 Customer Advantage portal gives customers important tools to monitor and manage their
18 accounts. PWSA has also improved its call handling response times, resulting in
19 personnel handling 31,104 more customer calls in 2022 than in 2021. In addition to more
20 timely responding to customers, and responding to a greater number of customers, PWSA
21 has also embarked on a campaign designed to evaluate the quality of information that is
22 being conveyed to consumers, and improve those experiences, as necessary.

23 As to financial assistance that is available to qualifying low-income residential
24 customers, PWSA offers the following programs: (1) the Bill Discount Program

1 (“BDP”), (2) the Hardship Grant Program, (3) Winter Moratorium, and (4) the Lead
2 Service Line Replacement Reimbursement Program. It is noteworthy that in 2022,
3 PWSA’s enhanced Customer Assistance Programs offered more discounts to more
4 customers than ever before with a simplified and accessible process for enrollment. As a
5 result of these enhancements, enrollment in the BDP increased, with approximately 6,000
6 customers currently receiving assistance under this program. Among the highlights of
7 these new benefits, the BDP included an additional 50% discount on water usage charges
8 for very low-income customers and all customers enrolled in the Program automatically
9 receive an 85% discount on the stormwater charge. PWSA also expanded the Hardship
10 Grant Program to include sewage-only customers, and all confirmed low-income
11 customers are now automatically enrolled in the Winter Shutoff Moratorium. Further,
12 reconnection fees for all customers continued to be waived in 2022.

13 Environmental Compliance

14 PWSA has also made tremendous progress in the area of environmental
15 compliance, as it has continued to expand its Environmental Compliance program across
16 its system, with a program manager providing day-to-day oversight. A team of
17 specialists brings expertise in areas of air quality, stormwater, spill prevention,
18 wastewater discharge, and waste management. As part of this program, PWSA has
19 expanded its training and project coordination efforts across the organization. Currently,
20 PWSA is implementing an Environmental Management Information System to track and
21 coordinate regulatory compliance activity. I also wish to note that PWSA has fulfilled its
22 commitments under a 2020 settlement with the Pennsylvania Office of Attorney General
23 (“OAG”) relating to environmental compliance, which obligated PWSA to hire an

1 external and independent corporate monitor to provide reports to the OAG, PWSA and
2 the Pennsylvania Department of Environmental Protection (“DEP”).

3 **II. OVERVIEW OF NEED FOR RATE INCREASE AND UNIQUE PROPOSALS**
4 **INCLUDED WITH THIS FILING**

5 **Q. PLEASE PROVIDE AN OVERVIEW OF THIS FILING.**

6 A. Consistent with the significant progress PWSA has made in recent years, the Authority
7 remains focused on rebuilding and upgrading Pittsburgh’s water systems and is taking
8 every reasonable step to operate efficiently and keep its costs down. Nonetheless, the
9 Authority’s operating and capital expenses continue to increase. As explained in the
10 direct testimony of Mr. Barca, PWSA seeks a multi-year total overall rate revenue
11 increase of \$146.1 million, which is inclusive of the proposed Distribution System
12 Improvement Charge cap increase from 5% to 7.5%. This includes a \$46.8 million or
13 22.5% increase in the FPFTY (FY 2024), \$45.4 million or 17.8% in FY 2025, and \$53.9
14 million or 17.9% in FY 2026.

15 The drivers for this increase are as follows: 1) capital costs; 2) inflationary
16 operating budget costs, specifically for essential items such as energy, employee benefits,
17 and chemical costs; 3) costs related to the Wet Weather Consent Decree with the United
18 States Environmental Protection Agency (“US EPA”); 4) environmental compliance; 5)
19 decreased consumption; and 6) funds to meet new financial obligations and improve
20 financial metrics that impact PWSA’s bond rating. In addition, PWSA’s extensive
21 Capital Improvement Plan (“CIP”) discussed in Mr. King’s testimony includes the
22 refurbishment and replacement of a significant portion of PWSA’s water supply system,
23 which simply cannot be accomplished without additional rate relief. While grant funding
24 enables PWSA to stay on track, accelerating our plans to be a leader in the industry in

1 serving our customers requires additional money. Also, addressing regulatory
2 compliance issues and responding to unexpected situations that arise due to the age of the
3 system are directly contributing to increases in operating costs. As Mr. Barca explains in
4 his testimony, the rate increase that PWSA is seeking is the minimum amount that is
5 needed to continue operations while meeting the required financial metrics.

6 As noted above, PWSA is proposing to implement this increase over a three-year
7 period. An important reason for this proposal is that such an outcome would give PWSA
8 a level of financial security needed to continue performing our work, as well as better
9 access to the capital markets. A multiyear rate request also provides more transparency
10 for customers over the three-year period as to the increases that will be implemented. In
11 addition, preparing for and litigating rate cases involves a significant cost that is borne by
12 our ratepayers as we are a cash flow municipal authority. If PWSA is able to secure
13 approval for our three-year rate increase, we will be able to allocate the costs that would
14 normally be allocated to the rate cases to our operations and capital projects. I also note
15 that the efforts of PWSA staff in preparing for and litigating rate cases are in addition to
16 our regular operational duties. Without the added pressure of litigating a rate case for the
17 next three years, PWSA staff can more fully concentrate our efforts on operating and
18 improving our system for the benefit of our customers.

19 Also being proposed are two new adjustment charges: the Infrastructure
20 Improvement Charge (“IIC”) and the Customer Assistance Charge (“CAC”). The IIC
21 would permit PWSA to recover debt service on PENNVEST loans and loans authorized
22 by Water Infrastructure Finance and Innovation Act (“WIFIA”). WIFIA is the Federal
23 government equivalent of PENNVEST. The IIC will expedite PWSA’s ability to obtain

1 additional low-cost funding through PENNVEST and WIFIA by having a stable revenue
2 source to ensure the required debt covenants and additional bonds tests can be met, in
3 addition to having funds available to pay annual debt service.

4 The CAC is being proposed because, while PWSA values the benefits that its
5 customer service assistance program provides to vulnerable ratepayers, the administration
6 of customer assistance program has become increasingly expensive. The Customer
7 Assistance Charge would recover 1) the discounts provided to customers pursuant to the
8 Bill Discount Program, 2) the operating costs for the PGH2O Cares team, 3) the costs of
9 PWSA's Hardship Fund, and 4) past due arrearages forgiven pursuant to PWSA's
10 Arrearage Forgiveness Program. The CAC will ensure that PWSA collects the funds it
11 needs to provide these programs.

12 PWSA is also proposing to begin phasing out the minimum water and wastewater
13 charges starting in 2024 and completely removed in 2025. The rate design mechanics of
14 these proposals are fully described in the testimony of Mr. Smith. This proposal
15 includes additional features intended to mitigate the rate impact for our customers as
16 described more fully in the testimony of Ms. Mechling. PWSA is also proposing to
17 allocate \$432,640 to its Hardship Grant program and \$720,000 for the Arrearage
18 Forgiveness program to support the grants and credits provided to eligible customers.

19 **Q. PLEASE EXPLAIN THE RATE CASE TABLES YOU ARE PRESENTING AS AN**
20 **EXHIBIT WITH THIS TESTIMONY.**

21 A. PWSA Exhibit WJP-1 includes the Rate Case Tables. Support for the figures in this
22 Exhibit is provided in the testimony of the following PWSA Witnesses: Edward Barca,
23 Harold Smith, and Keith Readling.

1 **Q. PLEASE EXPLAIN THE ORIGIN AND PURPOSE OF THE RATE CASE**
2 **TABLES.**

3 A. The Rate Case Tables were developed in collaboration with the parties in PWSA's prior
4 rate case as directed by the Administrative Law Judges ("ALJs"). Because the
5 Commission's existing template for this information was developed for traditionally
6 regulated utilities, the ALJs granted PWSA leave to develop Rate Case Tables consistent
7 with the cash flow method for calculating the revenue requirement. Pursuant to this
8 directive, PWSA developed an initial version of the Rate Case Tables and then worked
9 collaboratively with the parties to further adjust and refine the initial version. PWSA
10 received helpful feedback from the parties during this process and the final, agreed-to
11 version of the Rate Case Tables were shared with the ALJs on July 24, 2020 and again in
12 the 2021 rate case, which would be helpful to the parties in the event of a fully litigated
13 proceeding. PWSA Exhibit WJP-1 presents PWSA's proposals in this case using this
14 template.

15 **Q. ARE THERE ANY SPECIFIC PROPOSALS INCLUDED WITH THIS FILING**
16 **THAT YOU WOULD LIKE TO POINT OUT?**

17 A. Yes. While PWSA's financial needs are compelling in view of the importance of fully
18 funding its CIP and enhancing the quality of its services, we are also cognizant of the
19 financial challenges that many of our customers have faced, and are continuing to face.
20 For that reason, PWSA is proposing a multiyear plan that is implemented over the course
21 of three years, 2024, 2025 and 2026. As testified by Ms. Mechling, PWSA has also
22 proposed enhancements to its customer assistance program. For instance, to promote
23 enrollment in its programs, PWSA is proposing to reach more potentially eligible
24 customers by expanding the eligibility from 150% of FPL to 200% of FPL. In addition,
25 to increase the impact of its Hardship Grant program, PWSA proposes to allocate two,

1 separate \$300 annual grants; one to be distributed to eligible water customers and one to
2 be distributed to eligible wastewater customers. An additional proposal would make a bill
3 customer available to eligible low-income customers in 2025 to offset the transition to a
4 new rate structure, which removes the minimum allowance. Thus, while the Authority
5 needs to make this request due to increases in operating expenses and to fund the
6 numerous essential projects in the CIP that are key to enhancing the quality of utility
7 services that PWSA provides, we have sought through these other proposals to balance
8 our financial needs against the challenges faced by customers in paying higher rates.

9 **Q. IS THERE A MAJOR FACTOR DRIVING THE NEED FOR THIS RATE**
10 **INCREASE?**

11 A. As explained by Mr. Barca, inflation is one of the biggest drivers for this rate request. It
12 has impacted all facets of the organization, from day-to-day operating expenses to
13 contractor bids for capital improvement projects. This is further compounded by the fact
14 that PWSA was drastically increasing operations to address deferred maintenance prior to
15 the rise of inflation. PWSA is now at a point where additional revenues must be
16 implemented or risk the financial stability of the organization.

17 **Q. PLEASE DESCRIBE OTHER IMPORTANT FACTORS FOR THE**
18 **COMMISSION TO CONSIDER.**

19 It is important to recognize the mandatory nature of many projects included in
20 PWSA's CIP due to the Consent Orders and Agreements ("COAs") issued by DEP,
21 which is included with Mr. King's testimony as PWSA Exhibit BK-1. These obligations
22 are addressed in detail by Mr. King's testimony. As most of what is in the CIP is
23 mandated by regulators, it is imperative that the funding be available to support them.
24 As Mr. King notes, PWSA's total approved budget in the 2023-2027 CIP for the

1 construction projects that are necessary to comply with the 2019 COA is approximately
2 \$377 million. However, the total budget for these projects, including what has been
3 completed to date and what will be completed post-2027 is approximately \$450 million.
4 Under recent amendments to the 2019 COA described by Mr. King and shown in PWSA
5 Exhibits BK-3 and BK-4, if PWSA does not comply in a timely manner with any term or
6 provision, it will be required to pay a one-time civil penalty of \$20,000.00, in addition to
7 \$1,000.00 per day for each violation, and is also subject to the imposition of additional
8 penalties. These penalties significantly contrast with the \$100.00 per day for each
9 violation that was in the original 2019 COA. As Mr. Barca explains, if PWSA is not
10 permitted to raise its rates as proposed in this proceeding, it will be unable to fulfill these
11 obligations. The result is that PWSA would be subject to the payment of these penalties,
12 and since PWSA does not have shareholders, our ratepayers would have to bear this
13 burden.

14
15 **III. DESCRIPTION OF PWSA AND THE PROCESS OF TRANSITIONING TO**
16 **COMMISSION JURISDICTION**

17 **Q. PLEASE DESCRIBE PWSA.**

18 A. Created by the City of Pittsburgh in 1984 pursuant to the Municipality Authorities Act,⁵
19 PWSA operates the largest combined water and sewer authority in Pennsylvania
20 producing an average of 70 million gallons of treated water daily and providing service to
21 more than 300,000 residents as well as up to 520,000 people during working hours in
22 total throughout the City of Pittsburgh and surrounding communities. PWSA's
23 employees have expertise in engineering, operations, maintenance, water quality,

⁵ 52 Pa.C.S. §§ 5601-5632.

1 customer service, safety, green infrastructure and many other disciplines. PWSA is
 2 committed to continuing to enhance its operations to provide service in a safe, sustainable
 3 and customer-friendly manner at just and reasonable rates.

4 **Q. WHAT INFRASTRUCTURE DOES PWSA MANAGE?**

5 A. Currently, PWSA is responsible for the day-to-day management, operation, maintenance,
 6 and improvement of virtually the entire City water supply, distribution, and wastewater
 7 collection systems. Below is an overview of these systems.

- 8 • The **water** supply and distribution system consists of a 117 million gallon per
 9 day conventional flocculation, sedimentation and rapid sand process
 10 treatment plant which was placed in service in 1969, 964 miles of water mains
 11 plus more than 81,000 service lines, more than 25,900 line valves, more than
 12 7,300 fire hydrants, one raw water pump station, ten finished water pump
 13 stations, one microfiltration plant, four reservoirs, and ten storage tanks. The
 14 total storage capacity of the reservoirs and tanks is approximately 455 million
 15 gallons. With consideration given to the pressure requirements of the
 16 distribution system, and storage capacities in each of the 15 pressure zones,
 17 the Authority stores enough finished water to provide (with water use
 18 restrictions) a 3 day uninterrupted supply to all customers should it
 19 temporarily be unable to treat additional water from the Allegheny River.
- 20 • The **wastewater** collection and conveyance system consists of approximately
 21 1,220 miles of sanitary, storm and combined sewer lines, 29,000 manholes,
 22 approximately 30,000 stormwater catch basins and inlets, 38 combined sewer
 23 overflow outfalls, 185 storm outfalls and four pump stations which are
 24 designed to carry both storm and sanitary flows. About 75% of the system is
 25 serviced by combined sewers (both wastewater and stormwater are collected
 26 in one pipe) and the remaining 25% are designed as separate sewage and
 27 stormwater piped systems. The average age of the sewer lines is between 60
 28 and 70 years old, with some portions reaching nearly 150 years in age. The
 29 wastewater collection and conveyance system discharges to a regional system
 30 that conveys sewer flows through trunk sewers to deliver to a wastewater
 31 treatment which services eighty-three cities, towns and boroughs in Allegheny
 32 County. The regional system is owned and operated by the Allegheny County
 33 Sanitary Authority (“ALCOSAN”)⁶ which maintains interceptors along the

⁶ ALCOSAN is a municipal authority (created by the City of Pittsburgh to comply with the Pennsylvania Clean Streams Law enacted in 1937) that serves as the regional sewage treatment facility. 35 Penn. Cons. Stat. §§ 691.1–691.1001. ALCOSAN provides wastewater treatment for 83 communities, including the City of Pittsburgh and maintains the facility pursuant to its National Pollutant Discharge Elimination

1 rivers to deliver sewage to its Woods Run Wastewater treatment plant prior to
 2 discharge in the Ohio River. Because the current combined sewer systems
 3 contribute to the Allegheny Region’s Combined Sewer Overflow volume,
 4 state and federal water quality regulations apply, including a regional Consent
 5 Decree involving ALCOSAN and the Pennsylvania Department of
 6 Environmental Protection mandating a \$2 billion Combined Sewer Overflow
 7 reduction program.⁷

8 **Q. HOW DOES STORMWATER FIT WITHIN THE WATER/WASTEWATER**
 9 **CONVEYANCE SYSTEM?**

10 A. Stormwater issues arise in two contexts: (1) the combined wastewater system Combined
 11 Sewer Overflows (“CSOs”); and, (2) the municipal separate storm sewer system (known
 12 as “MS4s”).⁸ The federal Environmental Protection Agency (“EPA”) develops and
 13 implements federal stormwater regulations to require compliance with water quality
 14 standards, which are implemented by EPA and the DEP. Regarding the sewer system,
 15 75% of the wastewater conveyance infrastructure is designed as a “combined” sewer
 16 system to capture both wastewater and stormwater in one pipe network. In addition to
 17 the combined system, one quarter of the current infrastructure managed by PWSA
 18 includes separate sewer and stormwater systems, which require compliance with
 19 stormwater management regulations (*i.e.*, MS4) and are subject to National Pollutant
 20 Discharge Elimination System (“NPDES”) Permits issued by DEP pursuant to EPA
 21 requirements.

System (“NPDES”) permit. PWSA does not own any sewage treatment facilities or provide consumers sewage treatment services. ALCOSAN is not regulated by the Commission.

⁷ ALCOSAN entered into a modified consent decree agreement with the Department of Environmental Protection, which approved a comprehensive, \$2 billion, long-term plan to significantly reduce the overflow of diluted, untreated wastewater into the region’s rivers. Details of ALCOSAN’s Clean Water Plan are available at: <https://www.alcosan.org/our-plan/plan-documents>

⁸ MS4 refers to a conveyance that is owned by a public entity that discharges to waters, is designed or used to collect or convey stormwater, is not a combined sewer system and is not part of a sewage treatment plan.

1 **Q. PLEASE EXPLAIN HOW PWSA IS WORKING TO ADDRESS STORMWATER**
2 **ISSUES.**

3 A. As Mr. Igwe explains in his direct testimony, PWSA approaches stormwater management
4 throughout Pittsburgh in an effort to lower the volume of combined system overflows.
5 PWSA’s forthcoming stormwater master plan will look comprehensively at stormwater
6 issues and overlaps both categories of stormwater (i.e. addressing the combined system
7 and the separate stormwater system). It also outlines how Pittsburgh intends to use green
8 infrastructure solutions to manage stormwater. The primary goals of PWSA’s
9 stormwater program are to reduce CSO volume; implement a stormwater asset
10 management program; define a publicly accepted level of stormwater management
11 capacity; achieve regulatory compliance; develop partnership with government and other
12 agencies to access eligible funds for flood protection and water quality projects; and
13 establish an affordable stormwater utility fee structure.

14 **Q. WHAT IS THE RELATIONSHIP BETWEEN PWSA AND THE CITY OF**
15 **PITTSBURGH?**

16 A. The water/wastewater conveyance infrastructure operated by PWSA is currently owned
17 by the City of Pittsburgh (“City”). PWSA first assumed responsibility for the system
18 operation and maintenance from the City pursuant to an agreement effective January 1,
19 1995 between the City and PWSA (the “1995 Cooperation Agreement”). Consistent with
20 a Memorandum of Lease dated July 27, 1995, PWSA is on the path to becoming the
21 official owner of the City’s assets and, on September 1, 2025, this transfer will be
22 effectuated. Under a newly negotiated City Cooperation Agreement (the “2019
23 Cooperation Agreement”), which has the force and effect of law under Act 70 of 2020,⁹

⁹ Act of July 23, 2020, P.L. 677, No. 70.

1 the City and PWSA conduct interactions on a business-like, transactional basis. The
 2 2019 Cooperation Agreement is included with my testimony as PWSA Exhibit WJP-2.

3 **Q. WHAT ISSUES ARE FACING PWSA AS IT OPERATES THE WATER AND**
 4 **WASTEWATER CONVEYANCE SYSTEMS OF THE CITY OF PITTSBURGH?**

5 A. As the City’s current water and sewer systems date back to the 1850s, PWSA continues
 6 to face challenges caused by the dated infrastructure, the presence of lead in water service
 7 lines, extreme storm events that impact stormwater and sewer systems, historical
 8 contractual relationships, complex organizational and management structures and
 9 numerous regulatory requirements and obligations.

10 **Q. HOW DID PWSA – A MUNICIPAL AUTHORITY – COME TO BE SUBJECT TO**
 11 **THE COMMISSION’S JURISDICTION?**

12 A. In December 2017, Act 65 was passed which added Sections 3201-3209 to the Public
 13 Utility Code subjecting PWSA to the Commission’s jurisdiction. Shortly after passage of
 14 Act 65, the Commission issued a Tentative Implementation Order to guide the process for
 15 PWSA’s transition to Commission jurisdiction.¹⁰ After review of comments from
 16 interested stakeholders, the Commission entered its Final Implementation Order on
 17 March 15, 2018, which is the roadmap PWSA has been following to transition to
 18 Commission jurisdiction.¹¹ I am pleased to report that with the adoption of Orders
 19 entered on July 14, 2022 and August 25, 2022, PWSA’s Compliance Plans have been

¹⁰ *Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water and Sewer Authority*, Docket Numbers M-2018-2640802 (water) and M-2018-2640803 (wastewater), Tentative Implementation Order entered January 18, 2018.

¹¹ *Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water and Sewer Authority*, Docket Numbers M-2018-2640802 (water) and M-2018-2640803 (wastewater), Final Implementation Order entered March 15, 2018.

1 approved by the Commission and their provisions are now undergoing full and final
 2 implementation.¹²

3

4 **IV. PWSA ORGANIZATIONAL STRUCTURE, MANAGEMENT QUALITY**
 5 **UPDATES**

6 **Q. PLEASE DESCRIBE THE GOVERNING BODY FOR PWSA.**

7 A. PWSA is governed by a nine-member Board of Directors (“Board”) whose members are
 8 appointed by the Mayor of the City and confirmed by City Council. Although previously
 9 the Board had seven members, it voted on March 26, 2020 to amend the Articles of
 10 Incorporation to expand to nine members. The Board is responsible for providing
 11 strategic direction and oversight to the PWSA management team, as well as adopting the
 12 Authority’s annual operating and capital budgets, approving contracts, and setting rates.

13 **Q. PLEASE DESCRIBE PWSA’S EXECUTIVE MANAGEMENT AND**
 14 **ORGANIZATIONAL STRUCTURE.**

15 A. PWSA is managed by an Executive Leadership Team under the Chief Executive Officer
 16 inclusive of Chief Legal Officer, Chief Operating Officer & Chief Financial Officer,
 17 Chief Environmental Compliance & Ethics Officer, Chief Information & Performance
 18 Officer, Chief People & Culture Officer, and Chief Engineering Officer. Environmental
 19 Compliance, Engineering and Construction, and Operations are three main departments
 20 to highlight given some of the major PWSA initiatives underway. The remaining areas
 21 within the organization could be categorized as administrative functions which are
 22 responsible for the administrative and support functions of PWSA; this includes

¹² *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 2, Docket Nos. M-2018-2640802 and M-2018-2640803 (Orders entered July 14, 2022 and August 25, 2022).*

1 Customer Service, Finance, Procurement, Information Technology, Public Affairs, Legal,
2 and Human Resources.

3 The PWSA Environmental Compliance department, and subsequent
4 programming, has been developed over the last two years as the foundation of PWSA's
5 commitment to operating in accordance not only with the strict requirements of the law,
6 but also in a manner that is consistent with high ethical and professional standards in the
7 delivery of drinking water, wastewater, and stormwater services to our customers. In
8 September 2021, a federal judge accepted the plea agreement PWSA negotiated with the
9 EPA and the U.S. Department of Justice related to Clean Water Act violations dating
10 back to prior management in 2016 and 2017. This final step in the legal process means
11 that we are owning up to our past failures and moving forward as a utility that is focused
12 on serving our customers and protecting the environment. PWSA is equipped with the
13 resources, the dedicated leadership, and the fortitude to ensure that we move beyond past
14 mistakes and forge a culture that prioritizes ethical behavior with a focus on
15 environmental compliance. This culture change will help protect the environment and
16 ensure PWSA continues to provide high-quality water services to the City of Pittsburgh
17 and our neighbors. PWSA has developed and implemented an Environmental
18 Compliance and Ethics Program with three primary goals: 1) Prevent fraud, waste, abuse,
19 and other improper activity by creating a culture of environmental compliance and ethics
20 within PWSA, 2) Detect any non-compliance activities at an early stage before they may
21 impact water quality or compliance with regulations, and 3) Respond swiftly to
22 environmental compliance and ethics issues through appropriate action and
23 documentation. The Environmental Compliance and Ethics Program establishes an

1 organization-wide framework for environmental compliance and ethics through the
2 following five key components: 1) PWSA's Mission Statement and Core Values, 2)
3 Organizational Structure, 3) Codes and Policies, 4) Training, and 5) an Environmental
4 Compliance Manual. The Environmental Compliance and Ethics Program applies to all
5 PWSA Directors, Employees, Agents, and Contractors.

6 The Operations Department operates and maintains the water treatment, water
7 supply and water distribution storage system, to ensure an adequate quantity of water to
8 PWSA's customers while maintaining compliance with state and federal quality drinking
9 water regulations. The Operations Department also ensures conveyance of sewage and
10 stormwater to the ALCOSAN regional wastewater system and is responsible for
11 maintaining all sewage collection infrastructure below grade. The Operations Department
12 works collaboratively with the City of Pittsburgh Department of Public Works and
13 Department of Mobility and Infrastructure to ensure roads remain safe for public travel at
14 all times. Operations' responsibility is to be aware of customer needs and address their
15 concerns (e.g., public service line leaks, water main leak repairs, catch basin cleaning,
16 and sewer line and fire hydrant maintenance and repair). PWSA maintains a sufficient
17 inventory of materials, staff, and equipment to respond promptly to a request regarding
18 water and wastewater services. Additionally, Operations strives to maintain a safe
19 working environment while establishing an effective and efficient operations division that
20 will provide the highest quality customer service at the lowest possible cost.

21 The Engineering and Construction Department works to deliver a safe, efficient
22 and effective capital improvement program and to support operations with cost-effective
23 technical solutions to water line breaks, sewer stoppages and collapsed pipes, combined

1 sewer overflows (“CSOs”) and stormwater flooding and basement backups. Also,
2 Engineering and Construction is responsible for managing PWSA’s response to
3 regulatory consent orders for drinking water, wastewater, and stormwater. Specific
4 program areas delivered through Engineering and Construction include: Water Reliability
5 Plan for critical drinking water infrastructure, Lead Service Line Replacement Projects,
6 Wet Weather Planning for combined and sanitary sewer overflows, Urgent Water and
7 Sewer Projects, and Green Infrastructure for stormwater management. Engineering and
8 Construction also prepares and assists in reviewing of water and sewer tap-in applications
9 from developers.

10 **Q. HOW DOES PWSA STAFF ITS OPERATIONS?**

11 A. PWSA has 393 employees as of April 23, 2023. The majority of Authority employees
12 are represented by one of three labor unions: The Pittsburgh Joint Collective Bargaining
13 Committee represents blue-collar employees (plumber, electrician, truck driver, etc.); The
14 American Federation of State, County and Municipal Employees represents Local 2719
15 (customer service, dispatch, field service technicians, chemists) and Local 2037 (union
16 foremen). Management and professional staff are “at will” employees with no Union
17 affiliation. PWSA has engaged the services of professional consultants to support
18 PWSA’s rapid growth in all staff categories and as necessary to meet its goals and
19 objectives. These embedded consultants assist with permitting, design, and construction
20 of facilities/infrastructure upgrades and replacements. PWSA engages engineering
21 consultants to support all capital project implementation, including planning, design, and
22 construction under the supervision of PWSA Project Managers. PWSA also supplements
23 its core staff with a financial consulting services firm to support tariff and fee analyses

1 and additional experts in finance, legal and administration are engaged as needed or
2 required to fulfill state, federal and local regulatory and administrative requirements.

3 **Q. IS PWSA WELL-POSITIONED TO CONTINUE ITS FORWARD PROGRESS?**

4 A. Provided that PWSA's obtains approval for the necessary rate relief, PWSA will be in a
5 solid position to continue making progress toward enhancing the quality and
6 effectiveness of customer service, providing responsible and responsive operations
7 service, improving infrastructure reliability, and maintaining regulatory compliance.
8 While PWSA has completed a number of construction projects that are designed to
9 provide more reliable service to customers, meet stricter water quality standards and
10 improve stormwater management, we need to continue these efforts so that we are a
11 utility of the future that delivers the highest possible quality of services to our customers.
12 Frankly, continued support from the Commission in the form of rate relief as well as
13 collaborative efforts to improve the safety, quality and reliability of PWSA's water,
14 wastewater and stormwater services are a must.

15
16 **V. CONCLUSION**

17 **Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?**

18 A. Yes, although I reserve the right to file supplemental testimony if needed.

Exhibit WJP-1

TABLE I
Pittsburgh Water and Sewer Authority
FPPTY 2024-2026 INCOME SUMMARY
Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
	FPPTY 2024					2025 Rate Year				2026 Rate Year			
	PWSA	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties
Revenue at Current Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
INCOME SUMMARY													
Beginning Unrestricted Cash	89,747,395		89,747,395	0	89,747,395		90,792,056	0	90,792,056		95,591,395	0	95,591,395
Revenues:													
User Charge Revenues	196,813,382	39,901,123	236,714,505	0	236,714,505	20,047,513	256,762,018	0	256,762,018	47,542,002	304,304,020	0	304,304,020
Infrastructure Improvement Charge	0	0	0	0	0	17,090,499	17,090,499	0	17,090,499	2,108,730	19,199,229	0	19,199,229
Customer Assistance Program Charge	0	0	0	0	0	5,512,454	5,512,454	0	5,512,454	942,958	6,455,412	0	6,455,412
DSIC Revenues	8,432,305	6,606,157	15,038,462	0	15,038,462	2,660,907	17,699,369	0	17,699,369	3,243,488	20,942,857	0	20,942,857
Other Misc. Revenues	3,566,080	0	3,566,080	0	3,566,080	71,322	3,637,402	0	3,637,402	72,748	3,710,150	0	3,710,150
Subtotal: Total Revenues	208,811,767		255,319,047		255,319,047		300,701,740		300,701,740		354,611,667		354,611,667
Less: Uncollectible Revenues	(5,971,537)	0	(5,971,537)	0	(5,971,537)	(1,219,327)	(7,190,864)	0	(7,190,864)	(1,277,016)	(8,467,880)	0	(8,467,880)
Less: Stormwater Credit Program Cost	(180,489)	0	(180,489)	0	(180,489)	(31,613)	(212,102)	0	(212,102)	(29,203)	(241,305)	0	(241,305)
Total Revenues Net of Uncollectible	202,659,741	46,507,280	249,167,021	0	249,167,021	44,131,754	293,298,775	0	293,298,775	52,603,707	345,902,482	0	345,902,482
Revenue Requirements:													
O & M Expense	135,911,272		135,911,272	0	135,911,272	9,730,412	145,641,684	0	145,641,684	13,981,720	159,623,404	0	159,623,404
Senior Lien Debt Service (2)	70,718,091		70,718,091	0	70,718,091	10,361,724	81,079,816	0	81,079,816	13,266,125	94,345,941	0	94,345,941
All Other Debt Service (2)	26,214,534		26,214,534	0	26,214,534	12,882,721	39,097,256	0	39,097,256	2,127,260	41,224,516	0	41,224,516
Cash-Financed Capital (Base Rates)	0		0	0	0	2,000,000	2,000,000	0	2,000,000	10,000,000	12,000,000	0	12,000,000
Cash-Financed Capital (DSIC)	15,038,462		15,038,462	0	15,038,462	2,660,907	17,699,369	0	17,699,369	3,243,488	20,942,857	0	20,942,857
Restricted Reserve Contributions	0		0	0	0	0	0	0	0	0	0	0	0
Operating Reserve Contribution	1,000,000		1,000,000	0	1,000,000	6,000,000	7,000,000	0	7,000,000	10,000,000	17,000,000	0	17,000,000
Other Expenses (3)													
DWSL	0		0	0	0	250,000	250,000	0	250,000	0	250,000	0	250,000
Hardship Grant Funding	0		0	0	0	216,320	216,320	0	216,320	0	216,320	0	216,320
Arrearage Funding	240,000		240,000	0	240,000	0	240,000	0	240,000	0	240,000	0	240,000
Total Revenue Requirements	249,122,360		249,122,360	0	249,122,360	44,102,084	293,224,444	0	293,224,444	52,618,593	345,843,037	0	345,843,037
Revenue Surplus / (Deficit)	(46,462,619)		44,661	0	44,661		74,331		74,331		59,445		59,445
Fund Balance Transactions													
Contributions (to)/from Operations	1,000,000		1,000,000	0	1,000,000		7,000,000	0	7,000,000		17,000,000	0	17,000,000
Contributions (to)/from Rate Stabilization Fund	0		0	0	0		0	0	0		0	0	0
Contributions (to)/from Operating Reserve	0		0	0	0		(2,274,992)	0	(2,274,992)		(1,395,217)	0	(1,395,217)
Ending Unrestricted Cash Balance	44,284,776		90,792,056		90,792,056		95,591,395		95,591,395		111,255,622		111,255,622
KEY FINANCIAL METRICS													
Debt Service Coverage			PWSA Filing		PWSA Filing		PWSA Filing		ALJ Adjusted		PWSA Filing		ALJ Adjusted
Senior (1.25 Requirement)	0.99		1.65		1.65		1.87		1.87		2.02		2.02
Total (1.10 Requirement)	0.73		1.21		1.21		1.26		1.26		1.40		1.40
Days Cash on Hand (4)	120.8		247.6		247.6		243.6		243.6		258.9		258.9
Days Cash on Hand with ALCOSAN (4)	70.73		145.0		145.0		142.6		142.6		152.9		152.9

(1) Company Main Brief
 (2) Includes Principal and Interest payments on existing and proposed debt.
 (3) Several programs funded, including assistance with sewer laterals and components of the customer assistance program.
 (4) Calculated using Operating & Maintenance Expenses (excludes non-operating expenses).

TABLE I(A)
 Pittsburgh Water and Sewer Authority
 FPPTY 2024-2026 KEY RATIOS
 Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

	(A)		(B)	(C)	(D)		(E)	(F)		(G)
	PWSA		PWSA	ALJ	PWSA		PWSA	ALJ		ALJ
	FPPTY 2024		2025 Rate Year		2026 Rate Year					
	Revenue at Current Rates	Revenue At Proposed Rates	Revenue At Adjusted Rates	Revenue At Proposed Rates	Revenue At Adjusted Rates	Revenue At Proposed Rates	Revenue At Adjusted Rates	Revenue At Proposed Rates	Revenue At Adjusted Rates	Revenue At Adjusted Rates
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Key Ratio Breakdown										
Debt Service Coverage										
Operating Revenues	208,811,767	255,319,047	255,319,047	300,701,740	300,701,740	354,611,667	354,611,667			
Less:										
Adjustments	(5,971,537)	(5,971,537)	(5,971,537)	(7,407,184)	(7,407,184)	(8,684,200)	(8,684,200)			
Net Collected Revenues	202,840,230	249,347,510	249,347,510	293,294,557	293,294,557	345,927,467	345,927,467			
Less:										
Current Expenses	(135,911,272)	(135,911,272)	(135,911,272)	(145,641,684)	(145,641,684)	(159,623,404)	(159,623,404)			
Adjustments:										
City Payments	3,419,629	3,419,629	3,419,629	3,624,807	3,624,807	3,842,295	3,842,295			
Placeholder										
Placeholder										
Revenues Available for Debt Service	70,348,587	116,855,867	116,855,867	151,277,680	151,277,680	190,146,358	190,146,358			
Senior Lien Debt Service	70,718,091	70,718,091	70,718,091	81,079,816	81,079,816	94,345,941	94,345,941			
All Other Debt Service	26,214,534	26,214,534	26,214,534	39,097,256	39,097,256	41,224,516	41,224,516			
Total Debt Service	96,932,626	96,932,626	96,932,626	120,177,071	120,177,071	135,570,456	135,570,456			
Senior Lien Debt Service Coverage	0.99	1.65	1.65	1.87	1.87	2.02	2.02			
Total Debt Service Coverage	0.73	1.21	1.21	1.26	1.26	1.40	1.40			
Days Cash on Hand										
Ending Cash Balance	44,284,776	90,792,056	90,792,056	95,591,395	95,591,395	111,255,622	111,255,622			
Operating Expenses	135,911,272	135,911,272	135,911,272	145,641,684	145,641,684	159,623,404	159,623,404			
Adjustments:										
(Loss) / Gain on ALCOSAN Billings	(2,066,814)	(2,066,814)	(2,066,814)	(2,400,861)	(2,400,861)	(2,771,926)	(2,771,926)			
Add: Adjustments to ALCOSAN	0	0	0	0	0	0	0			
Placeholder										
Net Operating Expenses	133,844,458	133,844,458	133,844,458	143,240,823	143,240,823	156,851,478	156,851,478			
Days Cash on Hand (x 365)	120.8	247.6	247.6	243.6	243.6	258.9	258.9			
Including ALCOSAN										
Add: ALCOSAN Charges	94,684,852	94,684,852	94,684,852	101,502,162	101,502,162	108,810,317	108,810,317			
Days Cash on Hand (x 365)	70.7	145.0	145.0	142.6	142.6	152.9	152.9			

(1) Company Main Brief
 (2) Revenue adjusted to meet to Revenue Requirements.

TABLE II
Pittsburgh Water and Sewer Authority
RATE FILING REVENUE DETAIL
Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
	FPFYT 2024					2025 Rate Year				2026 Rate Year			
	PWSA	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties
Revenue at Current Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	
0													
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
Retail User Charge Revenues													
Water	120,501,682	29,886,583	150,388,265	0	150,388,265	11,825,568	162,213,833	0	162,213,833	31,901,651	194,115,484	0	194,115,484
Water - Public Hydrants	1,322,609	641,484	1,964,093	0	1,964,093	372,997	2,337,090	0	2,337,090	459,490	2,796,580	0	2,796,580
Wholesale/Contract Revenues	3,726,934	677,396	4,404,330	0	4,404,330	290,612	4,694,942	0	4,694,942	724,163	5,419,106	0	5,419,106
Sewer	48,144,421	1,980,136	50,124,557	0	50,124,557	2,092,015	52,216,572	0	52,216,572	8,466,797	60,683,369	0	60,683,369
Stormwater	19,962,786	5,798,834	25,761,620	0	25,761,620	4,720,250	30,481,870	0	30,481,870	5,172,398	35,654,268	0	35,654,268
Stormwater Only	3,154,950	916,690	4,071,640	0	4,071,640	746,070	4,817,710	0	4,817,710	817,503	5,635,213	0	5,635,213
Subtotal: Retail User Charge Revenues	196,813,382	39,901,123	236,714,505	0	236,714,505	20,047,513	256,762,018	0	256,762,018	47,542,002	304,304,020	0	304,304,020
Infrastructure Improvement Charge													
Water	0	0	0	0	0	14,134,186	14,134,186	0	14,134,186	2,028,830	16,163,016	0	16,163,016
Sewer	0	0	0	0	0	2,956,313	2,956,313	0	2,956,313	79,900	3,036,213	0	3,036,213
Stormwater	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal: Infrastructure Improvement Charge	0	0	0	0	0	17,090,499	17,090,499	0	17,090,499	2,108,730	19,199,229	0	19,199,229
Customer Assistance Program Charge													
Water	0	0	0	0	0	3,134,371	3,134,371	0	3,134,371	533,510	3,667,881	0	3,667,881
Sewer	0	0	0	0	0	1,336,310	1,336,310	0	1,336,310	235,819	1,572,130	0	1,572,130
Stormwater	0	0	0	0	0	1,041,772	1,041,772	0	1,041,772	173,629	1,215,401	0	1,215,401
Subtotal: Customer Assistance Program Charge	0	0	0	0	0	5,512,454	5,512,454	0	5,512,454	942,958	6,455,412	0	6,455,412
DSIC Revenues													
Water	PWSA 5.0%		PWSA 7.5%		ALJ 7.5%		PWSA 7.5%		ALJ 7.5%		PWSA 7.5%		ALJ 7.5%
Sewer	5.0%		7.5%		7.5%		7.5%		7.5%		7.5%		7.5%
Stormwater (NSWO)	0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
Stormwater Only	0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
Water	6,025,084	5,254,036	11,279,120	0	11,279,120	2,182,059	13,461,179	0	13,461,179	2,584,799	16,045,979	0	16,045,979
Sewer	2,407,221	1,352,121	3,759,342	0	3,759,342	478,848	4,238,190	0	4,238,190	658,689	4,896,878	0	4,896,878
Stormwater (NSWO)	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormwater Only	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal: DSIC Revenues	8,432,305	6,606,157	15,038,462	0	15,038,462	2,660,907	17,699,369	0	17,699,369	3,243,488	20,942,857	0	20,942,857
Other System Revenues													
Other Operating & Non-Operating Revenues	3,566,080	0	3,566,080	0	3,566,080	71,322	3,637,402	0	3,637,402	72,748	3,710,150	0	3,710,150
Subtotal: Other System Revenues	3,566,080	0	3,566,080	0	3,566,080	71,322	3,637,402	0	3,637,402	72,748	3,710,150	0	3,710,150
Subtotal: Total Revenues before Uncollectible	208,811,767		255,319,047		255,319,047		300,701,740		300,701,740		354,611,667		354,611,667
Less: Uncollectible Revenues	(4,953,627)	0	(4,953,627)	0	(4,953,627)	(1,060,408)	(6,014,035)	0	(6,014,035)	(1,078,199)	(7,092,233)	0	(7,092,233)
Less: Uncollectible Revenues (SW Only)	(1,017,910)	0	(1,017,910)	0	(1,017,910)	(158,919)	(1,176,829)	0	(1,176,829)	(198,817)	(1,375,646)	0	(1,375,646)
Less: Stormwater Credit Program	(180,489)	0	(180,489)	0	(180,489)	(31,613)	(212,102)	0	(212,102)	(29,203)	(241,305)	0	(241,305)
Subtotal: Less: Uncollectible Revenues	(6,152,026)	0	(6,152,026)	0	(6,152,026)	(1,250,940)	(7,402,966)	0	(7,402,966)	(1,306,219)	(8,709,185)	0	(8,709,185)
Total Revenues Net of Uncollectible	202,659,741	46,507,280	249,167,021	0	249,167,021	44,131,754	293,298,775	0	293,298,775	52,603,707	345,902,482	0	345,902,482
Summary													
Revenue from Base Rates		39,901,123			39,901,123		20,047,513		20,047,513		47,542,002		47,542,002
Revenue from New Reconcilable Charges		0			0		22,602,952		22,602,952		3,051,689		3,051,689
Revenue from DSIC			6,606,157		6,606,157		2,660,907		2,660,907		3,243,488		3,243,488
Revenue from Other System Revenues		0			0		71,322		71,322		72,748		72,748
Total Revenue Increase before Uncollectible		46,507,280			46,507,280		45,382,694		45,382,694		53,909,927		53,909,927
Change in Uncollectible Revenues			0		0		(1,250,940)		(1,250,940)		(1,306,219)		(1,306,219)
Total Revenue Increase with Uncollectible		46,507,280			46,507,280		44,131,754		44,131,754		52,603,707		52,603,707

(1) Company Main Brief

Exhibit WJP-2

COOPERATION AGREEMENT
BETWEEN THE CITY OF PITTSBURGH AND
THE PITTSBURGH WATER AND SEWER AUTHORITY

This Cooperation Agreement ("Agreement"), is made this 3rd day of October, 2019, by and between the CITY OF PITTSBURGH, a municipal corporation existing under the laws of the Commonwealth of Pennsylvania ("City"), and THE PITTSBURGH WATER AND SEWER AUTHORITY, a body corporate and politic organized and existing under the laws of the Commonwealth of Pennsylvania ("PWSA").

WHEREAS, the City and PWSA entered into a Cooperation Agreement dated as of June 15, 1995 but effective as of January 1, 1995 (the "1995 Cooperation Agreement") and a First Amendment to Cooperation Agreement dated March 21, 2011 (the "First Amendment" and together with the 1995 Cooperation Agreement, the "Original Cooperation Agreement") relating to the operation and maintenance of the System, as hereinafter defined; and

WHEREAS, this Agreement is specifically intended to reinforce the concurrence of the parties that neither the City nor PWSA will entertain proposals, make arrangements or allow the sale or ownership of the System to a for-profit private entity; and

WHEREAS, pursuant to Act 65 of 2017, which amended the Pennsylvania Public Utility Code (the "Public Utility Code"), PWSA became subject to the Public Utility Code, except Chapters 11 (relating to certificates of public convenience) and 21 (relating to affiliated interests) in the same manner as a public utility and subject to regulation by the Pennsylvania Public Utility Commission (the "PUC"); and

WHEREAS, the Original Cooperation Agreement terminated on October 3, 2019 and City and PWSA desire to enter into this Agreement to, among other things, (i) reflect changes in their rights and obligations each with respect to the other, (ii) accurately reflect the division of services related to the System, (iii) accurately provide for payments by the City and PWSA to the other based upon actual, verifiable, direct expenses, and in accordance with customary utility practices under the Public Utility Code, (iv) confirm that payments by PWSA to the City continue to be subordinate to all debt obligations of PWSA, (v) provide for cooperation by the City and PWSA in their respective capital projects which may impact each other, (vi) provide for clarification of the responsibilities of PWSA with respect to City Parks larger than 50 acres and other City properties, (vii) confirm that the System will remain under public ownership and (viii) set forth certain other provisions relating to the roles and responsibilities of the City and PWSA with respect to the System.

Therefore, intending to be legally bound, the parties agree as follows:

1. **Incorporation of Recitals.** The foregoing recitals are incorporated herein by reference.
2. **Definitions.**

2.1 "Actual Direct Expenses" will mean all costs and expenses incurred by the City or PWSA that are directly related to services or goods provided to or for the benefit of the

other. Expenses in this category are either documented by a third-party invoice or specifically identifiable in the records of the party incurring the expense.

2.2 "Agreement" means this Cooperation Agreement.

2.3 "ALCOSAN" means the Allegheny County Sanitation Authority.

2.4 "City Parks" means City-owned parks that consist of fifty (50) or more contiguous acres, which include the following: Hays Woods, Frick Park, Schenley Park, Highland Park, Emerald View Regional Park, Riverview Park, McKinley Park, Allegheny Commons, Southside Park, Brookline Memorial Park and Sheraden Park. It is recognized that additional parks may be added, subject to the approval by PWSA, which approval will not be unreasonably withheld.

2.5 "Combination Sewer Laterals" means those Laterals that connect to Combined Sewers.

2.6 "Combined Sewers" means underground pipes or tunnels designed to transport sewage and stormwater.

2.7 "Distribution Mains" means small water mains that convey drinking water to Service Lines.

2.8 The "Effective Date" of this Agreement is October 3, 2019.

2.9 "Sanitary Sewers" means underground pipes or tunnels designed to transport sewage.

2.10 "Senior Debt" means all those bonds, notes, indentures, loan agreements, funding agreements, interest-rate swap agreements, hedge agreements, credit facilities, liquidity facilities, remarketing agreements, intercreditor agreements and any other related financial obligations and indebtedness issued, entered into or undertaken by the PWSA at any time, including but not limited to those in existence on the Effective Date hereof, but will not mean or include any obligations of the PWSA to the City, either under this Agreement or otherwise.

2.11 "Sewer Grates" means a grate that covers the entrance to a ground level Sewer Line, which allows water to enter the sewer.

2.12 "Sewer Lines" means Sewer Mains and Sewage Laterals.

2.13 "Service Lines" means those water lines that connect to System Water Mains and that deliver water from the Water Mains to one or more buildings, premises, or facilities.

2.14 "Sewage Laterals" means those individual Sewer Lines that transport sewage and/or storm water from one or more buildings or premises to the Sewer Mains.

2.15 "Sewer Mains" means the pipes that carry sanitary or combined sewage from Laterals to ALCOSAN sanitary mains or combined sewer mains.

2.16 "Sewer System" means the portion of the System that 1) collects sanitary and combined sewage and conveys it to ALCOSAN and 2) collects and discharges stormwater.

2.17 "Stormwater Conveyance Lines" means stormwater pipes that convey separated stormwater to points of approved discharge.

2.18 "System" means and includes, the following, then owned or operated by PWSA and used in the rendering of water service and sewer service by PWSA as of any particular time: all plants, warehouses, equipment, structures, facilities, lands, easements, rights of way, public Water Lines and public sewer lines, patents, copyrights, contracts with municipalities or authorities outside the boundaries of the City, water treatment plants, pumping facilities, reservoirs, storage tanks, distribution mains, public Service Lines and appurtenances, public sewers, inlets, sewer grates, manholes, diversion structures, pumping stations, force mains, public subsurface Stormwater Conveyance Lines and related facilities conveying stormwater, all patents and copyrights obtained by the City, assigned to the PWSA, or retained directly by PWSA and related to the design, operation, maintenance, replacement or abandonment of water, sewer or stormwater systems, all other tangible public property, fixed or moveable, all capital additions then constructed or otherwise acquired relating to water service and sewer service, and all franchises used or useful to the PWSA at such particular time in the rendering of water, sewer and stormwater service by PWSA and other agreements between the City and PWSA.

2.19 "Water Lines" means Water Mains and Service Lines.

2.20 "Water Mains" means the pipes that distribute drinking water from the treatment plants, pump stations and storage facilities to Service Lines.

2.21 "Water System" means the portion of the System that treats and distributes drinking water.

3. Services to be Provided between the City and PWSA.

3.1. The City Services. The City may render to PWSA the following services and goods: (i) participation of eligible PWSA employees in the City's Pension Plan, (ii) fuel for PWSA vehicles, (iii) City permits and licenses relating to PWSA projects (the charges to PWSA to be based on the usual customary charges paid by utilities obtaining similar permits and licenses from the City), (iv) vehicle fleet maintenance services, (v) a portion (50%) of street sweeping costs starting January 1, 2020, and (vi) any other services and goods upon such terms as may be agreed to by the parties hereto performed at usual and customary costs and the charges to PWSA based on the usual customary charges paid by utilities obtaining similar services and goods from the City. Except where otherwise specifically provided, PWSA will compensate the City for those services and goods provided pursuant to this Agreement. Any payments by PWSA pursuant to this Agreement shall be based on Actual Direct Expenses and must meet external audit and PUC auditing standards. The parties to this Agreement acknowledge that due to the unavailability of actual cost data certain current year charges by the City to PWSA may be

based on prior year data. If payments are made based on information other than actual current data, the accounts will be reconciled and overpayment and underpayment corrected no later than July 1 of the following calendar year. The City and the PWSA are not obligated to provide or to purchase these services from each other and may seek the services from other providers.

3.2 PWSA Services. PWSA may render to the City such services as agreed to by the City and PWSA which may include but not be limited to the following: (i) providing water through PWSA water mains to City properties, (ii) fire hydrant services, (iii) conveyance of sewage through PWSA sewer mains to ALCOSAN and payment of ALCOSAN charges, subject to Section 6.3 of this Agreement, and (iv) payment of any subsidy to other water service providers. Any such services by PWSA to the City will either be paid for directly by the City to PWSA or taken as a credit by PWSA against amounts owed by PWSA to the City under this Agreement. Any payments by the City to PWSA shall be based on Actual Direct Expenses. The City and the PWSA are not obligated to provide or to purchase these services from each other and may seek the services from other providers.

4. Capital Improvement Projects. The parties will work together in good faith, consistent with the City Right-of-Way Manual, as the same exists on the date of this Agreement (the "City Right-of-Way Manual") and the PWSA Developer Manual, as the same exists on the date of this Agreement (the "PWSA Developer Manual") to determine the impact of a City project on the System, including the design and location of any project and including the reconstruction and/or resurfacing of roadways. The parties will also work together in good faith, consistent with the City Right-of-Way Manual and the PWSA Developer Manual, to determine the impact of a PWSA project on the City's existing facilities and infrastructure, including the design and location of any replacement facilities or infrastructure resulting from the PWSA's project construction.

5. Water and Sewer Lines To and Within City Properties. The City and the PWSA agree as follows:

5.1 City Parks.

5.1.1 Water Mains and Service Lines. The PWSA will be responsible for the operation, maintenance, repair, and replacement of water mains. The PWSA will be responsible for existing and new service lines, which provide water service by PWSA to City Parks larger than 50 acres. If a water meter is not in place, PWSA shall provide a meter installation, and if necessary, a meter vault, as prescribed in the PWSA Developer Manual and in accordance with PUC requirements. The cost of the meter and meter vault installation shall be shared equally by PWSA and the City. The City shall be responsible for the cost of the repair and replacement of any meter vaults and meters. The City will be responsible for the operation, maintenance, installation, repair and replacement of plumbing inside City Park buildings or other City Park facilities such as fountains, spray pools and swimming pools.

5.1.2 Combined and Sanitary Sewers Mains and Laterals. The PWSA will be responsible for the operation, maintenance, repair and replacement of sanitary

sewer and combined sewer mains. The PWSA will be responsible for existing and new sewer laterals within the City Parks larger than 50 acres.

5.2 Other City Properties.

5.2.1 Water and Sewer Mains, Service Lines and Laterals. The PWSA will be responsible for the operation, maintenance, repair, and replacement of water mains providing water service by PWSA to City properties. The PWSA will be responsible for the operation, maintenance, repair, and replacement of sanitary sewer and combination sewer mains.

The City shall be treated like other commercial customers of PWSA with respect to service lines and sewer laterals with two important exceptions:

First, the operation, maintenance, repair and replacement of water service lines and sewer laterals in City Parks larger than 50 acres shall remain the responsibility of PWSA.

Second, the City will be responsible for the total cost of the operation, maintenance, repair and replacement of all other water service lines and sewer laterals beginning in 2025 and thereafter. Prior to 2025, the City will be responsible for the cost of these service lines and sewer laterals in increasing proportion following this annual schedule:

<u>Year</u>	<u>Percentage of Cost to be paid by City</u>
2020	0%
2021	20%
2022	40%
2023	60%
2024	80%
2025 and thereafter	100%

With respect to water service provided by PWSA, if a water meter is not in place, PWSA shall provide a meter installation, and if necessary, a meter vault, as prescribed in the PWSA Developer Manual and in accordance with PUC meter requirements. The cost of the meter and meter vault installation shall be shared equally by PWSA and the City. The City shall be responsible for the cost of the repair and replacement of any meter vaults and meters. The City shall be responsible for the operation, maintenance, installation, repair and replacement of internal plumbing with respect to all City buildings, facilities and City properties, including City Parks of 50 acres or less.

5.3 Saw Mill Run. PWSA will be responsible for the operation, maintenance, repair and replacement of water and sewer mains located in Saw Mill Run. PWSA shall not be responsible for the operation, maintenance, repair and replacement of service lines and laterals located in Saw Mill Run.

6. **Subsidy Payments; Water to City; Sewage Treatment Charges.**

6.1 **Subsidy Payments.** Pursuant to Ordinance No. 675 of the City enacted on December 27, 1973, the City entered into an agreement, dated December 28, 1973, with the Western Pennsylvania Water Company (now known as the Pennsylvania American Water Company ("PAWC")) (the "Water Rate Subsidy Agreement"). This agreement permitted the City to subsidize the water rates for City residents who are customers served by PAWC. Currently PWSA makes those subsidy payments to PAWC on behalf of the City. PWSA is now subject to PUC regulation and PUC regulations do not permit PWSA to subsidize the rates of a utility which is subject to PUC regulation.

Pursuant to this Agreement, it is agreed by both parties that:

- (1) The original Water Rate Subsidy Agreement is immediately assigned to PWSA;
- (2) It is understood that this Subsidy Agreement will be terminated by PWSA as soon as PWSA's current and projected rate increases have effectively eliminated any measurable subsidy to at least 67% of the residential customers (those with a 5/8" meter) for City residents served by PAWC. A measurable subsidy is defined as more than \$1.00 per month. The termination of the subsidy could occur as early as 2020.
- (3) Until the Water Rate Subsidy Agreement is terminated, PWSA and the City will share in the subsidy payments as follows:

--In 2020, PWSA will pay for any subsidy pursuant to the Water Rate Subsidy Agreement, if one exists;

--In 2021, PWSA and the City will share equally in any subsidy payment pursuant to the Water Rate Subsidy Agreement, if one exists;

--In 2022 and years thereafter, the City will pay any existing subsidy pursuant to the Water Rate Subsidy Agreement, if one exists.

During this period, the City will either promptly reimburse PWSA or PWSA will take as a credit the amount of any subsidy payments made by PWSA against payments to be made by PWSA hereunder.

6.2 **Water to City and Fire Hydrant Charges.** Until January 1, 2020, the City shall be entitled without charge to receive up to 600 million gallons of water each calendar year to be used by the City, its departments, agencies, and instrumentalities.

With respect to the Pittsburgh Zoo & PPG Aquarium, the Bob O'Connor Golf Course at Schenley Park and Phipps Conservatory and Botanical Gardens (collectively, the "Third Party Water Users"), which have agreements (e.g. leases) containing provisions contractually obligating the City to provide water and sewage service without charge as long as the City receives water and sewage service without charge, the water and sewer usage by the Third Party Water Users beginning January 1, 2020, shall be subject to the phased in PWSA

charges set forth in the table included in the second paragraph immediately following this paragraph. After water meters have been installed at the facilities of the Third Party Water Users, PWSA shall directly bill said users for their water and sewer usage in accordance with the aforesaid table.

The City shall not receive a credit for any water not used. To the extent the City uses in excess of 600 million gallons in any calendar year, the PWSA may offset that cost based on normal PWSA charges against monies owed the City under this Agreement. The City will cooperate with the PWSA in providing for the installation of water meters and meter vaults, if necessary, in all City properties including City Parks not metered as of the Effective Date, the cost of which shall be shared equally by PWSA and the City as set forth in Section 5 of this Agreement. The City shall not withhold or impede the installation of water meters and meter vaults at any of its properties including parks. Any City properties including parks not metered by January 1, 2024 will be subject to flat water charges levied by PWSA in accordance with its usual and customary practices.

Beginning January 1, 2020, the City shall pay PWSA normal PWSA charges (currently water, wastewater and ALCOSAN) on City-owned metered properties for all water usage and any fire hydrant usage charge. The foregoing charges shall be phased in over a five-year period as follows:

<u>Year</u>	<u>Percentage of Usage Charged</u>
2020	20%
2021	40%
2022	60%
2023	80%
2024 and thereafter	100%

6.3 Sewage Treatment Charges. As set forth in Section 5B of that certain Memorandum of Understanding by and among the City, PWSA and ALCOSAN dated October 16, 1996, the City will pay ALCOSAN directly for all City property ALCOSAN accounts. If ALCOSAN does not permit the City to pay it directly for the City property ALCOSAN accounts and PWSA makes such payments to ALCOSAN on behalf of the City, the City shall either promptly reimburse PWSA the amount of such payments made by PWSA to ALCOSAN or PWSA shall be entitled to a credit against any payments required to be made by PWSA under this Agreement.

7. Granting of Easements and Rights of Way. Subject to necessary City Council approval, the City shall grant to PWSA all necessary easements and rights of way which may be required by PWSA in the maintenance, repair and capital improvements to the System.

8. City Payroll Tax. Similar to other utility employers subject to the City's Payroll Tax, PWSA hereby agrees to pay the City effective January 1, 2020 an amount calculated based on the prior year's payroll data but otherwise in accordance with the City's Payroll Tax and the regulations issued pursuant to the Title II, Article VII, Chapter 258 of the City Code (the

"Payroll Tax Regulations"). Such amount shall be paid annually or taken as a credit by PWSA against amounts owed by the City under this Agreement.

9. **PURTA Payments.** Similar to other entities furnishing utility services that are regulated by the PUC, PWSA hereby agrees to pay the City, beginning with the year commencing January 1, 2020, an amount calculated pursuant to the Pennsylvania Public Utility Realty Tax (PURTA) (Article XI-A of the Tax Reform Code of 1971 (P.L. 6, No. 2), as amended). Subject to the phase-in below, the amount to be paid by PWSA ("PURTA Payment") shall be calculated based on the fair market value, as determined under PURTA and the regulations thereunder, of the PWSA realty of the System used for the treatment and delivery of water to PWSA customers. The PURTA Payment shall be paid annually by PWSA to the City in an amount that shall be phased in as follows:

<u>Year</u>	<u>% of PURTA Payment to be paid to the City</u>
2020	20%
2021	40%
2022	60%
2023	80%
2024 and thereafter	100%

In lieu of making a PURTA Payment, the amount of such payment, at the sole option of PWSA, may be taken as a credit against amounts owed by the City to PWSA under this Agreement.

10. **Credit May Not Be Pledged.** The credit of one party to this Agreement will not be pledged for payment of any debts of the other party, and neither party will be liable for debt payments of the other party. Unless consented to by the City, the taxing power of the City will not be pledged for payment of any PWSA indebtedness.

11. **Subordination to Senior Debt.** The City agrees to subordinate all legal and equitable rights it has or may have to payment from the PWSA for services rendered and goods provided by the City to the PWSA, whether under this Agreement, any amendment thereto, or otherwise, to the Senior Debt. The PWSA may make and the City may retain regularly scheduled payments under this Agreement when and as due; provided, however, that no payments may be made by the PWSA or retained by the City upon the occurrence of an event of default under any Senior Debt instrument or agreement or if the making of such payment would cause an event of default thereunder. The City agrees to subordinate, and does hereby subordinate, any payments received from the PWSA to the indefeasible payment or satisfaction in full of the Senior Debt.

The City is not obligated to pay the principal, redemption price, if any, or other payments on the Senior Debt. Neither the full faith, credit nor taxing power of the City is pledged to such payments.

This Agreement constitutes a supplement to the Original Cooperation Agreement within the meaning of PWSA's 2017 Amended and Restated Trust Indenture and 2019 Amended and Restated Subordinate Trust Indenture.

12. **Conflict With PUC Regulations.** If any obligation of PWSA to the City under this Agreement conflicts with provisions of the Public Utility Code or regulations of PUC thereunder, the provisions of the Public Utility Code and regulations of the PUC shall control. By signing this Agreement, or any other agreement to which it and PWSA are parties, the City does not consent to automatic PUC jurisdiction and does not waive any right to object thereto.

13. **Notices.** All notices and correspondence between the City and PWSA concerning or in furtherance of this Cooperation Agreement will be addressed to:

The City: Mayor William Peduto
414 Grant Street #512
Pittsburgh, PA 15219
Phone: 412-255-2626

with a copy to: Solicitor
Suite 313, City/County Building
414 Grant Street
Pittsburgh, PA 15219
Phone: 412-255-2001
Fax: 412-255-2285

PWSA: Executive Director
The Pittsburgh Water and Sewer Authority
Penn Liberty Plaza 1
1200 Penn Avenue
Pittsburgh, PA 15222
Phone: 412-255-8949
Fax: 412-393-0522

with copies to: Director of Engineering and Construction
The Pittsburgh Water and Sewer Authority
Penn Liberty Plaza 1
1200 Penn Avenue
Pittsburgh, PA 15222
Phone: 412-255-8949
Fax: 412-393-0522

and

Solicitor for PWSA
 Mark F. Nowak, Esq.
 Clark Hill PLC
 One Oxford Centre
 301 Grant Street, 14th Floor
 Pittsburgh, PA 15219
 Phone: 412-394-2428
 Fax: 412-394-2555

Each party will notify the other whenever there is any change in the required contact.

14. **Miscellaneous Matters.**

a. With respect to tap-in fees charged by PWSA, until January 1, 2025, or at such later date as approved by the PWSA Board, the City shall be entitled to a 100% governmental exception to tap-in fee charges with respect to City owned governmental projects, to include community gardens located on City property.

c. PWSA and the City will obtain an appraisal of the water facilities component of the System, the cost of which shall be equally shared by the City and PWSA.

d. With respect to unknown water lines, if PWSA or the City discovers a previously unknown water line PWSA will consider such line to be part of the System provided the line was constructed in accordance with PWSA specifications that existed at that time and located within City owned property.

e. The City and PWSA will jointly create a map identifying water service lines and laterals within the City Parks. Each party will be entitled to an original copy of this map.

f. If PWSA abandons or vacates any System property prior to September 1, 2025, such property shall remain as City-owned property. After PWSA exercises its option to acquire the System, PWSA will provide the City with ninety (90) days prior written notice of its intent to sell any of the System's real property and the City shall have a right of first refusal to purchase said real property at fair market value. The City must exercise said right of first refusal within ninety (90) days after receiving the above written notice from PWSA.

15. **Relationship of PWSA and City.** The City agrees that the interactions between the City and PWSA under this Agreement will be on a business-like, transactional basis and the provisions hereof will be applied to PWSA in a manner similar to utilities operating in the City subject to the provisions of this Agreement.

16. **Public Ownership.** The City and PWSA agree that the System will remain under public ownership.

17. **Entire Agreement.** This Agreement will constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts will be

relevant or admissible for purposes of determining the meaning or intent of any of the provisions hereof.

18. **Amendments.** No changes, additions, modifications or amendments of this Agreement will be effective unless they are set out in writing and signed by the parties hereto.

19. **Assignment.** This Agreement will not be assignable by either party without the written consent of the other party.

20. **Termination.** The City and PWSA shall each have the right to unilaterally terminate this Agreement at any time upon ninety (90) days written notice to the other.

21. **Governing Law.** This Agreement will be governed by the laws of the Commonwealth of Pennsylvania, without reference to its conflicts-of-laws principles.

22. **Conflict.** To the extent that any provision in this Agreement conflicts with any provision of any trust indenture securing any indebtedness of the PWSA, the provisions of the trust indenture will prevail.

23. **Severability.** The provisions of this Agreement will be severable and should any part of the Agreement be declared invalid or unenforceable, the remainder will continue in full force and effect.

24. **No Third-Party Beneficiaries.** This Agreement shall create no rights in any party other than the City and the PWSA and no other party is intended to be a third-party beneficiary of this Agreement, except as specifically indicated herein. Moreover, the respective responsibilities and obligations of PWSA and the City with respect to service lines and the System set forth in this Agreement shall only apply to PWSA and the City and not to any other customer of PWSA.

25. **Pittsburgh Home Rule Charter.** This Agreement is subject to the provisions of the City of Pittsburgh Home Rule Charter.

26. **Authorizing Resolution.** The City is authorized to enter into this Agreement pursuant to Resolution No. 464 of 2019, effective July 25, 2019; and the PWSA is authorized to enter into this Agreement under Agenda Item No. 130 of 2019 duly approved and adopted at a meeting of its Board held on June 28, 2019.

[SIGNATURES ON NEXT PAGE]

IN WITNESS WHEREOF, the parties have duly executed this Cooperation Agreement the day and year first above written.

ATTEST:

Paul Hill

CITY OF PITTSBURGH

[Signature]
Mayor

Reviewed by:

Assistant City Solicitor

Approved as to form:

City Solicitor

Countersigned by:

City Controller

ATTEST:

Jan W. Turner
Secretary

THE PITTSBURGH WATER AND SEWER
AUTHORITY

Paul Seger
Chairman

VERIFICATION

I, William J. Pickering, hereby state that: (1) I am the Chief Executive Officer for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 05/03/2023 | 8:02 AM PDT

DocuSigned by:
William J. Pickering

6C8AA5A5E44147A...

William J. Pickering
Chief Executive Officer
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

EDWARD BARCA

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Support for Proposed Rate Increase

Support for DSIC Cap Increase

Pro Forma Financial Results

Rate Structure Changes & New Charges

Calculation of Revenue Requirements

Development of Operating Budget & Capital Needs

May 9, 2023

As corrected September 6, 2023

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TABLE OF EXHIBITS

Exhibit EB-1	Provides schedules showing PWSA's Income Statement, Cash Flow Statement, and Debt Service Coverage Statement at present rates for the HTY (FY 2022), FTY (FY 2023), FPFTY (FY 2024), the Forecast Period (FY 2025), and the Forecast Period (FY 2026)
Exhibit EB-2	Provides schedules showing PWSA's Income Statement, Cash Flow Statement, and Debt Service Coverage Statement at proposed rates for the HTY, FTY, FPFTY, Forecast Period 2025, and Forecast Period 2026
Exhibit EB-3	Contains additional budget information for HTY, FTY, FPFTY, Forecast Period 2025, and Forecast Period 2026
Exhibit EB-4	Contains PWSA’s 2022-2027 Capital Improvement Plan
Exhibit EB-5	Contains PWSA’s Financial Management Policy
Exhibit EB-6	Contains PWSA’s Debt and Swap Portfolio Summary
Exhibit EB-7	Contains PWSA’s Additional Bonds Test at Existing Rates
Exhibit EB-8	Contains PWSA’s Additional Bonds Test at Proposed Rates
Exhibit EB-9	Contains PWSA’s Cost-Benefit Analysis on the Arrearage Forgiveness Program

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Edward Barca and I am the Director of Finance for The Pittsburgh Water and
4 Sewer Authority (“PWSA” or “Authority”).

5 **Q. WHEN DID YOU TAKE ON THE POSITION OF TREASURER?**

6 A. I was appointed as the Authority’s Treasurer in June 2018 and assumed my duties with
7 the Authority during August 2018. I was promoted to the Deputy Director of
8 Finance/Treasurer in July 2019 and ultimately became the Director of Finance in June
9 2020, which is my current position.

10 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.**

11 A. I have a Master’s Degree in Finance from the Colorado State University-Global Campus
12 and a Bachelor's Degree in Finance from Mercyhurst University.

13 **Q. PLEASE PROVIDE A SUMMARY OF YOUR RELEVANT EXPERIENCE.**

14 A. I have been at the Authority since August 2018. As I stated, I started as the Authority’s
15 Treasurer in August 2018. I remained in that position until I became the Authority’s
16 Deputy Director of Finance/Treasurer in July 2019 and then the Director of Finance,
17 which is the position I currently hold.

18 Prior to working at the Authority, I worked for the City of Pittsburgh (“City”). I
19 joined the City in 2015 and was promoted to the Assistant Director of Finance in 2017.
20 While at the City, I served as a Business Intelligence Analyst, Senior Financial Analyst,
21 Revenue Manager, and, finally, Assistant Director of Finance.

22 Before starting with the City, I had prior work experience as a Financial Planning
23 Analyst for the Allegheny Financial Group and as a Financial Services Representative for

1 E*TRADE Financial. In addition, since November 2015, I have owned and operated a
2 business — Barca Tax Services, LLC — that provides tax preparation services.

3 **Q. MR. BARCA, WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES WITH**
4 **THE PWSA?**

5 A. In my present position, I am responsible for the financial affairs of the Authority along
6 with overseeing the Finance Department. This includes creating, implementing, and
7 monitoring the annual operating and capital budgets. I also manage the Authority’s (a)
8 cash and liquidity to ensure that sufficient funds are available to process payments, invest
9 in infrastructure, and service debt while preserving principal and thereafter maximizing
10 return on cash and investments; and (b) debt portfolio, which includes assessing
11 opportunities for financing and refinancing, securing additional debt capital from both
12 bank and capital markets, managing the interest rate swap portfolio and maintaining all
13 credit support vehicles. I further help to ensure compliance with all trust indentures, loan
14 agreements, bond covenants, and filing deadlines.

15 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA**
16 **PUBLIC UTILITY COMMISSION?**

17 A. Yes. I presented written Direct, Supplemental Direct, Rebuttal and Rejoinder testimony
18 in support of PWSA’s most recent rate case at Docket Numbers R-2021-3024773 (water),
19 R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater). I also presented
20 written Direct Testimony in support of PWSA’s Compliance Plan Stage 2 Stormwater
21 Proceeding at Docket Nos. M-2018-2640802 and M-2018-2640803. In addition, I have
22 been directly involved in various financial proceedings before the Pennsylvania Public
23 Utility Commission (“PUC” or “Commission”) regarding the issuance of securities
24 certificates. In 2022 and 2023, these proceedings included: (1) the issuance of a
25 securities certificate (S-2022-3032187) for a Capital Line of Credit; (2) the issuance of a

1 securities certificate (S-2022-3032192) for a series of Water Infrastructure and Finance
2 Innovation Act (“WIFIA”) loans; (3) the issuance of an abbreviated securities certificate
3 for a PENNVEST loan (S-2022-3034057); (4) the issuance of a securities certificate (S-
4 2022-3034813) for indebtedness (revenue bonds in an amount up to \$125,000,000); (5)
5 the issuance of a securities certificate for debt refunding (in an amount up to
6 \$110,000,000); (6) the issuance of an abbreviated securities certificate for a PENNVEST
7 Loan (S-2022-3036874), (7) the issuance of an abbreviated securities certificate for a
8 PENNVEST Loan (S-2022-3036875); (8) the issuance of an abbreviated securities
9 certificate for a PENNVEST Loan (S-2022-3036876); (9) the issuance of an abbreviated
10 securities certificate for a PENNVEST Loan (S-2022-3036877); (10) the issuance of an
11 abbreviated securities certificate for a PENNVEST Loan (S-2023-3038462).

12 **Q. PLEASE EXPLAIN THE PURPOSE OF YOUR TESTIMONY?**

13 A. The purpose of my testimony is to:

- 14 1) Provide the documentation and supporting methodology for the schedules and
15 exhibits that are included in PWSA’s rate filing;
- 16 2) Describe PWSA’s financial results for the Authority’s proposed multi-year rate
17 increase, which includes the fully projected future test year (“FPFTY”) comprised
18 of the period from January 1, 2024 through December 31, 2024, as well as periods
19 from January 1, 2025 through December 31, 2025 and January 1, 2026 through
20 December 31, 2026;
- 21 3) Provide support for PWSA's total requested overall rate increase of \$146.1
22 million, which is inclusive of the DSIC;
- 23 4) Explain and support two new charges starting in FY 2025, an “Infrastructure
24 Improvement Charge” and a “Customer Assistance Charge”; and,
- 25 5) Explain how the Authority’s capital budget spending will be recovered from
26 ratepayers.

27 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

28 A. Yes. I am sponsoring the following exhibits:

- 1 • **Exh. EB-1:** Exhibit EB-1 provides schedules showing PWSA's Income
2 Statement, Cash Flow Statement, and Debt Service Coverage Statement at present
3 rates for the HTY (FY 2022), FTY (FY 2023), FPFTY (FY 2024), the Forecast
4 Period (FY 2025), and the Forecast Period (FY 2026).
- 5 • **Exh. EB-2:** Exhibit EB-2 provides schedules showing PWSA's Income
6 Statement, Cash Flow Statement, and Debt Service Coverage Statement at
7 proposed rates for the HTY, FTY, FPFTY, Forecast Period 2025, and Forecast
8 Period 2026.
- 9 • **Exh. EB-3:** Exhibit EB-3 contains additional budget information for HTY, FTY,
10 FPFTY, Forecast Period 2025, and Forecast Period 2026.
- 11 • **Exh. EB-4:** Exhibit EB-5 contains PWSA's 2022-2027 Capital Improvement
12 Plan.
- 13 • **Exh. EB-5:** Exhibit EB-5 contains PWSA's Financial Management Policy.
- 14 • **Exh. EB-6:** Exhibit EB-6 contains PWSA's Debt and Swap Portfolio Summary.
- 15 • **Exh. EB-7:** Exhibit EB-7 contains PWSA's Additional Bonds Test at Existing
16 Rates.
- 17 • **Exh. EB-8:** Exhibit EB-8 contains PWSA's Additional Bonds Test at Proposed
18 Rates.
- 19 • **Exh. EB-9:** Exhibit EB-9 contains PWSA's Cost-Benefit Analysis on the
20 Arrearage Forgiveness Program.

21 **II. PROPOSED RATE INCREASE**

22 **Q. PLEASE SUMMARIZE THE RATE INCREASE SOUGHT BY PWSA IN THIS**
23 **PROCEEDING.**

24 A. The following points below summarize the requested increase in this proceeding.

- 25 • PWSA seeks a multi-year total overall rate revenue increase of \$146.1 million,
26 which is inclusive of the DSIC. This includes a \$46.8 million or 22.5% increase in
27 the FPFTY (FY 2024), \$45.4 million or 17.8% in FY 2025, and \$53.9 million or
28 17.9% in FY 2026.
- 29 • It is proposed to allocate in rates \$432,640 for the Hardship Grant program and
30 \$720,000 for the Arrearage Forgiveness program to support the grants and credits
31 provided to eligible customers.

- 1 • It is proposed to adopt two new charges starting in FY 2025. The first is an
2 Infrastructure Improvement Charge and the second is a Customer Assistance
3 Charge.
- 4 • PWSA proposes to phase out the minimum water and wastewater charges starting
5 in 2025 and in 2025 introduce the two new above-mentioned reconcilable charges
6 to recover the costs of PENNVEST and Water Infrastructure and Finance
7 Innovation Act (“WIFIA”) loans as well as the costs of PWSA’s low income
8 customer assistance programs.

9 **Q. CAN YOU DESCRIBE THE NEED FOR THIS RATE INCREASE?**

10 A. The main factors driving the need to file this rate case include inflation, capital costs, the
11 expansion of operations, continued compliance to meet financial obligations, and
12 improvements to the financial metrics that impact PWSA’s bond rating.
13 The details that justify the need for the additional revenues in this rate case along with the
14 rate structure changes proposed in this proceeding will be fully described later in my
15 testimony.

16 **III. CALCULATION OF REVENUE REQUIREMENT**

17 **A. Cash Flow Ratemaking**

18 **Q. PLEASE EXPLAIN THE BASIS ON WHICH PWSA HAS CALCULATED ITS**
19 **REVENUE REQUIREMENT FOR THE FPFTY.**

20 A. PWSA is not regulated on the basis of a fair rate of return on a used and useful rate base
21 as are investor-owned utilities; instead, the Authority’s revenue requirement is
22 established on the basis of the “Cash Flow Method.”

23 The Commission has directed that PWSA’s revenue requirement will be
24 determined using the “Cash Flow” method, the traditional method of determining just and

1 reasonable rates for municipal utilities such as PWSA.¹ In PWSA’s first three rate cases,²
2 PWSA and the other parties determined its revenue requirement using the “Cash Flow”
3 method.

4 It is appropriate to continue to use the “Cash Flow” method for PWSA, since
5 PWSA has no shareholders and does not pay a dividend or a rate of return to its owner.
6 With that in mind, rather than having its revenue requirement determined on the basis of
7 a fair rate of return on a used and useful rate base, PWSA’s rates should be set by
8 determining the levels of cash necessary to fund an operating budget that enables PWSA
9 to maintain the system, pay for needed capital improvements, the level of debt service
10 coverage that both meets PWSA’s bond covenant requirements, meets the additional
11 bonds test, and also produces sufficient cash to fund all obligations and maintain access
12 to the capital markets at reasonable rates.

13 In a 2010 Policy Statement, the Commission described the requirements of the
14 Cash Flow Method as follows:

15 *(b) ... Included in that requirement [of establishing just and reasonable rates] is the*
16 *subsidiary obligation to provide revenue allowances from rates adequate to cover*
17 *[the utility’s] reasonable and prudent operating expenses, depreciation allowances*
18 *and debt service, as well as sufficient margins to meet bond coverage requirements*
19 *and other internally generated funds over and above its bond coverage*
20 *requirements, as the Commission deems appropriate and in the public interest for*
21 *purposes such as capital improvements, retirement of debt and working capital.*³

¹ *Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water And Sewer Authority*, Docket Nos. M-2018-2640802 and M-2018-2640803, Final Implementation Order entered March 15, 2018 at 27-28.

² *See, e.g., Pennsylvania Public Utility Commission v. PWSA*, Docket Nos. R-2018-3002645 (water) and R-2018-3002647 (wastewater), Opinion and Order entered February 27, 2019.

³ 52 Pa.Code § 69.2702.

1 The Commission also stated that, in determining just and reasonable rate levels
 2 under the Cash Flow Methodology it would consider, among other relevant factors, the
 3 following financial factors:⁴

- 4 • Test year-end and (as a check) projected future levels of non-borrowed
 5 year-end cash.
- 6 • Available short term borrowing capacity and internal generation of
 7 funds to fund construction.
- 8 • Debt to equity ratios and financial performance of similarly situated
 9 utility enterprises.
- 10 • Level of financial performance needed to maintain or improve the
 11 utility’s bond rating thereby permitting the utility to access the capital
 12 markets at the lowest reasonable costs to customers over time.

13 **Q. PLEASE EXPLAIN HOW PWSA DETERMINED ITS REVENUE**
 14 **REQUIREMENT IN THE FPFTY?**

15 A. PWSA’s revenue requirement in this case was determined by calculating the level of
 16 additional revenues the Authority needs in order to fund its capital and operating budgets
 17 and maintain financial metrics at least at or above its minimum requirements, considering
 18 the levels needed to maintain PWSA’s current bond rating.

19 **IV. PRO FORMA FINANCIAL RESULTS**

20 **Q. HAVE YOU PREPARED A PROFORMA TEST YEAR INCOME STATEMENT,**
 21 **CASH FLOW AND DEBT SERVICE COVERAGE STATEMENT THAT**
 22 **PROJECTS THE AUTHORITY’S STATUS IN THE CURRENT YEAR AS WELL**
 23 **AS ON A PROJECTED BASIS?**

24 A. Yes. Please see Exhibit EB-1 and Exhibit EB-2.

⁴ 52 Pa.Code § 69.2703.

1 **Q. FIRST, PLEASE EXPLAIN THE TEST YEAR ON WHICH PWSA’S CLAIMED**
2 **REVENUE REQUIREMENT IS BASED.**

3 A. As permitted by Act 11 of 2012, PWSA has based its claimed revenue requirement on the
4 fully forecasted 12 months ending December 31, 2024, referred to as the Fully Projected
5 Future Test Year (“FPFTY”). The Future Test Year (“FTY”) is calendar year 2023,
6 January 1, 2023 to December 31, 2023, and the Historical Test Year (“HTY”) is calendar
7 year 2022, January 1, 2022 to December 31, 2022. Those results are displayed on Exhibit
8 EB-1. Each page of this exhibit shows data for: (1) the HTY, the 12 months ended
9 December 31, 2022 or FY 2022; (2) the FTY, the 12 months ended December 31, 2023
10 or FY 2023; (3) the FPFTY, the 12 months ended December 31, 2024 or FY 2024; (4) the
11 Forecast Period, the 12 months ended December 31, 2025 or FY 2025; and (5) the
12 Forecast Period, the 12 months ended December 31, 2026 or FY 2026.

13 **Q. HAS THE AUTHORITY RELIED UPON OTHER PROVISIONS OF ACT 11 IN**
14 **DEVELOPING THIS CASE?**

15 A. Yes, as addressed in two petitions which are being filed simultaneously with the filing of
16 its rate case package. First, PWSA is filing a Petition for consolidation of the three
17 dockets (water, wastewater, stormwater) and for authorization to use combined water,
18 wastewater and stormwater revenue requirements as authorized by 66 Pa. C.S. §
19 1311(c).⁵ Granting of the Petition will continue the prior accounting and ratemaking
20 practice of PWSA. Second, PWSA is simultaneously filing a Petition for Waiver of
21 Statutory Definition of FPFTY to enable it to use a FPFTY beginning on January 1, 2024.
22 Due to the May 9, 2023 filing date of this rate package, the application of the full
23 suspension period (60 days plus 7 months) will end on February 8, 2024. The purpose of

⁵ Alternatively, PWSA requests a waiver pursuant to 66 Pa. C.S. § 3203(b) which permits the Commission to suspend or waive the applicability of any provision of the Public Utility Code to PWSA.

1 PWSA’s Petition is to enable it to utilize a FPFTY beginning on January 1, 2024 (rather
2 than February 1, 2024 as would be required by the statute) which is consistent with
3 PWSA’s budgeting processes.

4 **Q. PLEASE DESCRIBE HOW THE DATA FOR THE HISTORIC TEST YEAR**
5 **WERE DERIVED.**

6 A. The HTY is the cash-basis results for FY 2022.

7 **Q. PLEASE DESCRIBE HOW THE FUTURE TEST YEAR AND FULLY**
8 **PROJECTED FUTURE TEST YEAR RESULTS WERE DERIVED.**

9 A. The FTY (FY 2023) and FPFTY (FY 2024) results were derived through a
10 comprehensive Authority-wide budgeting process. PWSA uses a zero-based budgeting
11 method to develop annual budgets. The previous year’s budgets are referenced when
12 developing the FPFTY budget, but each cost is individually considered when developing
13 the budget. This is contrary to a traditional budgeting approach in which an escalation
14 factor is applied for an anticipated increase in a specific type of cost.

15 On Exhibit EB-3, I have provided additional information concerning actual and
16 budget financial information. This Exhibit shows the Operating Budgets for FPFTY (FY
17 2024), FY 2025, FY 2026 as well as the anticipated Operating Expenses incurred in the
18 FTY (FY 2023). The types of expenses incurred or projected for each department are also
19 shown.

20 Exhibit EB-3 provides information regarding changes in budgeted levels from the
21 HTY (FY 2022) to the FTY (FY 2023) and from the FTY (FY 2023) to the FPFTY (FY
22 2024), FY 2025, and FY 2026.

1 **B. Impact of Inflation**

2 **Q. WHAT IMPACT HAS INFLATION HAD ON THIS RATE REQUEST?**

3 A. Inflation is one of the biggest drivers for this rate request. As I will describe, general
 4 price increases over the past two years have made it difficult to fund all operations at
 5 current rates. This increase is further compounded by the fact that PWSA continues to
 6 drastically increase operations to address deferred maintenance. PWSA is now at a point
 7 where additional revenues must be implemented or the financial stability of the
 8 organization will be at risk.

9 **Q. HOW MUCH HAS INFLATION INCREASED SINCE PWSA’S LAST RATE**
 10 **CASE FILING IN APRIL 2021?**

11 A. The chart below shows the consumer price index for all urban consumers from fiscal year
 12 2013 through March 2023. The data clearly demonstrates that inflation is dramatically
 13 increasing with the combined 2021 and 2022 total increase of 12.70%. This trend does
 14 not appear to be slowing down in 2023 with the estimated annual percentage of 6.89%.
 15 That would result in an estimated increase of 19.59% over a three-year period.

16

Annual Inflation: 2013 - 2023 ⁶	
Year	Percentage Increase
2013	1.46%
2014	1.62%
2015	0.12%
2016	1.26%
2017	2.13%
2018	2.44%
2019	1.81%

⁶ United States Bureau of Labor Statistics ([BLS Data Viewer](#))

2020	1.23%
2021	4.70%
2022	8.00%
2023 ⁷	6.89%

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Q. HAS INFLATION OUTPACED THE REVENUE INCREASE IN PWSA’S LAST RATE INCREASE?

A. Yes. The PWSA filed a proposed settlement with the PUC regarding its 2022 and 2023 water, wastewater, and stormwater rate proposal, which was approved by the PUC in November 2021 and went into effect on January 12, 2022. The settlement raised rates by approximately 10.98%, with the estimated combined total 2022 and 2023 inflation rate of 14.89% far exceeding that amount. That has, in effect, forced PWSA to maintain operations with "decreased" rates due to a loss of purchasing power. To make matters worse, PWSA experienced significant non-discretionary cost increases that exceeded the amount of inflation, such as water treatment chemicals and utility costs.

PWSA has been making tough financial decisions over the past two years in order to stay solvent. One example is that PWSA had to limit the amount of public bonds issued in 2022 to approximately \$45 million, with \$100 million originally planned to be issued. This ultimately resulted in lower debt service costs design to alleviate budget pressures in 2023. It is clear that the organization has struggled to maintain its financial position amid the current environment and must implement additional revenues to continue operations reasonably.

⁷ Estimated annual percentage based on average increase between January 1, 2023 through March 31, 2023.

1 **Q. DO YOU HAVE ANYTHING ELSE TO MENTION AS IT RELATES TO THE**
2 **ISSUE OF INFLATION?**

3 A. Yes. I want to be clear that inflation is impacting every revenue requirement in this rate
4 case. My testimony will describe specific cost increases that justify the proposed
5 increase. However, to some degree, inflation is the primary or secondary factor for all
6 increases.

7 **C. PWSA Budgeting Process**

8 **Q. PLEASE DESCRIBE HOW PWSA’S OPERATING BUDGETS ARE CREATED.**

9 A. Each of the fifteen departments within PWSA prepares budget requests for the upcoming
10 fiscal year. Those requests are reviewed by the Finance Department for accuracy and
11 adherence to the realistic expectations and/or projections. The Finance Department
12 prepares a “roll-up” of initial funding and expense recommendations for the Chief
13 Executive Officer and Chief Operating Officer / Chief Financial Officer. The Chief
14 Executive Officer and Chief Operating Officer / Chief Financial Officer then may make
15 recommendations on the initial budget requests. Any recommendations are discussed
16 with the applicable department and, if accepted, results in a revised set of budget
17 requests. Once satisfied, the Chief Executive Officer and Chief Operating Officer / Chief
18 Financial Officer (with the assistance of the Finance Department) prepares an operating
19 budget for review by the Board. The Board may accept or modify the operating budget.
20 The final operating budget is approved by the Board. Typically, approval is received in
21 November or December for the fiscal year commencing on January 1.

22 **Q. PLEASE DESCRIBE HOW PWSA’S CAPITAL IMPROVEMENT PLAN IS**
23 **CREATED.**

24 A. PWSA updates its 5-year capital improvement plan annually by soliciting budget requests
25 from subject matters experts within the main functional areas (water, wastewater, and

1 stormwater). The Finance Department prepares a “roll-up” of all budget requests for the
2 purposes of being reviewed by the Capital Improvement Plan Committee. The Capital
3 Improvement Plan Committee is made of up of representatives from the Water Treatment
4 Plan, Operations, Engineering & Construction, Management Information Systems, and
5 Finance. The purpose of the Capital Improvement Plan Committee is to ensure capital
6 funds are invested efficiently given the needs of the PWSA, with funding
7 recommendations ultimately being sent to the Chief Executive Officer and Chief
8 Operating Officer / Chief Financial Officer for review. The Chief Executive Officer and
9 Chief Operating Officer / Chief Financial Officer then may make recommendations on
10 the initial budget requests. Any recommendations are discussed with the Capital
11 Improvement Plan Committee and, if accepted, results in a revised set of budget requests.
12 Once satisfied, the Chief Executive Officer and Chief Operating Officer / Chief Financial
13 Officer (with the assistance of the Finance Department) prepares a capital improvement
14 plan for review by the Board. The Board may accept or modify the capital improvement
15 plan. The final budget is approved by the Board. Typically, approval is received in
16 around the last quarter of the year for the fiscal year commencing on January 1.

17 **Q. WHAT IS THE REVIEW AND APPROVAL PROCESS ASSOCIATED WITH**
18 **THIS BUDGET AND TWO-YEAR FORECAST?**

19 A. In addition to an internal review and approval process by the PWSA executive team,
20 PWSA is required to obtain final approval by PWSA’s Board of Directors. The Board is
21 the governing body of the Authority and is responsible for providing strategic direction
22 and oversight to PWSA management team, as well as adopting the Authority’s annual
23 operating and capital budgets, approving contracts, and approving proposed rate increases

(that are subject to final review and approval by the Commission). Once final, PWSA makes its annual operating budget and CIP available to the public on its website.

Q. DOES PWSA ALSO PREPARE A TWO-YEAR FORECAST OF FINANCIAL OPERATIONS (HERE REFERRED TO AS THE FORECAST PERIOD)?

A. Yes. PWSA rolls forward its budgeted operating results using the Budget year which is the FPFTY in this case, as the base year to create a two-year forecast, taking account of any known rate or other changes that might affect the results in a particular year. For this filing, PWSA accelerated its budgeting process for FY 2024 to establish a fully developed FPFTY as the test year in this proceeding and as a base year of its two-year forecast. Beyond FPFTY, FY 2025, and FY 2026, the remainder of the Forecast Period, PWSA uses the aforementioned traditional budgeting method of applying escalation factors to certain groups or types of cost in anticipation of increased cost of service. The Forecast Period results are shown on Exhibit EB-2.

D. PWSA’s Operating Needs

Q. WHAT ARE THE OPERATING REVENUE REQUIREMENTS IN THE FPFTY 2024, FY 2025, AND FY 2026?

A. PWSA is proposing operating revenue requirements of \$18.4 million in the FPFTY, \$9.7 million in FY 2025, and \$14.0 in FY 2026, making up about 29% of the total revenue requirement increase in this rate case. The table below summarizes this request by the expense categories within the operating budget.

Expense Category	FY 2023	FY 2024	FY 2025	FY 2026
Direct Operating	\$48,605,780	59,314,576	65,692,572	73,197,072
Salaries	35,521,459	41,932,394	44,845,082	47,105,066
General & Administrative	18,390,087	17,531,950	16,142,127	17,867,654
Employee Benefits	10,917,059	12,360,967	13,973,205	15,938,579
Inventory	2,303,165	2,441,355	2,587,837	2,743,107
COVID-Related Expenses	-	263,215	-	-

Net ALCOSAN	1,766,508	2,066,814	2,400,861	2,771,926
Total	\$117,504,058	135,911,272	145,641,684	159,623,404
Difference	-	18,407,213	9,730,412	13,981,720

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The expense categories of Direct Operating, Salaries, and Employee Benefits are main drivers of the increase given PWSA’s continued efforts to right size its operations to fit the size of the system.

Q. CAN YOU EXPLAIN WHAT EXPENSES ARE INCLUDED IN THE DIRECT OPERATING EXPENSE CATEGORY?

A. Yes, as the name implies, the direct operating expense category includes expenses that are required to keep the authority running on a day-to-day basis such as material purchases, surface restoration, water and sewer repairs, vehicles purchases, catch basin cleaning, maintenance contracts and water treatment chemical purchases.

The direct operating expense category represents the largest increase of all of the operating budget categories. This is a result of PWSA’s continued need to address and maintain its large water, sewer, and stormwater systems. Not providing PWSA with the requested amount of funds for this expense category will put even more pressure on the already massive capital improvement plan as improvements will only be made when failures occur.

Q. WHAT ARE THE MAIN DRIVERS IN THE DIRECT OPERATING EXPENSE CATEGORY?

A. The main drivers of this category are the rapid increase in water treatment chemical costs, costs to implement PWSA forthcoming wet weather consent decree, surface restoration costs, and urgent water and sewer repair costs. These expenses make up over 40% of the cost increase in this expense category between the FPFTY and FY 2026.

1 **Q. CAN YOU ELABORATE ON THE WATER TREATMENT CHEMICAL COST**
 2 **INCREASE?**

3 A. Yes. As displayed by the chart below, water treatment chemical costs have risen by 50%
 4 between FY 2021 and FY 2022.

	FY 2021	FY 2022	\$ Increase	% Increase
Chemical Costs	\$3,495,040	\$5,248,184	\$1,753,143	50%

5 This is the result of inflation and supply chain issues. Prices are continuing to rise with
 6 recent bids showing some chemicals prices again doubling. As a result of this activity,
 7 PWSA’s chemical claim of \$6.8 million in the FPFTY, \$8.2 million in FY 2025, and \$9.8
 8 million in FY 2026 is justified. Having the funds available for this expense is non-
 9 negotiable. It is arguably the most important expense in order to ensure safe drinking
 10 water.

11 **Q. CAN YOU DISCUSS PWSA’S WET WEATHER CONSENT DECREE?**

12 A. As discussed in the testimony of Mr. Igwe, negotiations are currently ongoing between
 13 PWSA and the United States Environmental Protection Agency for the purpose of
 14 entering into a Wet Weather Consent Decree. The goal of the decree will be to
 15 significantly reduce sanitary sewer and combined sewer overflows.

16 While the timeline can change, PWSA anticipates that the consent decree will be
 17 finalized in FY 2024. It is for this reason that PWSA included \$7.5 million in the FPFTY
 18 2024, \$9.75 million in FY 2025, and \$12.675 million in FY 2026 in this rate case to
 19 comply with the consent decree.

20 It is estimated that Wet Weather Consent Decree will result in hundreds of
 21 millions of dollars in required improvements, with a significant portion being paid for out
 22 of the operating budget. The reality of PWSA not receiving the necessary revenues in this

1 rate case will result in non-compliance. That only negatively impacts ratepayers while
 2 hurting the reputation that PWSA has worked so hard to rebuild.

3 **Q. CAN YOU PROVIDE THE REVENUE REQUIREMENTS FOR THE URGENT**
 4 **WATER, URGENT SEWER, AND SURFACE RESTORATION MENTIONED**
 5 **ABOVE FOR THE FPFTY, FY 2025, AND FY 2026?**

6 A. The chart below shows the requested revenue requirements for urgent water, urgent
 7 sewer, and surface restoration costs in the FPFTY, FY 2025, and FY 2026.

	FY 2024	FY 2025	FY 2026
Urgent Sewer	\$9,053,157	9,596,347	10,172,128
Surface Restoration	7,836,351	8,306,532	8,804,924
Urgent Water	4,836,911	5,127,126	5,434,753

8
 9 PWSA must receive revenues sufficient to cover these three expenses. The recent
 10 strides made on PWSA’s capital improvement plan has helped to jump start the
 11 replacement of assets that are well beyond their useful life. However, this effort will need
 12 to continue for at least the next decade in order to address the backlog of assets that need
 13 to be replaced. This means the risk for water line breaks and sewer failures remains high.
 14 PWSA cannot predict when breaks and failures will occur, but when they do, heavy
 15 reliance is placed on the urgent water and sewer contracts for repairs.

16 The surface restoration contract is used to repave streets that result from breaks or
 17 other work performed by PWSA. Due to funding restrictions, there is currently a large
 18 backlog of sites within PWSA’s service area that have a temporary patch and are waiting
 19 to be paved. This has resulted in a poor level of service and complaints from ratepayers.
 20 The requested funding in this rate case will provide PWSA with the funding necessary to
 21 address this backlog and future restoration work.

1 **Q. WHY IS PWSA REQUESTING A LARGE INCREASE IN THE SALARY AND**
 2 **EMPLOYEE BENEFITS EXPENSE CATEGORY?**

3 A. The salary and employee benefits increase supports PWSA’s plan to continue to expand
 4 its workforce. PWSA currently employees over 400 employees with the plan to add 33
 5 new positions in FPFTY and an additional 19 new positions in FY 2025. This staffing
 6 increase is necessary to support PWSA’s over \$1.8 billion capital improvement plan,
 7 forthcoming Wet Weather Consent Decree compliance activities, and expansion of
 8 operations.

9 **Q. WHAT IS THE ALLEGHENY COUNTY SANITARY SEWER AUTHORITY**
 10 **(ALCOSAN) AND WHAT RELATIONSHIP DOES IT HAVE WITH PWSA?**

11 A. The Allegheny County Sanitary Sewer Authority (ALCOSAN) is the region’s wastewater
 12 treatment provider that is a separate legal entity to PWSA, and not regulated by the PUC.
 13 All of the wastewater collected and conveyed by PWSA’s wastewater conveyance system
 14 is treated at the wastewater treatment facilities of ALCOSAN. PWSA bills customers on
 15 behalf of ALCOSAN for wastewater treatment service via a pass-through charge on
 16 PWSA bills. ALCOSAN’s rates are established by ALCOSAN, not PWSA.

17 PWSA makes ALCOSAN whole for all charges billed on their behalf, regardless
 18 of what is collected. It is for this reason that PWSA typically carries bad debt expenses
 19 for collections related to this pass-through engagement within PWSA budget. PWSA is
 20 budgeting for an ALCOSAN bad debt expenses of \$2.1 million in FPFTY, \$2.4 million
 21 in FY 2025, and \$2.8 million in FY 2026.

22 **Q. IS THE COST OF THIS RATE CASE AND THE ANNUAL PUC ASSESSMENT**
 23 **FEE INCLUDED IN THE FPFTY?**

24 A. Yes, PWSA has budgeted approximately \$1.5 million for this rate case and \$1.4 million
 25 for the annual PUC assessment fee in FPFTY. With respect to rate case expense, PWSA

1 is proposing to include these expenditures as projected in its revenue requirement rather
2 than amortizing or “normalizing” these expenditures over some period of time. As a cash
3 flow regulated municipal entity, PWSA’s rates reflect what it actually incurs in a year
4 and collecting those costs in rates over two or three years is not reasonable. Also, PWSA
5 has been involved in rate-related activity on an annual basis since coming under the
6 jurisdiction of the PUC.

7 **Q. ARE THERE ANY OTHER OPERATING EXPENSES THAT YOU WOULD**
8 **LIKE TO DISCUSS?**

9 A. Yes, I would like to discuss PWSA’s claim for COVID-19 expenses. Extraordinary
10 COVID-19 expenses were not claimed in PWSA’s last rate case. Instead, and consistent
11 with the settlement of the last rate case,⁸ the claim was deferred and is now being
12 including in this rate case. In addition, PWSA is also proposing to pass credit card
13 payment convenience fees on to residential customers.

14 **Q. HOW MUCH IS THE COVID-19 CLAIM IN THE FPFTY?**

15 A. PWSA is claiming \$263,215 of COVID-19 expenses in the FPFTY. This represents
16 expenses incurred between the period between March 2020 – March 2021. The majority
17 of this claim was used to pay for personal protection equipment (sanitizing wipes, rubber
18 gloves, masks, etc.). No uncollectible amount is being recovered through this claim.

⁸ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021 adopting Recommended Decision dated October 6, 2021 at p. 13 Section 9, D,c.

1 **Q. PLEASE DETAIL PWSA’S EFFORTS TO OBTAIN COVID-19 RELATED**
 2 **FUNDING, ANY AMOUNTS OBTAINED AS PART OF ITS EFFORTS, THEIR**
 3 **INTENDED USE AND, IF DENIED, THE REASONS FOR SUCH DENIAL.⁹**

4 A. The only COVID-19 related funding that PWSA has received was a \$17.5 million grant
 5 to replace lead service lines. This funding was granted to PWSA from the City of
 6 Pittsburgh as part of the American Rescue Plan funding. PWSA has not received any type
 7 of external funding to pay for the COVID-19 expenses claimed in this rate case.

8 **Q. DID PWSA PREVIOUSLY AGREE TO ELIMINATE THE ADDITIONAL FEES**
 9 **FOR RESIDENTIAL CUSTOMERS TO MAKE INTERACTIVE VOICE**
 10 **RESPONSE AND ON-LINE PAYMENTS?**

11 A. Yes. PWSA agreed to do this as part of its 2019 rate case settlement which was
 12 negotiated during the fall of 2020 during the COVID-19 pandemic.¹⁰ Since then, PWSA
 13 passes through the costs of credit card convenience fees for residential customers as part
 14 of its rates, while these same costs are paid directly by commercial customers who incur
 15 them.

16 **Q. IS PWSA PROPOSING TO REINSTITUTE THE REQUIREMENT THAT**
 17 **CUSTOMERS INCURRING THESE THIRD PARTY FEES PAY FOR THEM**
 18 **RATHER THAN PASSING ON THE COSTS TO ALL RATEPAYERS?**

19 A. Yes. PWSA has decided to return to its historical policy of requiring customers incurring
 20 third party fees to pay for them for several reasons. Requiring customers of all rate
 21 classes to pay the fees they incur is justified since it treats all customer classes the same.
 22 Also, as explained by Ms. Mechling we consider the return to our prior policy as a rate
 23 mitigation effort because it ensures the customers electing to incur the third party costs
 24 pay for them rather than spreading that cost to all ratepayers and, therefore, increasing the

⁹ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021 adopting Recommended Decision dated October 6, 2021 at p. 14 Section 9, D.2.b.

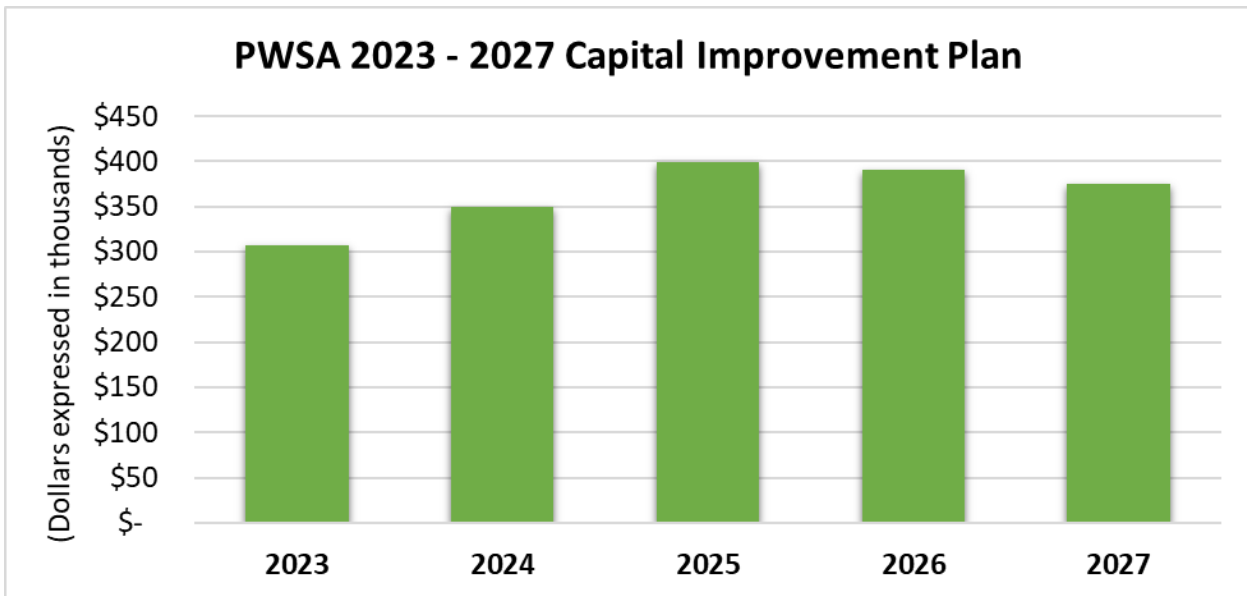
¹⁰ Deanne add CITE – 2019 RC Settlement at 14, Section III.G.2.

1 rates to be paid by everyone and avoiding the subsidization of the convenience fees by
 2 other ratepayers. Returning to our historical practice of charging the ratepayer for the
 3 costs associated with paying their specific bill ensures that costs are recovered in a more
 4 fair manner.

5 **E. PWSA’s Capital Needs**

6 **Q. PLEASE EXPLAIN PWSA’S CAPITAL IMPROVEMENT PLAN (“CIP”).**

7 A. The PWSA Board of Directors approved the 2023-2027 CIP on October 28, 2022. Please
 8 see Exhibit EB-4 for a copy of the CIP. The CIP, which includes over \$1.8 billion in
 9 capital improvements, is the result of multiple decades of deferred maintenance and lack
 10 of capital investment.



11 The CIP includes detailed information about the PWSA’s construction projects related to
 12 the Water Treatment Plant, Water Pumping and Storage, Water Distribution, Wastewater,
 13 Stormwater, and Miscellaneous Projects. As discussed in Mr. King’s testimony, the
 14 projects within the CIP must be completed in order to maintain adequate levels of
 15 service. Delays in completing these projects will result in poor water quality, a complete
 16

1 failure to deliver water, or an inability to meet regulatory requirements of the consent
 2 order and agreement.

3 The CIP also includes annual replacement projects designed to retire assets as
 4 they approach the end of their useful life. These projects include meter, water line, sewer
 5 line, valve, hydrant, vehicle and catch basin replacements. Funding these annual
 6 replacements is critical to the future state of the system as it enables the proactive
 7 replacement of assets. This benefits PWSA’s ratepayers in the long-term by “smoothing”
 8 future revenue requirements while assuring reliable levels of service.

9 In addition, as discussed in Mr. King’s testimony, the CIP includes funding for
 10 projects that are related to the Consent Order and Agreement (“COA”) issued by the
 11 Pennsylvania Department of Environmental Protection (“PA DEP”). The CIP also
 12 includes funding for the forthcoming Wet Weather Consent Decree.

13 **Q. WHAT IS PWSA’S FPFTY 2024, FY 2025, AND FY 2026 CAPITAL BUDGET?**

14 A. Below is a summary of the FPFTY 2024, FY 2025 and FY 2026 capital budget.

Capital Requirements	FY 2024	FY 2025	FY 2026	Total
Water Treatment Plant	\$ 26,885,665	24,038,988	54,790,691	105,715,344
Water Pumping and Storage	115,127,475	121,491,637	113,245,473	349,864,585
Water Distribution	125,439,446	155,468,790	143,283,004	424,191,240
Wastewater System	31,442,487	27,579,779	45,751,309	104,773,575
Stormwater	34,827,423	36,884,821	33,038,424	104,750,668
Miscellaneous	15,500,000	33,000,000	500,000	49,000,000
Total Capital Requirements	\$ 349,222,497	398,464,014	390,608,900	1,138,295,411

15 Included in the amounts above, the costs associated with the previously
 16 mentioned COA, anticipated Wet Weather Consent Decree, and unrelated water main
 17 replacement program (which includes lead service line identification and replacement)
 18 represents approximately a) \$209.7 million (or 60%) of the capital requirements in
 19 FPFTY 2024, b) \$227.1 million (or 57%) of the capital requirements in FY 2025 Forecast
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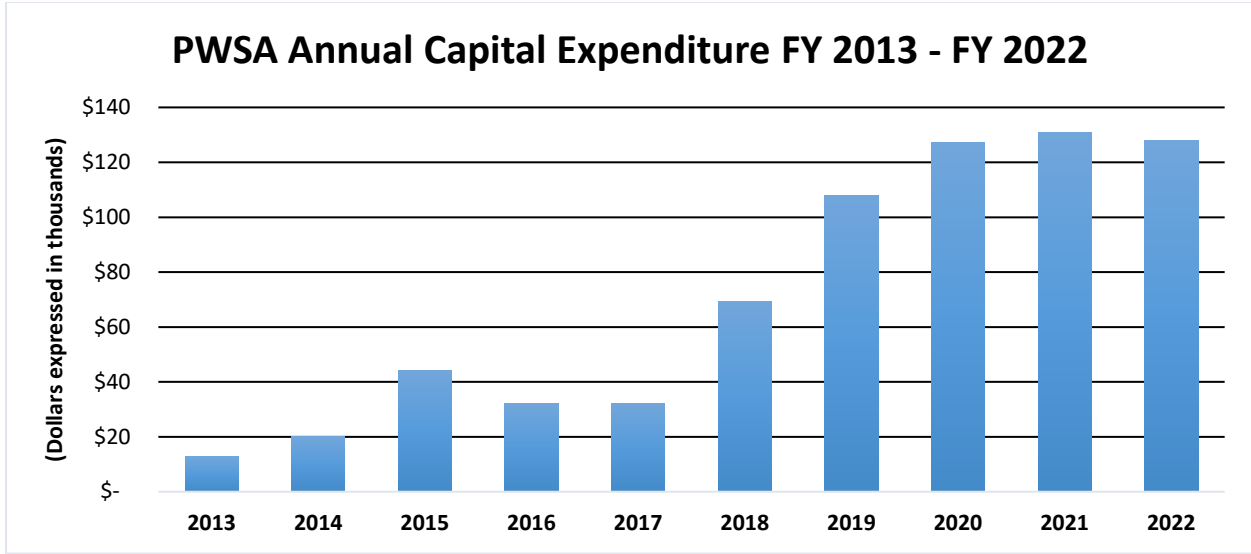
1 Period, and b) \$177.6 million (or 45%) of the capital requirements in the FY 2026
2 Forecast Period. This funding must be available to comply with the COA, Wet Weather
3 Consent Decree, and to continue replacing lead service lines. Failure to do so increases
4 the risk of public health issues as well as fines or other disciplinary actions.

5 The majority of the remaining capital requirements in FPFTY 2024, FY 2025, and
6 FY 2026 includes funding for annual replacement costs associated with meters, sewer
7 lines, valves, hydrants, catch basins, and stormwater improvements. These projects must
8 also be funded in order to replace aged infrastructure and implement annual asset
9 replacement cycles.

10 **Q. IS PWSA CAPABLE OF COMPLETING THE CAPITAL BUDGET LEVEL OF**
11 **INVESTMENT IN FPFTY 2024, FY 2025, AND FY 2026?**

12 A. Yes, PWSA can meet the capital budget in FPFTY 2024, FY 2025, and FY 2026. The
13 ramp up in PWSA's capital improvement plan started in FY 2018 and was the result of
14 regulatory mandates and system failures. This required the entire organization to mature
15 at a rapid pace by hiring qualified employees, implementing new processes and standard
16 operating procedures, and obtaining the necessary funds to pay for the plan. The
17 historical capital expenditure chart below shows PWSA recent success in this effort.

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PWSA looks to build off this success by planning to double its current level of annual capital expenditures. Not only is it required to stay compliant with regulatory requirements, but it is also necessary to ensure that PWSA can provide a safe and adequate level of service to its ratepayers.

Q. WHAT IS THE CAPITAL REVENUE REQUIREMENTS IN THE FPFTY 2024, FY 2025, AND FY 2026?

A. PWSA is proposing capital revenue requirements of \$24.0 million in the FPFTY, \$27.9 million in FY 2025, and \$28.6 in FY 2026, making up about 55% of the total revenue requirement increase within this rate case.

Q. CAN YOU EXPLAIN WHAT SPECIFIC COSTS ARE INCLUDED THE REQUESTED CAPITAL REVENUE REQUIREMENT?

A. Yes. As a municipal authority, PWSA has a different capital structure than investor-owned utilities, whereby the only available sources to fund capital improvements for the Authority are debt, grants, and internally generated funds (pay-as-you-go or “PAYGO”). These sources are detailed below to show the incremental costs associated with each within the overall revenue requirements of this rate case. Note that a line for grants is not listed below because there is no revenue requirement associated with it. Any grants

1 received are substituted for planned future debt issuances and therefore reduce the
 2 revenue requirement for capital costs. To be conservative, PWSA typically does not
 3 include grants in its financial plans unless the award is final.

Incremental Capital Costs (\$M) FY 2024-2026				
Description	2024 Budget	2025 Budget	2026 Budget	Total
Debt Service	\$17.4	\$23.2	\$15.4	\$56.0
Internally Generated Funds	\$-	\$2.0	\$10.0	\$12.0
Internally Generated Funds (DSIC)	\$6.6	\$2.7	\$3.2	\$12.5
Total	\$24.0	\$27.9	\$28.6	\$80.5

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5 **Q. CAN YOU FURTHER ELABORATE ON THE \$56.0 MILLION DEBT SERVICE**
 6 **REVENUE REQUIREMENT INCLUDED IN THIS RATE REQUEST?**

7 A. Yes, the chart below shows the detail of what is included within the total \$56.0 million
 8 debt service revenue requirement.

Incremental Debt Service Costs Detail (\$M) FY 2024-2026				
Description	2024 Budget	2025 Budget	2026 Budget	Total
WIFIA Loans	\$0.7	\$1.0	\$1.7	\$3.4
Public Debt	\$8.8	\$10.3	\$13.3	\$32.4
PENNVEST Loans	\$6.4	\$11.9	\$0.4	\$18.7
Capital Line of Credit	\$1.5	-	-	\$1.5
Total	\$17.4	\$23.2	\$15.4	\$56.0

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10 The WIFIA loan debt service is made up of three separate loans that will fund
 11 approximately 49% of PWSA’s Water Reliability Plan initiative, and which will be used
 12 to replace the clearwell at the Water Treatment Plant. The anticipated WIFIA loan
 amounts and estimated closing dates are listed below.

Estimated WIFIA Loan Schedule		
Description	Loan Amount (\$M)	Estimated Closing Date
WIFIA Loan #1	\$52.5	May, 2023
WIFIA Loan #2	\$104.7	June, 2024
WIFIA Loan #3	\$28.5	June, 2025
Total	\$185.7	

1 It is important to note that the WIFIA loans are drawn down as expenses are
 2 incurred. This results in the debt service gradually increasing to the maximum amount of
 3 \$13.3 million in total in fiscal year 2031.

4 The public debt service revenue requirement of \$32.4 million is made up of the
 5 new debt issuances below.

Estimated Public Debt Issuance (\$M) FY 2024 - 2026		
Description	Loan Amount (\$M)	Estimated Issuance Date
Series 2024	\$150.0	Spring, 2024
Series 2025	\$150.0	Spring, 2025
Series 2026	\$200.0	Spring, 2026
Total	\$500.0	

6 These debt issuances will be utilized to fund the capital projects within the capital
 7 improvement plan that are not funded by WIFIA, PENNVEST, and PAYGO (requested
 8 to be funded with base rates and the DSIC in this rate case, as explained below)

9 The PENNVEST debt service revenue requirement of \$18.7 million is the result
 10 of receiving regular PENNVEST awards since 2018. PWSA expects PENNVEST to have
 11 sufficient capacity to continue to award funds because of the U.S. Bipartisan
 12 Infrastructure Bill (BIL) that was passed in 2021. The BIL provides a once in a
 13 generation infusion of funding to rebuild America’s roads, bridges, rails, water,
 14 wastewater, and stormwater infrastructure. This includes the largest single investment in
 15 our nation’s water in U.S. history. Similar to the WIFIA loans, PENNVEST loans are
 16 drawn down as expenses are incurred, which results in the gradual increase of debt
 17 service over the coming decade.

18 The capital line of credit is used to interim fund capital expenditures. New public
 19 debt is issued to reduce the balance when the line of credit nears capacity. Interest

1 payments on the capital line of credit are variable, with the current interest rate
 2 environment increasing the interest costs associated with this facility, driving the need for
 3 the additional \$1.5 million revenue requirement. In addition to these various borrowing
 4 vehicles, PWSA’s construction funding is supplemented by internally generated funds, or
 5 “PAYGO”.

6 **Q. PLEASE EXPLAIN INTERNALLY GENERATED FUNDS (PAYGO)**

7 A. PAYGO is a funding mechanism which finances capital assets with current year
 8 revenues. PAYGO funding is often utilized in the place of long term debt to fund capital
 9 assets that have a short useful life (less than 10 years). Capital assets financed through
 10 long term debt should have a minimum useful life no shorter than the average maturity of
 11 the debt being issued. Failure to do so would result in an “overleveraged” debt position,
 12 which would limit the ability and increase the cost to borrow and fund capital projects.

13 PAYGO funding should also be considered when funding capital assets with a
 14 longer useful life as it reduces financial risks (such as default), lowers financing costs,
 15 makes the Authority less susceptible to market vagaries, as well as provides financial
 16 flexibility within the capital program. In addition, PAYGO funding is cheaper compared
 17 to the debt service and required debt service coverage costs associated with long term
 18 debt when the cost of long-term borrowing is computed.

19 **Q. WHAT SOURCES OF INTERNALLY GENERATED FUNDS ARE INCLUDED**
 20 **IN THIS RATE CASE?**

21 A. PWSA has two sources of internally generated funds within this rate case. The first is a
 22 request to receive \$12.0 million in base rates over three years for the purpose of funding
 23 capital improvements with current rate dollars. The second is a request to increase
 24 PWSA’s water and wastewater DSIC percentage from 5% to 7.5% for the purpose of

1 continuing to utilize DSIC funds as a source of internally generated funds to fund projects
 2 within PWSA’s long-term infrastructure improvement plan (LTIP). This expansion of
 3 the DSIC will result in approximately \$12.5 million in additional revenue over three
 4 years.

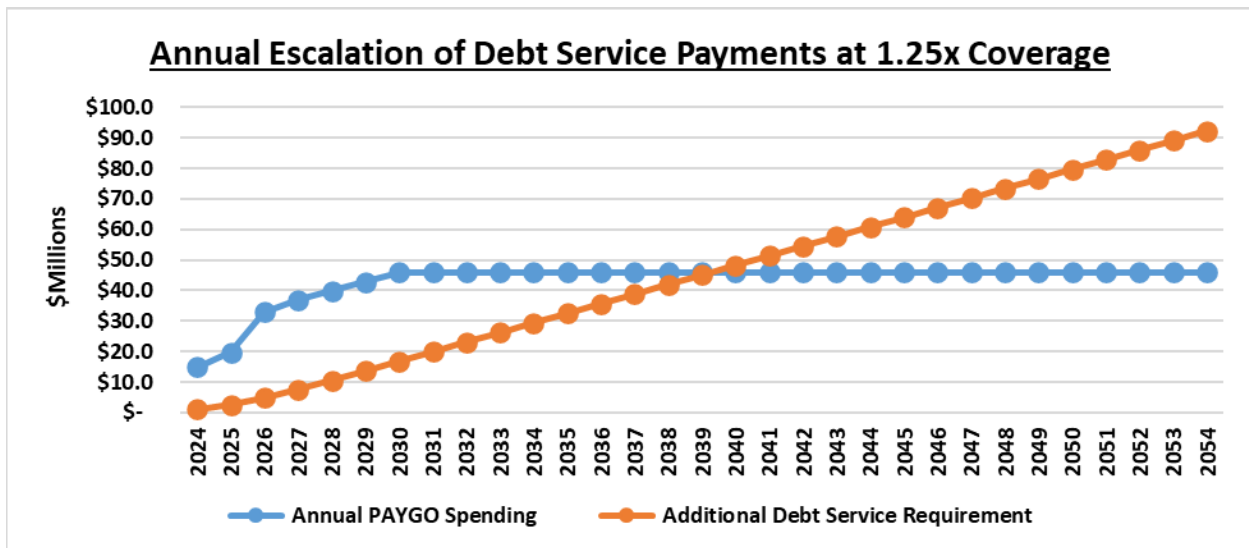
5 PWSA’s justification for this increase of internally generated funds is the
 6 following. First, PWSA seeks to accelerate the rate at which projects within the LTIP are
 7 completed. Second, the rate of inflation over the past two years has resulted in the loss of
 8 purchasing power at the current DSIC rate of 5%. Increasing the rate to 7.5% will provide
 9 the necessary infusion of cash to make up for this loss. Third, PWSA also seeks to
 10 increase its level of internally generated funds in an effort to reduce its financial leverage
 11 or debt ratio. PWSA’s financial leverage (liabilities divided by assets) continues to
 12 remain high with the percentage being 100% at the end of 2022. However, the chart
 13 below clearly shows that the implementation of the DSIC starting in 2021 has helped to
 14 reduce this ratio by 12%. In fact, if the DSIC increase is granted, PWSA estimates that
 15 the debt ratio will fall below 90% by the end of FY 2026.

Debt Ratio Percentage FY 2018 - 2022			
Fiscal Year	Assets	Liabilities	Debt Ratio
2018	864,343	967,243	112%
2019	947,934	1,058,762	112%
2020	1,035,990	1,160,406	112%
2021*	1,148,020	1,228,601	107%
2022	1,280,090	1,274,314	100%
2023**	1,361,457	1,312,283	96%
2024**	1,442,823	1,350,253	94%
2025**	1,524,190	1,388,222	91%

2026**	1,605,557	1,426,191	89%
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* Implementation of the DSIC **Estimate

Finally, using a “PAYGO” method of financing, rather than long term debt is also less expensive to ratepayers over time. This is because, when PWSA finances construction through long term debt it must recover in its rates both the debt service associated with the long term debt issuance together with the debt service coverage. The combination of the debt service and debt service coverage and the fact that PWSA must regularly issue new debt to fund construction projects results in the PAYGO funding method being cheaper for customers after the first several bond issuance (as noted above, PWSA is planning to use borrowed funds, either PENNVEST/WIFIA loans or publicly issued Revenue Bonds each year for the foreseeable future). This is demonstrated in the following chart:



*includes PAGO proposed to be produced by base rates

1 **Q. DOES THE AUTHORITY HAVE A PWSA BOARD APPROVED FINANCIAL**
 2 **POLICY WHICH ESTABLISHES A PAYGO FUNDING GOAL?**

3 A. Yes. The Financial Management Policy included in Exhibit EB-5 requires financial
 4 performance to be evaluated on an annual basis with the goal of funding at least 10% of
 5 capital expenditures not supported by grants or intergovernmental aid from PAYGO
 6 funding as measured on a five-year basis. At present rates, the PAYGO funding
 7 percentage as measured on a five-year basis is 2.3%, which falls short of the Board’s
 8 10% target.

9 **F. PWSA’s Debt Structure**

10 **Q. WHAT IS THE STRUCTURE OF THE AUTHORITY’S CURRENT DEBT**
 11 **PROFILE?**

12 A. As of February 1, 2023, PWSA currently has outstanding \$1.5 billion of bonds
 13 outstanding, comprised of approximately \$744.0 million (49%) issued under the Senior
 14 Lien, \$104.3 million (7%) issued as Subordinate Bonds, and \$678.1 million (44%) issued
 15 as Secondary Subordinate Lien. Of the bonds outstanding, \$218.8 million (15%) were
 16 issued as variable rate bonds, hedged with a 70% of 1-month LIBOR receiver and fixed
 17 payer interest rate swap (with the exception of \$2.1 million of the Senior Lien which is
 18 unhedged). All of the outstanding variable rate debt was remarketed as publicly issued
 19 Floating Rate Notes with a Securities Industry and Financial Markets Association
 20 (“SIFMA”) Index Rate Period prior to a mandatory tender date of December 1, 2023. In
 21 addition, PWSA entered into a basis swap where PWSA receives SIFMA and pays 70%
 22 of 1-month LIBOR to manage variable rate interest payments. The Debt and Swap
 23 Portfolio Summary is attached in Exhibit EB-6.

24 In addition to the financial and other covenants required in the governing
 25 Amended and Restated Senior Indenture (“Senior Indenture”), the Authority has a bank

1 agreement and two swap agreements, all with separate events of default and termination
2 events. With the exception of the Series B of 2013 and the September 1, 2021 through
3 2023 maturities of the Series A of 2019 Bonds, all of the outstanding bonds are secured
4 with a Surety Policy with Assured Guaranty Municipal Corp. (“AGM”) to meet the debt
5 service reserve requirement of the Senior Indenture, which is the lesser of (i.) 10% of par,
6 (ii.) maximum annual debt service or (iii.) 125% of average annual debt service. The
7 Authority has also purchased bond insurance on the majority of its outstanding issues
8 with 2021 through 2023 maturities of the Series A of 2019 Bonds and 2025 through
9 2032, 2039 through 2042 maturities, and 2052 maturity of the Series A of 2022 Bonds
10 being the only exclusions. The Series 1998 Series B Bonds are also partially insured by
11 National Public Finance Guaranty Corporation (“NPFGC”) which has placed additional
12 restrictions on interim borrowings against the Senior Lien. Lastly, PWSA has also
13 purchased swap insurance on its outstanding interest rate swap agreements, also insured
14 by AGM, with regard to certain termination events.

15 **Q. WHAT ARE THE RISKS AND/OR BURDENS ASSOCIATED WITH THE**
16 **AUTHORITY’S CURRENT DEBT PROFILE?**

17 A. Many of PWSA’s bond transactions and PWSA’s swap transactions were entered into
18 before the late 2000’s fiscal crisis and the related bank and bond insurer credit
19 downgrades and, at that time, were viewed as cost effective. Since that time, the
20 Authority has had to spend significant resources in replacing bank agreements,
21 restructuring and/or terminating swap agreements and reaching certain side agreements
22 with the bond insurers. The risks inherent to the debt and swap portfolio are still
23 significant even after these changes especially since PWSA has lower credit ratings

1 compared to most large municipal utility systems and PWSA will need to continue
2 mitigating these risks in the future.

3 Since being under PUC oversight, PWSA has made progress in “de-risking” its
4 debt and related swap portfolio. While in 2019 it was able to refund \$103.7 million of
5 variable rate debt and to terminate the related hedged swap agreements replacing the
6 floating rate debt and swaps with low-cost, fixed rate bonds, PWSA has concluded that
7 current financial conditions and other factors make additional “de-risking” inadvisable at
8 the present time. In addition, PWSA’s outstanding debt also has several associated rating
9 triggers that could increase costs and/or cause a termination event. For example, all of the
10 swap agreements have rating triggers related to the bond insurer, as well as the Authority,
11 that, if violated, could result in a forced termination event. As a result of the Authority’s
12 debt being secured by Surety Policies, any refunding or restructuring requires bond
13 insurer approval, or the Authority would need to fund these debt service reserve funds
14 with cash. Furthermore, the capital draw-down line of credit agreement includes
15 automatic increased spreads (higher interest costs) if PWSA is downgraded to certain
16 rating levels.

17 **Q. CAN YOU DESCRIBE THE DEBT ISSUANCE PHILOSOPHY FOR FUTURE**
18 **ISSUANCES?**

19 A. Yes. Current PWSA management plans to be prudent with future debt issuances, with the
20 goal of minimizing risks and keeping debt costs as low as possible for ratepayers. This is
21 being achieved through the continued pursuit of low-cost financing from PENNVEST
22 and WIFIA. The Infrastructure Improvement Charge requested in this rate case will
23 further support this effort.

1 **Q. CAN YOU DISCUSS THE SUCCESS THAT PWSA HAS HAD OBTAINING**
2 **PENNVEST FUNDING?**

3 A. Yes, PWSA has obtained \$610.8 million in low-interest loans and \$35.7 million in grants
4 from PENNVEST since 2018.

5 **Q. IS PWSA IN PROCESS OF APPLYING FOR ADDITIONAL PENNVEST**
6 **FUNDING?**

7 A. Yes, PWSA has submitted an application for the 2023 Neighborhood Lead Service Line
8 (B) project in the total amount of \$13,354,750 prior to the May 3, 2023 deadline. The
9 estimated award date is July/August 2023.

10 **Q. ARE THE DEBT SERVICE REVENUE REQUIREMENTS ASSOCIATED WITH**
11 **THIS AWARD INCLUDED IN THIS RATE CASE?**

12 A. Yes, to be conservative, PWSA included a revenue requirement of \$773,826 in FPFTY
13 2024 and then \$827,810 every year thereafter. However, PWSA expects the 2023
14 Neighborhood Lead Service Line (B) project to be funded with grants given the
15 additional lead service line funding provided by the BIL.

16 **Q. ARE THERE ANY PENDING AWARDS THAT ARE INCLUDED IN THE**
17 **FPFTY 2024, FY 2025, AND FY 2026 PENNVEST DEBT SERVICE REVENUE**
18 **REQUIREMENT?**

19 A. No. Aside from the 2023 Neighborhood Lead Service Line (B) project, the entire
20 PENNVEST revenue requirement request is to fund loans that have already been
21 awarded. As previously mentioned, PENNVEST loan are drawn down as expenses are
22 incurred. That is the reason why the PENNVEST revenue requirement increases in
23 FPFTY 2024, FY 2025, and FY 2026.

24 **Q. IF ADDITIONAL PENNVEST LOANS ARE RECEIVED, WILL THE REVENUE**
25 **REQUIREMENTS IN THIS RATE CASE NEED TO BE LOWERED?**

26 A. No. PENNVEST loans typically have a term of 20 years as compared to the 30-year term
27 of public bonds. This shorter loan term results in the debt being repaid over a shorter

1 period of time, decreasing the total cost to ratepayers, but the short term effect is to
 2 increase the debt service compared to the debt service associated with our 30-year bond,
 3 thus increasing the revenue requirements.

4 **G. PWSA Financial Metrics**

5 **Q. PLEASE EXPLAIN THE KEY FINANCIAL METRICS FOR PWSA ON WHICH**
 6 **THIS RATE REQUEST SHOULD BE EVALUATED.**

7 A. As a “cash flow” regulated municipal entity, PWSA’s operations are entirely funded from
 8 rates, either indirectly as a result of short-term or long-term borrowing (which then must
 9 be paid back by ratepayers) or directly through charges to customers. Accordingly, the
 10 PWSA’s most important financial metrics are:

- 11 1) Debt service coverage ratios;
- 12 2) Additional bonds test;
- 13 3) Reserves and liquidity; and
- 14 4) Bond ratings

15
 16 **Q. EXPLAIN THE REQUIREMENTS OF PWSA’S RATE COVENANTS?**

17 A. Beginning on January 1, 2020 and each year thereafter, the Authority must calculate
 18 whether the Rate Covenant has been complied with for the prior fiscal year. The Senior
 19 Indenture states, “The Authority shall fix, charge and collect such rates, fees and other
 20 charges for the use of and the services furnished by the System and shall, from time to
 21 time and as often as shall appear necessary, revise such rates, fees and other charges so as
 22 to satisfy all of the three following independent requirements:

- 23 1. Net revenues shall be sufficient in each fiscal year to pay annual senior
 24 debt service, annual total debt service, all deposits to satisfy the reserve
 25 requirement and any additional indebtedness in that fiscal year.
- 26 2. Net revenues shall not be less than 125% of annual senior debt service
 27 plus 110% of aggregate annual debt service in that fiscal year.

1 3. Rate covenant net revenues, excluding transfers from the rate stabilization
2 fund, shall equal not less than 100% of aggregate annual debt service.”
3 Pursuant to the Senior Indenture, if PWSA “fails to comply with the Rate
4 Covenant, the Authority shall promptly request a Qualified Independent
5 Consultant to submit a written report and recommendations with respect to
6 increases in the Authority’s rates, fees and other charges and improvements...to
7 bring the Authority into compliance with the Rate covenant.” The explicit legal
8 language identifies that PWSA would need to file a petition to the regulatory body
9 (i.e., the PUC) for the increases. The Senior Indenture specifies that if PWSA
10 cannot establish proper rates, fees and charges to comply with the Rate Covenant
11 within 180 days of the filed petition to the PUC, then an event of default occurs.
12 An event of default could lead to an acceleration of bond payments by request of
13 bondholders where principal and interest on outstanding bonds become
14 immediately due and payable. In addition, the event of default would cause
15 negative impacts regarding PWSA’s current bond ratings and access to liquidity
16 and capital markets to continue to finance the necessary improvements outlined in
17 the CIP for the benefit of ratepayers. It is very rare that a large municipal water
18 and sewer utility would violate its respective rate covenant. The consequences of
19 PWSA not meeting the annual Rate Covenant could be devastating to the
20 Authority. This is one reason why PWSA seeks to establish consistent, higher
21 debt service coverage levels. The negative financial consequences, of lower
22 coverage levels and/or the risk of not meeting the Rate Covenant is discussed in
23 more detail within my testimony, as well as within Ms. Christine Fay’s testimony.

1 **Q. WHY IS IT IMPORTANT TO MAINTAIN OR IMPROVE DEBT SERVICE**
 2 **COVERAGE?**

3 A. The fundamental ratemaking philosophy for most financially stable municipal utilities is
 4 to provide safe and reliable service at rates that recover all current costs, plus a margin in
 5 excess of current costs. This margin, also referred to as coverage, is a municipal utility’s
 6 only real source of cash. Coverage also provides assurance to investors that the utility
 7 will have the cash available to make timely debt service payments. The recent rating
 8 agency reports by Moody’s Investor’s Services, as outlined in Ms. Fay testimony, have
 9 emphasized the need for PWSA to maintain as well as improve its debt service coverage
 10 over time. Adequate coverage is critically necessary to permit PWSA to have sufficient
 11 cash available to meet all of its obligations when they come due, and to allow PWSA to
 12 continue to have access to the capital markets on acceptable terms. It also permits PWSA
 13 to finance a portion of the capital program through internally generated funds which
 14 provide significant savings to ratepayers over time.

15 **Q. PLEASE DISCUSS, AT PRESENT RATES, PWSA’S DEBT SERVICE**
 16 **COVERAGE RATIOS IN THE FPFTY AND IN THE FORECAST PERIOD.**

17 A. At current rates, the debt service coverage ratios decrease to 1.00x for senior debt and
 18 0.73x for total debt in the FPFTY. For the Forecast Year 2025, coverages decline to
 19 0.76x for senior debt and 0.51x for total debt with coverages declining even further to
 20 0.50x for senior debt and 0.35x for total debt. The debt service coverage ratios shown
 21 below are well below the legal minimum requirement and show that the PWSA would
 22 not be able to fully pay its senior debt obligations and other financial obligations.

	<i>FY 2024</i>	<i>FY 2025</i>	<i>FY 2026</i>
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<i>Senior Debt Service Coverage Ratio</i>	<i>1.00x</i>	<i>0.76x</i>	<i>0.50x</i>
<i>Total Debt Service Coverage</i>	<i>0.73x</i>	<i>0.51x</i>	<i>0.35x</i>

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Q. PLEASE EXPLAIN PWSA’S USE OF THE CASH GENERATED BY THE DEBT SERVICE COVERAGE RATIO REQUIREMENT IN EXCESS OF MINIMUM REQUIRED DEBT SERVICE COVERAGE.

A. As noted, the Authority is a “cash flow” regulated municipal utility, which means that there are no profit margin goals within the organization. Any “profit” or excess of revenues over expenses is invested back into the system. This benefits the ratepayers of the Authority because it offsets future revenue requirements that would otherwise be recovered through rates.

Specifically, the Authority would use cash generated in excess of minimum required debt service coverage in the following ways: (1) increase funding into the Rate Stabilization Fund; (2) increase the amount of PAYGO funding within a specific year; (3) pay the costs associated of terminating swaps in favor of refunding current debt with long-term municipal fixed rate debt; and (4) increase reserves in order to handle unexpected capital and operating costs. But, it is important to note that the PWSA has *no* cash in excess of minimum requirements at present rates, either in the FPFTY or the Forecast Periods.

Q. WHAT IS THE “ADDITIONAL BONDS TEST” AND WHAT IMPACT DOES THAT HAVE ON ISSUING BONDS?

A. As stated in Section 3.02 of the Senior Indenture, PWSA must satisfy the additional bonds test prior to issuing additional bonds as outlined below:

1 A certificate of an independent consultant stating the Authority would have been
2 able to meet the Rate Covenant requirements for any twelve consecutive months
3 within the past twenty-four months taking into account:

4 (i) The Maximum Annual Debt Service on the proposed series of
5 additional bonds in the current or any future fiscal year;

6 (ii) the additional net revenue from the rates, fees and other charges
7 adjusted to reflect any rate increases that had not been in effect throughout
8 the consecutive twelve months but that have been approved by and can be
9 implemented by the Authority at the time of delivery of the proposed
10 series of additional bonds to go into effect within the following five years;

11 and

12 (iii) additional net revenues that the Authority may realize from the
13 addition of assets it proposes to finance through the issuance of the
14 proposed series of additional bonds or other funding sources within the
15 following five years or the Authority has met the rate covenant, taking into
16 account the maximum annual debt service on the proposed series of
17 additional bonds.

18 In summary, the Additional Bonds Test requires that PWSA meet its required
19 Rate Covenant debt service coverage ratios taking into account existing and authorized
20 rates and the maximum annual debt service of a proposed series of bonds prior to issuing
21 additional bonds. The Senior Indenture does not allow PWSA to factor in unauthorized
22 future rate increases when calculating the additional bonds test. Failure to satisfy the

1 additional bonds test would prohibit PWSA from issuing bonds and thus, would create
2 obstacles to fund necessary improvements and new projects for ratepayers.

3 **Q. WHY IS IT IMPORTANT THAT PWSA HAVE SUFFICIENT REVENUES TO**
4 **PASS THE ADDITIONAL BONDS TEST?**

5 A. Failure to meet this test will stop the issuance of debt, and concurrently, PWSA’s capital
6 program.

7 **Q. DOES PWSA SATISFY THE ADDITIONAL BONDS TEST FOR THE FPPTY IF**
8 **NO RATE INCREASE IS GRANTED?**

9 A. As shown in Exhibit EB-7, PWSA fails the additional bonds test at present rates in the
10 FPPTY with the impact getting worse in the 2025 and 2026 forecast. To be clear, this
11 means that PWSA cannot issue additional debt to fund its capital program starting in FY
12 2024 unless the requested rate increase is approved. Ms. Fay’s testimony further
13 describes the devastating impact that this would have on PWSA.

14 **Q. DOES PWSA SATISFY THE ADDITIONAL BONDS TEST FOR THE FPPTY AT**
15 **THE REQUEST LEVEL OF THE RATE INCREASE?**

16 A. Yes, as shown in Exhibit EB-8, PWSA passes the additional bonds test for the FPPTY at
17 requested rates.

18 **Q. WHAT IS THE DAYS CASH ON HAND CALCULATION?**

19 A. The Days Cash on Hand (DCOH) calculation is a liquidity measurement that estimates
20 how much cash is on hand to pay for operations only using cash. The calculation is
21 typically performed on an annual basis by dividing the year ending cash balance by
22 operating expenditures, then multiplying by 365.

23 **Q. HOW IMPORTANT IS IT FOR PWSA TO CONTINUE THE PROGRESS OF**
24 **INCREASING ITS DAYS CASH ON HAND?**

25 A. It is very important. The DCOH metric is heavily used by rating agencies to determine
26 the ratings of municipal authorities. In fact, as explained by Ms. Fay, the Moody’s

1 Investors Service recent rating of PWSA cited the DCOH metric as being a factor in
 2 potential future upgrades.

3 In addition, PWSA feels that it is a best practice to increase its DCOH metric to
 4 ensure resiliency through unexpected events, such as the COVID-19 pandemic or a
 5 financial downturn.

6 **Q. AT PRESENT RATES, WHAT LEVELS OF YEAR END CASH IS THE PWSA**
 7 **PROJECTING IT WILL EXPERIENCE IN THE FPFTY?**

8 A. At present rates, PWSA’s Days of Cash on Hand (“DCOH”) in the FPFTY (FY 2024) is
 9 projected to be 70.9 days with the DCOH metric dropping to negative 60.5 days in FY
 10 2025 and negative 230.0 days in FY 2026.

	<i>FY 2024</i>	<i>FY 2025</i>	<i>FY 2026</i>
<i>Days Cash on Hand (“DCOH”)</i>	<i>70.9 DCOH</i>	<i>(60.5) DCOH</i>	<i>(230.0) DCOH</i>

11
 12
 13 The substantial drop in DCOH, which is a result of required increases to operation
 14 and capital spending without rate relief to keep up with these additional obligations,
 15 demonstrates the imperative need for a substantial increase in rates to repair these cash
 16 levels. As described in EB-5, it also falls short of PWSA’s goal of maintaining 100
 17 DCOH with the target of 300 DCOH over the next 5 years.

18 **Q. DOES THE PWSA HAVE ACCESS TO SHORT TERM BORROWING THAT IT**
 19 **COULD USE TO OFFSET NEGATIVE CASH BALANCES?**

20 A. No. PWSA does not have an Operating Cashflow Line of Credit. That being said,
 21 borrowed funds are excluded from the calculation of DCOH at year end. It is for this

1 reason that the Authority must focus on continuing to improve the cash balance, which
 2 will also improve the DCOH.

3 **Q. DOES PWSA HAVE ANY MONEY AVAILABLE THAT COULD PROVIDE AN**
 4 **ADDITIONAL SOURCE OF FUNDS TO PAY FOR UNFORESEEN**
 5 **CIRCUMSTANCES TO MEET THE REQUIRED DEBT SERVICE COVERAGE**
 6 **RATIO?**

7 A. Yes, a small amount.. It has a Rate Stabilization Fund (“RSF”), which is currently funded
 8 at \$9.9 million. The RSF is a standard feature of municipal ratemaking. It is designed to
 9 provide flexibility to a municipal utility to meet minimum debt service coverage ratios as
 10 well as to demonstrate to the financial community that it is financially stable. However,
 11 the Indenture limits the amount that can be transferred from the Rate Stabilization Fund
 12 in any one year to be used for meeting coverage requirements.

13 **Q. IS THE PWSA PROPOSING TO PROVIDE ADDITIONAL RESOURCES FOR**
 14 **THE RSF AS PART OF THIS RATE REQUEST?**

15 A. Yes. We are proposing to allocate \$25 million in total to the RSF with revenue received
 16 as part of this rate case.

17 **Q. PLEASE DESCRIBE THE PWSA’S CURRENT BOND RATINGS?**

18 A. The ratings from the two rating agencies that rate the PWSA Revenue Bonds are:¹¹

19 S&P: to A+ (Stable Outlook)
 20 Moody’s A3 (Stable Outlook)

21 **Q. WHY IS IT IMPORTANT FOR THE PWSA TO MAINTAIN ITS CURRENT**
 22 **BOND RATINGS?**

23 A. Credit ratings are important because PWSA, like most utilities, is required to make
 24 significant capital infrastructure improvements each year for new and replacement assets.
 25 Credit ratings are a critical component in determining the cost of debt as the ratings

¹¹ See Exhibit EB-9 and EB-10.

1 signal PWSA’s ability and willingness to meet financial obligations in full and on time. A
 2 downgrade of the credit ratings for PWSA’s Bonds would result in an increase in
 3 PWSA’s borrowing costs and necessitate higher rate increases over time.

4 **Q. WHAT EVENTS, OTHER THAN DEFAULTING ON THE BOND COVENANTS,**
 5 **COULD RESULT IN A DOWNGRADING OF THESE BOND RATINGS?**

6 A. The downgrading of the Authority’s bond ratings is something that should be avoided.
 7 Ultimately, it increases costs to the ratepayer for many years because it increases the cost
 8 of long term financing due to the perception of increased borrowing risk. In addition, the
 9 downgrade of bond ratings can limit the number of investors willing to lend to the
 10 Authority within the capital markets, which will result in: (1) the reduction of funds
 11 needed to fund capital project; (2) a reduction in the level of service due to a lack of
 12 capital investments; (3) decreased financial flexibility; and (4) decreased public trust.

13
 14 **H. Financial Results at Present Rates for FPFTY and Forecast Period**

15 **Q. WHAT ARE YOUR CONCLUSIONS BASED ON THE FINANCIAL RESULTS**
 16 **AT PRESENT RATES FOR THE FPFTY AND THE FORECAST PERIOD?**

17 A. The operating results at present rates show that it is crucially important that PWSA obtain
 18 rate relief in order to repair these financial indicators to meet the minimums required by
 19 the bond covenant, as well as to have sufficient cash in order to prudently operate the
 20 Authority at the budgeted levels. A failure to improve these results with additional
 21 revenues would prevent PWSA from issuing additional bonds in FY 2024, for failure to
 22 meet the Additional Bonds Test, and almost certainly result in a bond rating downgrade.
 23 It could also result in a default, which would raise the costs of borrowing and limit
 24 PWSA’s access to capital markets. Moreover, a failure to approve the level of rate relief
 25 requested would threaten PWSA’s ability to pay its bills when due.

1 **Q. WHAT LEVEL OF RATE RELIEF DOES PWSA REQUIRE TO MAINTAIN ITS**
 2 **FINANCIAL INDICATORS AT THE APPROPRIATE LEVELS AND HAVE**
 3 **SUFFICIENT CASH TO PRUDENTLY OPERATE THE AUTHORITY?**

4 A. PWSA has determined that an increase of \$146.1 million over three years including \$46.8
 5 million in the FPFTY would provide barely sufficient additional revenues to enable it to
 6 maintain its financial metrics at adequate levels and would likely maintain its existing
 7 bond rating. Without a rate increase, PWSA would be forced to stop all operations in the
 8 hopes that enough money would be remaining to stay solvent. This most certainly would
 9 result in a poor level of service for ratepayers.

10 **Q. HAVE YOU CALCULATED PWSA’S FINANCIAL RESULTS IN THE FPFTY**
 11 **AS WELL AS IN THE FORECAST PERIOD IF ITS PROPOSED \$146.1**
 12 **MILLION RATE INCREASE IS GRANTED?**

13 A. Yes, those results are shown on Exhibit EB-2. PWSA total rate request of \$146.1 million,
 14 with \$46.8 million in the FPFTY, \$45.4 million in the FY 2025, and \$53.9 million in FY
 15 2026, would result in the following debt service coverage ratios.

	<i>FY 2024</i>	<i>FY 2025</i>	<i>FY 2026</i>
<i>Senior Debt Service Coverage Ratio</i>	<i>1.65x</i>	<i>1.87x</i>	<i>2.02x</i>
<i>Total Debt Service Coverage</i>	<i>1.21x</i>	<i>1.26x</i>	<i>1.40x</i>

16
 17 As PWSA’s financial advisor, Ms. Fay, testifies that these coverage levels at proposed
 18 rates are just minimally adequate and well below the levels that bond rating agencies
 19 expect for a credit such as PWSA. Even though our financial metrics following the
 20 requested rate increase are barely sufficient to meet the legally required coverage levels
 21 we hope to maintain our existing credit ratings based on the plan to continue to improve
 22 our financial performance in future years.

23 The proposed rate increase would also result in 145 DCOH, in the FPFTY (FY

2024), 142.6 DCOH in FY 2025, and 152.9 of DCOH in FY 2026. While the level of DCOH slightly increases over the three year period, as explained by Ms. Fay, the levels produced by the requested rate increase, again, are below the median levels of similarly rated municipal utilities as calculated by rating agencies.

V. MULTI-YEAR RATE FILING AND NEW CHARGES

Q. IS PWSA PROPOSING A MULTI-YEAR RATE INCREASE WITHIN THIS RATE CASE?

A. Yes, the PWSA is proposing a three-year rate increase which would increase revenues by \$46.8 in FPFTY (FY 2024), \$45.4 in FY 2025, and \$53.9 in FY 2026.

Q. PLEASE DISCUSS THE LEGAL AND POLICY SUPPORT FOR THE AUTHORITY’S MULTI-YEAR RATE INCREASE REQUEST.

A. Section 1330 of the Public Utility Code, added to the Code in 2018, authorizes the Commission to approve an application by a utility to establish alternative rate mechanisms in the context of a base rate case. Section 1330(b) specifically states that:

the commission may approve an application by a utility in a base rate proceeding to establish alternative rates and rate mechanisms, including, but not limited to, the following mechanisms:

- (i) decoupling mechanisms;
- (ii) performance-based rates;
- (iii) formula rates;
- (iv) multiyear rate plans; or
- (v) rates based on a combination of more than one of the mechanisms...¹²

Therefore, PWSA’s request for a multi-year rate plan is specifically authorized by Section 1330.

¹² 66 Pa. C.S. § 1330(b).

1 After Section 1330 was added to the Public Utility Code, the Commission issued a
 2 Policy Statement in which it set out issues that the Commission will consider when
 3 judging whether an alternative ratemaking proposal is just, reasonable and in the public
 4 interest. The answers to those questions, to the extent they are relevant to a multi-year
 5 rate plan such as that which PWSA is proposing, support the approval of the multi-year
 6 request.

7 **Q. PLEASE SET FORTH THOSE QUESTIONS AND ANSWERS.**

8 A. Certainly. The relevant factors, which can be found in the Commission's regulations,¹³
 9 are as follows:

- 10 (1) How the ratemaking mechanism and rate design align revenues with cost
 11 causation principles as to both fixed and variable costs.

12 *One of the principal benefits of a multi-year rate plan is that it permits a better
 13 alignment of fixed and variable costs with revenues. Rates based upon a static test
 14 year – even a fully projected future test year – will necessarily diverge from the
 15 costs and revenues actually experienced by the utility in subsequent years when the
 16 rate award is still in place. Determinations of revenues and expenses in the rate
 17 case may be higher or lower than the levels subsequently experienced. A multi-
 18 year filing permits a better alignment with the levels of expenses and revenues that
 19 are reasonably expected to be experienced in the years following the fully
 20 projected test year.*

- 21 (3) Whether the ratemaking mechanism and rate design reflect the level of demand
 22 associated with the customer's anticipated consumption levels.

23 *A multi-year rate plan permits a better alignment with the customer's anticipated
 24 consumption level.*

- 25 (4) How the ratemaking mechanism and rate design limit or eliminate interclass and
 26 intraclass cost shifting.

27 *A multi-year rate plan does not have an effect on interclass or intraclass cost
 28 shifting.*

- 29 (7) How the ratemaking mechanism and rate design impact low-income customers
 30 and support consumer assistance programs.

31 *PWSA's Multi-year rate plan proposal will have no impact on its existing low-
 32 income customer assistance programs.*

¹³ 52 Pa. Code § 69.3302.

- 1 (8) How the ratemaking mechanism and rate design impact customer rate stability
2 principles.
3 *Multi-year rate plans provide rate certainty for customers which in turn permits*
4 *them to plan and facilitates investment in water efficiency measures.*
- 5 (10) How the ratemaking mechanism and rate design impact the frequency of rate case
6 filings and affect regulatory lag.
7 *A second major benefit of a multi-year rate plan is that it will dramatically reduce*
8 *the frequency of rate case filings and regulatory lag.*
- 9 (11) If or how the ratemaking mechanism and rate design interact with other revenue
10 sources, such as Section 1307 automatic adjustment surcharges, 66 Pa.C.S. § 1307
11 (relating to sliding scale of rates; adjustments), riders such as 66 Pa.C.S.
12 § 2804(9) (relating to standards for restructuring of electric industry) or system
13 improvement charges, 66 Pa.C.S. § 1353 (relating to distribution system
14 improvement charge).
15 *The multi-year rate plan will work in tandem with PWSA's existing DSIC or any*
16 *of the new reconcilable charges PWSA is proposing in this case.*
- 17 (12) Whether the alternative ratemaking mechanism and rate design include
18 appropriate consumer protections.
19 *The revenue requirement in each year of the multi-year rate plan will be set after*
20 *an examination of PWSA's projected revenues, expenses and cash needs for those*
21 *years. Accordingly, customers will be assured that the rate increases placed into*
22 *effect will be just and reasonable. If actual costs turn out to be less than*
23 *projected those revenues will be used to fund future operations and investment.*
- 24 (13) Whether the alternative ratemaking mechanism and rate design are
25 understandable to consumers.
26 *PWSA has provided notice to customers of the multi-year rate plan and will*
27 *provide notices prior to the proposed rate increases being placed into effect. This*
28 *will assure that customers will be adequately informed of the increase.*
- 29 (14) How the ratemaking mechanism and rate design will support improvements in
30 utility reliability.
31 *The multi-year rate plan will assure that PWSA will have sufficient revenues to*
32 *fund its operating and capital budgets in each year of the multi-year plan thereby*
33 *making it more likely that the Authority will be able to engage in necessary*
34 *repairs and maintenance and to continue to modernize water and wastewater*
35 *systems and to make those systems more reliable.*

36 **Q. PLEASE DESCRIBE THE ADMINISTRATIVE EFFICIENCIES OF A MULTI-**
37 **YEAR RATE INCREASE.**

38 A. One of the main reasons why the multi-year rate plan is reasonable is that it increases
39 administrative efficiency and reduces costs. For example, it helps entities to create more

1 accurate organizational plans since rate levels are predetermined. Specifically, one of the
2 areas that suffers when a multi-year rate plan is not in place is that it makes budgeting
3 (both the Operating and Capital budget) more speculative and difficult. PWSA is required
4 to have a PWSA Board approved Operating and Capital budgets in place by January 1
5 each year. Not knowing what the revenue levels will be for the following year forces
6 PWSA to “guess” what levels to assume when creating the budgets. This causes to
7 PWSA to be in a state of uncertainty until rates are finalized. As a result, capital projects
8 are not initiated, operating budget contracts are not utilized, and staffing decisions are
9 held off until rates are finalized. Thus, the less certain PWSA is about revenue, the more
10 negative impact on the normal functioning of PWSA which is not in the interest of
11 PWSA’s ratepayers.

12 **Q. HOW IS PWSA PROPOSING THAT THE YEAR TWO AND YEAR THREE**
13 **RATE CHANGES BE IMPLEMENTED?**

14 A. In his testimony, Mr. Smith provides additional support for our proposal and describes
15 how the multi-year rate change process works in Rhode Island. This process is
16 reasonable and would be acceptable for PWSA.

17 **Q. IS PWSA PROPOSING NEW RECONCILABLE CHARGES IN THIS RATE**
18 **CASE?**

19 A. Yes, PWSA is proposing the implementation of an Infrastructure Improvement Charge
20 and Customer Assistance Charge starting in FY 2025.

21 **Q. PLEASE EXPLAIN PWSA’S PROPOSAL FOR AN “INFRASTRUCTURE**
22 **IMPROVEMENT CHARGE”.**

23 A. Certainly. The PUC presently has a policy statement which authorizes water and
24 wastewater utilities to recover in an automatic adjustment clause PENNVEST principal

1 and interest obligations.¹⁴ PWSA proposes to establish such a clause but to expand it to
 2 also include a recently added Federal government loan program – the Water
 3 Infrastructure Finance and Innovation Act (WIFIA). WIFIA is the Federal government
 4 equivalent of PENNVEST.

5 **Q. PLEASE EXPLAIN WHY PWSA IS REQUESTING THE INFRASTRUCTURE**
 6 **IMPROVEMENT CHARGE.**

7 A. The requested Infrastructure Improvement Charge will expedite PWSA’s ability to obtain
 8 additional low-cost funding through PENNVEST and WIFIA by having a stable revenue
 9 source to ensure the required debt covenants and additional bonds tests can be met, in
 10 addition to having funds available to pay annual debt service. This would allow PWSA to
 11 keep rates as low as possible by financing its aggressive capital improvement plan with
 12 these low-cost funding programs.

13 Expediting PWSA’s ability to obtain PENNVEST and WIFIA funding is even
 14 more crucial with the BIL. The majority of the BIL water, wastewater, and stormwater
 15 funding will be awarded through the WIFIA program or the various state revolving fund
 16 agencies via the Clean Water State Revolving Fund (CWSRF) and Drinking Water State
 17 Revolving Fund (DWSRF).

18 **Q. CAN YOU EXPLAIN THE MECHANICS OF THE PROPOSED**
 19 **INFRASTRUCTURE IMPROVEMENT CHARGE?**

20 A. Yes, the Infrastructure Improvement Charge is proposed to become effective in FY 2025
 21 to coincide with the removal of the minimum charges from PWSA’s water and sewer
 22 rates, which I will discuss shortly. The revenues obtained through the Infrastructure
 23 Improvement Charge will be used to recover debt service associated with new

¹⁴ 52 Pa. Code §69.363.

1 PENNVEST and WIFIA loans starting in the FY 2025. The charge would be calculated
2 separately and added to the base charges to be combined as one charge on the customer
3 bills. We are proposing to reconcile the charge on a semi-annual basis via the filing of
4 supporting schedules and a proposed tariff supplement with the updated amounts to be
5 included in the customer bills per the proposed effective date of the tariff supplements.

6 The charge will automatically adjust as PWSA obtains additional loan funding
7 and debt service increases. The amount of the charge paying for loans that have reached
8 their full amortization schedule will then be rolled into PWSA's base rates in subsequent
9 rate case proceedings.

10 **Q. PLEASE EXPLAIN PWSA'S PROPOSAL FOR A "CUSTOMER ASSISTANCE**
11 **CHARGE".**

12 A. PWSA values the benefits that its customer service assistance program provides to
13 vulnerable ratepayers. However, the administration of customer assistance program has
14 become increasingly expensive. The Customer Assistance Charge would recover 1) the
15 discounts provided to customers pursuant to the Bill Discount Program, 2) the operating
16 costs for the PGH2O Cares team, 3) the costs of PWSA's Hardship Funding, and 4) past
17 due arrearages forgiven pursuant to PWSA's Arrearage Forgiveness Program.

18 **Q. CAN YOU EXPLAIN THE MECHANICS OF THE PROPOSED CUSTOMER**
19 **ASSISTANCE CHARGE?**

20 A. Yes, the mechanics of the Customer Assistance Charge would be the same as the
21 Infrastructure Improvement Charge whereby the proposed charge would become
22 effective in FY 2025 to coincide with the removal of the minimum charges. As explained
23 more fully by Ms. Mechling and described in our proposed tariff supplements, the
24 charges would be calculated separately and added to the base charges to be combined as
25 one charge on the customer bills. We are proposing to reconcile the charge on a semi-

1 annual basis via the filing of supporting schedules and a proposed tariff supplement with
 2 the updated amounts to be included in the customer bills per the proposed effective date
 3 of the tariff supplements.

4 **Q. CAN YOU EXPLAIN PWSA’S PROPOSAL TO ELIMINATE THE MINIMUM**
 5 **WATER AND WASTEWATER CHARGE STARTING IN FY 2025?**

6 A. As previously stated, PWSA is proposing to eliminate the minimum water and
 7 wastewater charges and shift the recovery of those costs to volumetric rates starting in FY
 8 2025. PWSA is making this proposal in order to comply with a settlement item from
 9 PWSA’s prior rate case as explained more fully by Ms. Mechling.

10 **Q. WHAT CONCERNS HAS PWSA IDENTIFIED REGARDING TRANSITIONING**
 11 **AWAY FROM THE MINIMUM ALLOWANCE?**

12 A. In addition to our concerns about customer rate impacts, the removal of the minimum
 13 allowance will remove revenue stability from PWSA’s rate structure. Regarding timing,
 14 as explained by Ms. Mechling, PWSA needs approval to make the change and then a
 15 period of time to test and implement the change within the ERP and billings systems.
 16 Assuming this rate case is approved in early 2024, it would be impossible for PWSA to
 17 implement the rate structure changes prior to the effective date of new rates.

18 **Q. HOW ARE PWSA’S OTHER PROPOSALS INTENDED TO SUPPORT ITS**
 19 **PROPOSED REMOVAL OF THE MINIMUM ALLOWANCE?**

20 A. PWSA’s request for a multi-year rate increase for three years supports our need for time
 21 to implement any approved rate structure change. In addition, as described by Ms.
 22 Mechling and set forth in our proposed tariff supplements, PWSA is seeking authority to
 23 implement two new reconcilable charges: (1) an Infrastructure Improvement Charge
 24 (“IIC”); and, (2) a Customer Assistance Charge (“CAC”). The implementation of these
 25 two new reconcilable charges would ensure PWSA’s ability to recover the actual costs in

1 a timely manner supporting PWSA’s multi-year rate request and saving ratepayers the
 2 time and expense associated with rate case proceedings. Additional support for the CAC
 3 is also set forth in a petition we are simultaneously filing seeking approval for its
 4 implementation.

5 **VI. PRIOR SETTLEMENT COMMITMENTS**

6 **A. Arrearage Forgiveness Program**

7 **Q. WHAT DID PWSA AGREE TO FURTHER INVESTIGATE REGARDING ITS**
 8 **ARREARAGE FORGIVENESS PROGRAM (“AFP”) AS PART OF THE LAST**
 9 **RATE CASE SETTLEMENT?**

10 A. PWSA agreed to undertake a cost-benefit analysis regarding a restructuring of its current
 11 program that would have included: (1) reducing the customer’s account balance by 1/36th
 12 of the original pre-program balance account; (2) at the time of enrollment, separating (or
 13 “freezing”) the customer’s total arrears from their current and future bills; (3) forgiving
 14 the frozen arrearage at a rate of 1/36th per month for each month the customer timely and
 15 fully pays the bill; (4) retroactively forgive arrearages for customers who miss a monthly
 16 bill payment but make catch-up payments.¹⁵

17 **Q. DID PWSA PERFORM AND PRESENT THE COST-BENEFIT ANALYSIS TO**
 18 **THE PARTIES?**

19 A. Yes. Attached as Exhibit EB-9 is the Cost Benefit Analysis we performed in February of
 20 2022 and shared with the parties on February 18, 2022. As illustrated by this analysis,
 21 PWSA would lose an estimated \$900,000 if the program were to be restructured per the
 22 parameters of the settlement agreement. Based on that, we determined that it was not
 23 feasible to pursue a restructuring of the program at that time.

¹⁵ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021 adopting Recommended Decision dated October 6, 2021 at p. 27 Section 9, F.1.vi.

1 **Q. DOES PWSA'S PROPOSAL TO CREATE A RECONCILABLE CUSTOMER**
2 **ASSISTANCE CHARGE CHANGE YOUR POSITION ON RESTRUCTURING**
3 **THE CURRENT ARREARAGE FORGIVENESS PROGRAM?**

4 A. No. While I recognize that we are proposing to create a new reconcilable charge to
5 recover the costs of the forgone revenue forgiven as part of this customer assistance
6 program, we still do not support restructuring the program at this time due to the
7 successful Low Income Household Water Assistance Program (LIHWAP).
8 Pennsylvania's program awarded more than \$43 million last year, with the funds paid
9 directly to water and wastewater providers. It is anticipated that a second round of
10 funding will occur. The funding for the second round will come from the states that did
11 not spend the first round of federal funding by the government's deadline. Therefore, in
12 PWSA's view, there will be additional funding to assist low income customers with
13 paying their bills such that increasing the costs of an arrearage management program,
14 which will require all other ratepayers to cover those additional costs, is not prudent at
15 this time.

16 **VII. CONCLUSION**

17 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

18 A. Yes. I do reserve the right to supplement this testimony as may be appropriate.

Exhibit EB-1

Pittsburgh Water and Sewer Authority
Statement of Income - Existing Rates

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	
	<i>HTY</i>	<i>FTY</i>	<i>FPFTY</i>	<i>Forecast</i>	<i>Forecast</i>	
System Revenues						
1	Water Sales	\$ 110,173,919	\$ 121,498,414	\$ 122,154,943	\$ 122,154,901	\$ 122,154,901
2	Wastewater Sales	56,769,103	48,046,585	47,912,050	47,912,050	47,912,050
3	Stormwater Sales	17,762,994	23,303,779	23,117,736	23,117,736	23,117,736
4	Sale for Resale & Contract Sales	3,565,227	3,726,610	3,757,360	3,789,321	3,823,493
5	DSIC Revenues	8,304,932	8,411,120	8,420,687	8,420,684	8,420,684
6	Other Revenues	5,330,309	3,496,157	3,566,080	3,637,402	3,710,150
7	Penalties and interest	-	-	-	-	-
8	Total: System Revenues	\$ 201,906,485	\$ 208,482,665	\$ 208,928,856	\$ 209,032,095	\$ 209,139,015
System Revenue Requirements						
<u>Operating Expenses</u>						
<i>Direct Operating Expenses</i>						
9	Executive Director	\$ 2,570,082	\$ 2,788,992	\$ 3,336,779	\$ 3,512,429	\$ 3,733,714
10	Customer Service	7,768,329	9,214,830	9,577,647	10,257,097	11,006,829
11	Management Information Systems	9,733,025	6,291,824	7,612,251	7,281,648	7,749,637
12	Finance	8,335,767	6,960,075	7,477,373	7,891,743	8,386,915
13	Procurement	-	-	-	-	-
14	Human Resources	1,501,220	1,750,667	2,435,869	2,989,580	3,167,034
15	Legal	3,080,031	4,638,131	4,215,777	4,450,963	4,727,104
16	Safety & Security	847,280	2,051,186	2,341,031	2,473,261	2,641,877
17	Public Affairs	1,229,537	1,469,848	1,902,689	2,232,489	2,372,232
18	Environmental Compliance	4,427,185	4,234,203	4,638,632	4,902,739	5,204,858
19	Warehouse	621,623	531,048	562,637	595,295	642,469
20	Ops Capital Assets	-	-	-	-	-
21	Water Quality (Lab)	2,423,278	2,400,034	2,676,383	2,473,136	2,642,150
22	Water Treatment Plant	20,944,573	24,047,029	27,206,247	30,467,749	34,393,839
23	Sewer Operations	2,568,876	3,322,879	11,357,094	13,805,463	16,993,620
24	Water Distribution	15,742,708	15,929,517	17,698,299	19,290,991	20,663,146
25	Engineering & Construction	28,219,979	26,947,789	27,122,905	26,991,433	28,683,757
26	<i>Subtotal: Direct Operating Expenses</i>	\$ 110,013,492	\$ 112,578,051	\$ 130,161,613	\$ 139,616,016	\$ 153,009,183
<i>Other Operating Expenses</i>						
27	Loss / (Gain) on ALCOSAN Billings	\$ (413,783)	\$ 1,766,508	\$ 2,066,814	\$ 2,400,861	\$ 2,771,926
28	City Services	1,523,249	3,159,499	3,419,629	3,624,807	3,842,295
29	Covid Expenses	-	-	263,215	-	-
30	<i>Subtotal: Other Operating Expenses</i>	\$ 1,109,466	\$ 4,926,007	\$ 5,749,659	\$ 6,025,668	\$ 6,614,221
31	Total: Operating Expenses	\$ 111,122,958	\$ 117,504,058	\$ 135,911,272	\$ 145,641,684	\$ 159,623,404
<u>Debt Service</u>						
32	Senior Debt Service	\$ 56,567,456	\$ 61,933,967	\$ 71,451,642	\$ 82,812,182	\$ 97,803,768
33	Subordinate Debt Service	12,542,789	16,089,068	22,480,984	34,364,890	34,766,688
34	Revolving Line of Credit Interest	-	1,500,000	3,000,000	3,000,000	3,000,000
35	Total: Debt Service	\$ 69,110,245	\$ 79,523,035	\$ 96,932,626	\$ 120,177,071	\$ 135,570,456
<u>Capital Expenditures & Transfers</u>						
36	Internally Generated Funds / PAYGO	\$ -	\$ -	\$ -	\$ 2,000,000	\$ 12,000,000
37	Internally Generated Funds / PAYGO (DSIC)	8,304,932	8,411,120	15,038,462	17,699,369	20,942,857
38	Other Transfers to Reserves	5,122,000	(4,500,000)	1,000,000	7,000,000	17,000,000
39	Bad Debt Expense	3,931,524	4,099,730	5,971,536	5,355,444	5,555,403
40	DWSL	-	-	-	250,000	250,000
41	Hardship Grant Funding	-	-	-	216,320	216,320
42	Arrearage Funding	-	-	240,000	240,000	240,000
43	Stormwater Credit Program Cost	56,858	75,843	180,489	152,703	152,703
44	<i>Total: Capital Expenditures & Transfers</i>	\$ 17,415,314	\$ 8,086,693	\$ 22,430,486	\$ 32,913,836	\$ 56,357,283
45	Total: Systemwide Revenue Requirements	\$ 197,648,517	\$ 205,113,786	\$ 255,274,383	\$ 298,732,591	\$ 351,551,143
46	System Revenue Surplus / (Deficit)	\$ 4,257,967	\$ 3,368,879	\$ (46,345,526)	\$ (89,700,496)	\$ (142,412,128)

Pittsburgh Water and Sewer Authority
Projected Cash Flow - Existing Rates

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
	<i>FTY</i>	<i>FPFTY</i>	<i>Forecast</i>	<i>Forecast</i>
Operating Fund				
Beginning Balance	\$ 86,028,516	\$ 87,147,395	\$ 41,301,868	\$ (45,423,620)
<u>Sources:</u>				
Operating Surplus/(Deficit)	\$ 3,368,879	\$ (46,345,526)	\$ (89,700,496)	\$ (142,412,128)
Budgeted Contributions	(4,500,000)	1,000,000	7,000,000	17,000,000
<u>Uses:</u>				
Hardship Grant Fund Contribution	-	-	-	-
Contributions to Rate Stabilization Fund	2,250,000	(500,000)	(1,750,000)	(3,400,000)
Contributions to Operating Reserve Fund	-	-	(2,274,992)	(1,395,217)
<i>Ending Balance</i>	\$ 87,147,395	\$ 41,301,868	\$ (45,423,620)	\$ (175,630,964)

Days Cash on Hand (Days O&M)

Unrestricted Cash (Excluding ALCOSAN)	283.0	121.1	(103.4)	(389.5)
Unrestricted Cash (Including ALCOSAN)	160.5	70.9	(60.5)	(230.0)

**Pittsburgh Water and Sewer Authority
Debt Service Coverage - Existing Rates**

	<u>FY 2022</u> HTY	<u>FY 2023</u> FTY	<u>FY 2024</u> COS	<u>FY 2025</u> Forecast	<u>FY 2026</u> Forecast
<u>Revenues</u>					
1	\$ 201,906,485	\$ 208,482,665	\$ 208,928,856	\$ 209,032,095	\$ 209,139,015
2	77,026,440	86,558,914	92,618,038	99,101,301	106,038,392
3	-	-	-	-	-
4	<u>\$ 278,932,925</u>	<u>\$ 295,041,579</u>	<u>\$ 301,546,894</u>	<u>\$ 308,133,395</u>	<u>\$ 315,177,407</u>
<u>Current Expenses</u>					
5	\$ (111,536,741)	\$ (115,737,550)	\$ (133,581,242)	\$ (143,240,823)	\$ (156,851,478)
6	(78,598,409)	(88,325,422)	(94,684,852)	(101,502,162)	(108,810,317)
7	-	-	(263,215)	-	-
8	(3,931,524)	(4,099,730)	(5,971,536)	(5,355,444)	(5,555,403)
9	-	-	-	(216,320)	(216,320)
12	<u>\$ (194,066,673)</u>	<u>\$ (208,162,702)</u>	<u>\$ (234,500,845)</u>	<u>\$ (250,314,748)</u>	<u>\$ (271,433,519)</u>
13	1,523,249	3,159,499	3,419,629	3,624,807	3,842,295
14	\$ 86,389,500	\$ 90,038,376	\$ 70,465,678	\$ 61,443,453	\$ 47,586,183
<u>Debt Service</u>					
<u>Existing Debt</u>					
15	\$ 56,567,456	\$ 58,560,224	\$ 58,313,859	\$ 59,621,399	\$ 60,815,279
16	4,877,900	4,877,900	4,877,900	4,877,900	4,877,900
17	7,664,889	10,201,503	12,629,321	12,198,094	12,131,649
18	-	1,500,000	3,000,000	3,000,000	3,000,000
19	<u>\$ 69,110,245</u>	<u>\$ 75,139,627</u>	<u>\$ 78,821,080</u>	<u>\$ 79,697,394</u>	<u>\$ 80,824,829</u>
<u>Future Debt</u>					
20	\$ -	\$ 3,373,743	\$ 12,404,232	\$ 21,458,416	\$ 33,530,661
21	-	1,009,665	5,707,313	19,021,262	21,214,966
22	<u>\$ -</u>	<u>\$ 4,383,408</u>	<u>\$ 18,111,546</u>	<u>\$ 40,479,678</u>	<u>\$ 54,745,628</u>
23	<u>\$ 69,110,245</u>	<u>\$ 79,523,035</u>	<u>\$ 96,932,626</u>	<u>\$ 120,177,071</u>	<u>\$ 135,570,456</u>
24	1.53	1.45	1.00	0.76	0.50
25	1.25	1.25	1.25	1.25	1.25
26	1.25	1.13	0.73	0.51	0.35
27	1.10	1.10	1.10	1.10	1.10

Exhibit EB-2

**Pittsburgh Water and Sewer Authority
Statement of Income - Proposed Rates**

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	
	<i>HTY</i>	<i>FTY</i>	<i>FPFTY</i>	<i>Forecast</i>	<i>Forecast</i>	
System Revenues						
1	Water Sales	\$ 110,173,919	\$ 121,498,414	\$ 152,352,358	\$ 181,819,480	\$ 216,742,961
2	Wastewater Sales	56,769,103	48,046,585	50,124,557	56,509,195	65,291,712
3	Stormwater Sales	17,762,994	23,303,779	29,833,260	36,341,353	42,504,882
4	Sale for Resale & Contract Sales	3,565,227	3,726,610	4,404,330	4,694,942	5,419,106
5	DSIC Revenues	8,304,932	8,411,120	15,038,462	17,699,369	20,942,857
6	Other Revenues	5,330,309	3,496,157	3,566,080	3,637,402	3,710,150
7	Penalties and interest	-	-	-	-	-
8	Total: System Revenues	\$ 201,906,485	\$ 208,482,665	\$ 255,319,046	\$ 300,701,741	\$ 354,611,668
System Revenue Requirements						
<u>Operating Expenses</u>						
<i>Direct Operating Expenses</i>						
9	Executive Director	\$ 2,570,082	\$ 2,788,992	\$ 3,336,779	\$ 3,512,429	\$ 3,733,714
10	Customer Service	7,768,329	9,214,830	9,577,647	10,257,097	11,006,829
11	Management Information Systems	9,733,025	6,291,824	7,612,251	7,281,648	7,749,637
12	Finance	8,335,767	6,960,075	7,477,373	7,891,743	8,386,915
13	Procurement	-	-	-	-	-
14	Human Resources	1,501,220	1,750,667	2,435,869	2,989,580	3,167,034
15	Legal	3,080,031	4,638,131	4,215,777	4,450,963	4,727,104
16	Safety & Security	847,280	2,051,186	2,341,031	2,473,261	2,641,877
17	Public Affairs	1,229,537	1,469,848	1,902,689	2,232,489	2,372,232
18	Environmental Compliance	4,427,185	4,234,203	4,638,632	4,902,739	5,204,858
19	Warehouse	621,623	531,048	562,637	595,295	642,469
20	Ops Capital Assets	-	-	-	-	-
21	Water Quality (Lab)	2,423,278	2,400,034	2,676,383	2,473,136	2,642,150
22	Water Treatment Plant	20,944,573	24,047,029	27,206,247	30,467,749	34,393,839
23	Sewer Operations	2,568,876	3,322,879	11,357,094	13,805,463	16,993,620
24	Water Distribution	15,742,708	15,929,517	17,698,299	19,290,991	20,663,146
25	Engineering & Construction	28,219,979	26,947,789	27,122,905	26,991,433	28,683,757
26	<i>Subtotal: Direct Operating Expenses</i>	\$ 110,013,492	\$ 112,578,051	\$ 130,161,613	\$ 139,616,016	\$ 153,009,183
<i>Other Operating Expenses</i>						
27	Loss / (Gain) on ALCOSAN Billings	\$ (413,783)	\$ 1,766,508	\$ 2,066,814	\$ 2,400,861	\$ 2,771,926
28	City Services	1,523,249	3,159,499	3,419,629	3,624,807	3,842,295
29	Covid Expenses	-	-	263,215	-	-
30	<i>Subtotal: Other Operating Expenses</i>	\$ 1,109,466	\$ 4,926,007	\$ 5,749,659	\$ 6,025,668	\$ 6,614,221
31	Total: Operating Expenses	\$ 111,122,958	\$ 117,504,058	\$ 135,911,272	\$ 145,641,684	\$ 159,623,404
<u>Debt Service</u>						
32	Senior Debt Service	\$ 56,567,456	\$ 61,933,967	\$ 71,451,642	\$ 82,812,182	\$ 97,803,768
33	Subordinate Debt Service	12,542,789	16,089,068	22,480,984	34,364,890	34,766,688
34	Revolving Line of Credit Interest	-	1,500,000	3,000,000	3,000,000	3,000,000
35	Total: Debt Service	\$ 69,110,245	\$ 79,523,035	\$ 96,932,626	\$ 120,177,071	\$ 135,570,456
<u>Capital Expenditures & Transfers</u>						
36	Internally Generated Funds / PAYGO	\$ -	\$ -	\$ -	\$ 2,000,000	\$ 12,000,000
37	Internally Generated Funds / PAYGO (DSIC)	8,304,932	8,411,120	15,038,462	17,699,369	20,942,857
38	Other Transfers to Reserves	5,122,000	(4,500,000)	1,000,000	7,000,000	17,000,000
39	Bad Debt Expense	3,931,524	4,099,730	5,971,536	7,190,864	8,467,880
40	DWSL	-	-	-	250,000	250,000
41	Hardship Grant Funding	-	-	-	216,320	216,320
42	Arrearage Funding	-	-	240,000	240,000	240,000
43	Stormwater Credit Program Cost	56,858	75,843	180,489	212,102	241,305
44	<i>Total: Capital Expenditures & Transfers</i>	\$ 17,415,314	\$ 8,086,693	\$ 22,430,486	\$ 34,808,655	\$ 59,358,362
45	Total: Systemwide Revenue Requirements	\$ 197,648,517	\$ 205,113,786	\$ 255,274,383	\$ 300,627,410	\$ 354,552,222
46	System Revenue Surplus / (Deficit)	\$ 4,257,967	\$ 3,368,879	\$ 44,663	\$ 74,331	\$ 59,446

Pittsburgh Water and Sewer Authority
Projected Cash Flow - Proposed Rates

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
	<i>FTY</i>	<i>FPFTY</i>	<i>Forecast</i>	<i>Forecast</i>
\$	86,028,516	\$ 87,147,395	\$ 87,692,058	\$ 90,741,397
\$	3,368,879	\$ 44,663	\$ 74,331	\$ 59,446
	(4,500,000)	1,000,000	7,000,000	17,000,000
	-	-	-	-
	2,250,000	(500,000)	(1,750,000)	(3,400,000)
	-	-	(2,274,992)	(1,395,217)
\$	87,147,395	\$ 87,692,058	\$ 90,741,397	\$ 103,005,626

Operating Fund

Beginning Balance

Sources:

Operating Surplus/(Deficit)

Budgeted Contributions

Uses:

Hardship Grant Fund Contribution

Contributions to Rate Stabilization Fund

Contributions to Operating Reserve Fund

Ending Balance

Days Cash on Hand (Days O&M)

Unrestricted Cash (Excluding ALCOSAN)

Unrestricted Cash (Including ALCOSAN)

283.0	247.6	243.6	258.9
160.5	145.0	142.6	152.9

**Pittsburgh Water and Sewer Authority
Debt Service Coverage - Proposed Rates**

	<u>FY 2022</u> <i>HTY</i>	<u>FY 2023</u> <i>FTY</i>	<u>FY 2024</u> <i>COS</i>	<u>FY 2025</u> <i>Forecast</i>	<u>FY 2026</u> <i>Forecast</i>
<u>Revenues</u>					
1	\$ 201,906,485	\$ 208,482,665	\$ 255,319,046	\$ 300,701,741	\$ 354,611,668
2	77,026,440	86,558,914	92,618,038	99,101,301	106,038,392
3	-	-	-	-	-
4	\$ 278,932,925	\$ 295,041,579	\$ 347,937,084	\$ 399,803,041	\$ 460,650,059
<u>Current Expenses</u>					
5	\$ (111,536,741)	\$ (115,737,550)	\$ (133,581,242)	\$ (143,240,823)	\$ (156,851,478)
6	(78,598,409)	(88,325,422)	(94,684,852)	(101,502,162)	(108,810,317)
7	-	-	(263,215)	-	-
8	(3,931,524)	(4,099,730)	(5,971,537)	(7,190,864)	(8,467,880)
9	-	-	-	(216,320)	(216,320)
10	\$ (194,066,673)	\$ (208,162,702)	\$ (234,500,846)	\$ (252,150,168)	\$ (274,345,995)
11	1,523,249	3,159,499	3,419,629	3,624,807	3,842,295
12	\$ 86,389,500	\$ 90,038,376	\$ 116,855,867	\$ 151,277,680	\$ 190,146,359
<u>Debt Service</u>					
<u>Existing Debt</u>					
13	\$ 56,567,456	\$ 58,560,224	\$ 58,313,859	\$ 59,621,399	\$ 60,815,279
14	4,877,900	4,877,900	4,877,900	4,877,900	4,877,900
15	7,664,889	10,201,503	12,629,321	12,198,094	12,131,649
16	-	1,500,000	3,000,000	3,000,000	3,000,000
17	\$ 69,110,245	\$ 75,139,627	\$ 78,821,080	\$ 79,697,394	\$ 80,824,829
<u>Future Debt</u>					
18	\$ -	\$ 3,373,743	\$ 12,404,232	\$ 21,458,416	\$ 33,530,661
19	-	1,009,665	5,707,313	19,021,262	21,214,966
20	-	4,383,408	18,111,546	40,479,678	54,745,628
21	\$ 69,110,245	\$ 79,523,035	\$ 96,932,626	\$ 120,177,071	\$ 135,570,456
22	1.53	1.45	1.65	1.87	2.02
23	<i>1.25</i>	<i>1.25</i>	<i>1.25</i>	<i>1.25</i>	<i>1.25</i>
24	1.25	1.13	1.21	1.26	1.40
25	<i>1.10</i>	<i>1.10</i>	<i>1.10</i>	<i>1.10</i>	<i>1.10</i>

Exhibit EB-3

Exhibit EB-3**PWSA Actual and Budget Information 2022-2026**

	<i>HTY</i>	<i>FTY</i>	<i>FPFTY</i>	<i>Forecast Period</i>	<i>Forecast Period</i>
	2022	2023	2024	2025	2026
	Actual	Estimate	Budget	Budget	Budget
Receipts					
Water	113,739,146	123,245,329	156,756,688	186,514,422	222,162,067
Sewage Conveyance	56,769,103	48,448,406	50,124,557	56,509,195	65,291,712
Stormwater	17,762,994	21,356,870	29,833,260	36,341,353	42,504,882
DSIC	8,304,932	9,132,320	15,038,462	17,699,369	20,942,857
ALCOSAN	79,012,192	86,558,914	92,618,038	99,101,301	106,038,392
Miscellaneous Revenue	5,330,309	3,496,157	3,566,080	3,637,402	3,710,150
Total Receipts	280,918,676	292,237,996	347,937,085	399,803,042	460,650,060
Operating Expenses					
Salaries	29,461,084	35,166,244	41,932,394	44,845,082	47,105,066
Benefits	8,238,852	10,807,888	12,360,967	13,973,205	15,938,579
Direct Operating	50,419,329	48,119,722	59,314,576	65,692,572	73,197,072
Inventory	2,404,560	2,280,133	2,441,355	2,587,837	2,743,107
General & Administrative	21,012,916	18,206,186	17,531,950	16,142,127	17,867,654
ALCOSAN	78,598,409	88,325,422	94,684,852	101,502,162	108,810,317
COVID-19 Related Expenses	-	-	263,215	-	-
Total Operating Expenses	190,135,150	202,905,597	228,529,309	244,742,985	265,661,795
Net Operating Income	90,783,526	89,332,400	119,407,776	155,060,057	194,988,265
Debt Service					
Debt Service - Principal	33,397,046	36,272,640	43,988,123	58,335,366	65,151,823
Debt Service - Interest	35,713,199	43,250,395	52,944,503	61,841,705	70,418,633
Total Debt Service	69,110,245	79,523,035	96,932,626	120,177,071	135,570,456
Total Costs	259,245,395	282,428,632	325,461,935	364,920,056	401,232,251
Net Cash Flow	21,673,281	9,809,365	22,475,150	34,882,986	59,417,809
Internally Generated Funds / PAYGO	-	-	-	2,000,000	12,000,000
Internally Generated Funds / PAYGO (DSIC)	8,304,932	9,132,320	15,038,462	17,699,369	20,942,857
Other Transfers to Reserves	5,122,000	(4,500,000)	1,000,000	7,000,000	17,000,000
Bad Debt Expense	3,931,524	4,099,730	5,971,536	7,190,864	8,467,880
DWSL	-	-	-	250,000	250,000
Hardship Grant Funding	-	-	-	216,320	216,320
Arrearage Funding	-	-	240,000	240,000	240,000
Stormwater Credit Program Cost	56,858	75,843	180,489	212,102	241,305
Revenue Surplus / (Deficit)	4,257,967	1,001,472	44,663	74,331	59,447

Exhibit EB-4



The Pittsburgh Water and Sewer Authority

2023 – 2027 Capital Improvement Plan

Approved on October 28, 2022



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Introduction

The Pittsburgh Water and Sewer Authority (“**the Authority**” or “**the PWSA**”) is a body corporate and politic organized and existing under the Act pursuant to Resolution No. 36 of the Council of the City of Pittsburgh (the “**City**”), duly enacted on February 6, 1984, approved by the Mayor on February 8, 1984, and effective February 16, 1984. The Secretary of the Commonwealth of Pennsylvania approved the Authority’s Articles of Incorporation and issued a Certificate of Incorporation on February 17, 1984. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on December 11, 1989, to include, among authorized projects, low head dams and facilities for generating surplus electric power. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on May 9, 2008, to extend the term of existence of the Authority to May 21, 2045. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on March 19, 2020, to extend the term of existence of the Authority to March 13, 2070 and to include stormwater systems.

Under its Articles of Incorporation, the Authority is specifically authorized to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kinds and character: sewers, sewer systems or parts thereof, waterworks, water supply works, and water distribution systems, low head dams, facilities for generating surplus power, and stormwater systems.

The System provides water to approximately 75,000 customers or 84% of the total population in the geographic boundaries of the City. The Authority provides wastewater collection and transmission service to almost the entire City, estimated at 301,000 residents. The System does not include wastewater treatment facilities; such facilities are the responsibility of Allegheny County Sanitary Authority (“**ALCOSAN**”), a separate and distinct legal entity.

The Authority operates and maintains a 117 million gallon per day (MGD) rapid sand type water treatment plant, a 21 MGD microfiltration plant, approximately 964 miles of water mains, over 32,000 valves and fire hydrants, 1 raw water pump station, 10 finished water pump stations, 4 in-ground reservoirs, 10 storage tanks, approximately 1,220 miles of sanitary, storm and combined sewers, 29,500 manholes, 25,000 catch basins and inlets, 98 combined sewer overflow outfalls, 195 storm outfalls, and 4 wastewater pump stations.

Pennsylvania Public Utility Commission Oversight of the Authority

On December 21, 2017, the Pennsylvania legislature enacted Act 65 of 2017 (“**Act 65**”), placing the Authority under the jurisdiction of the Pennsylvania Public Utility Commission (“**PUC**”) pursuant to the Pennsylvania Public Utility Code (the “**Public Utility Code**”). Act 65 applies most of the provisions of the Public Utility Code to the Authority in the same manner as a “public utility,” resulting in regulation of the Authority’s rate making, its operating effectiveness, debt issuances and other aspects of conducting its business similar to the way the PUC regulates investor-owned utilities. Act 65 includes provisions that allow the Authority to impose, charge or collect rates or charges as necessary to permit the Authority to comply with its covenants with the holders of any bonds or other financial obligations of the Authority, and prohibits the PUC from requiring the Authority to take any action that would cause the interest on the Authority’s financial obligations to be includible in gross income of the holders of such obligations for federal income tax purposes.

Capital Improvement Program

Overview

The PWSA's Capital Improvement Program (CIP) focuses on sustaining cost-effective operations, while optimizing the system's asset performance and life expectancy. The 2023-2027 Capital Improvement Program invests in programs which consider risk and consequence of asset failure and levels of service benefits.

Development and Approval Process

The PWSA’s CIP process begins each year in May when project nominations are solicited from the entire organization. At the completion of the nomination period, the CIP Review Committee screens, evaluates and prioritizes the nominated projects to determine the projects that should be included in the CIP. Further planning efforts consist of the preparation of a project sheet, which provides more detailed information on a project’s potential scope options, risks, schedule, and the

cost estimate. This process lasts several months and culminates with the presentation of the updated CIP to PWSA's Board of Directors. Projects that are not selected for execution at any stage will be re-assessed during the next year's CIP development process.

Capital Project Prioritization

Due to funding limitations and the need to renew/replacing a significant amount of aging infrastructure, the following criteria are used to evaluate and prioritize capital projects:

- Regulatory Compliance
- Safety
- Operating Efficiency
- Quality of Service
- Organizational Goals
- Social Impact

Funding Sources

The PWSA Capital Improvement Program is funded through several primary sources to which specific programs and projects are allocated. These funding sources include, but are not limited to, Debt (Revenue Bonds), Distribution System Improvement Charge ("DSIC"), Water Infrastructure Finance and Innovation Act ("WIFIA"), Pennsylvania Infrastructure Investment Authority ("PENNVEST"), American Rescue Plan Act ("ARPA") and cost shares with other entities.

Capital Improvement Plan Organization

The CIP is organized into six project classes (types):

- Water Treatment Plant
- Water Pumping and Storage
- Water Distribution
- Wastewater System
- Stormwater
- Miscellaneous

Each project class is then made up of individual projects. Projects are defined based upon current information, which range from annual allowances for asset renewal and/or replacement activities, to major, multiple phase facility renewal projects.

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Project Information

The following information is provided for each project:

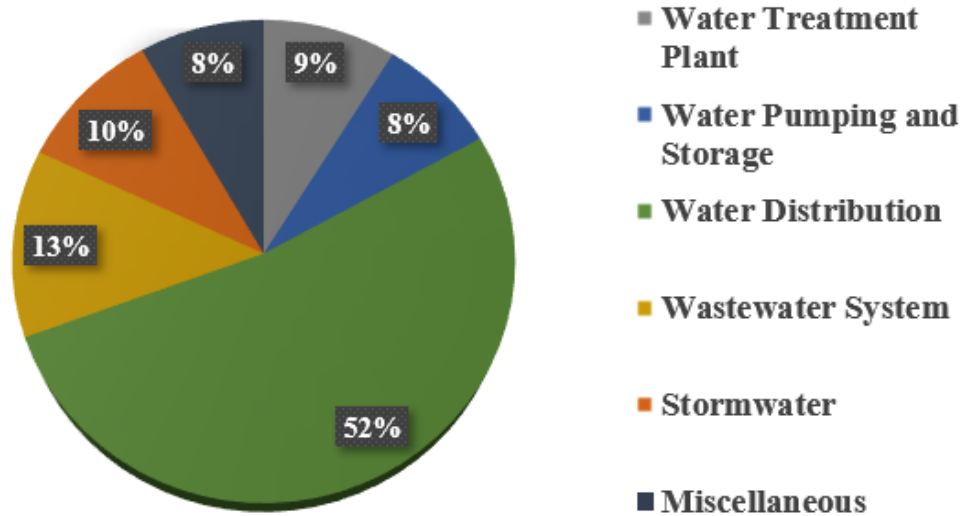
- **Cash Flow Summary** – Estimated five-year cash flow for the project.
- **DSIC Eligibility** – Determination of whether costs qualify under the Distribution System Improvement Charge.
- **Funding Source(s)** – Proposed funding source(s) for the project.
- **Impact on Operations** – Describes the anticipated impact to the PWSA’s operations when the project is completed.
- **Phase** – Phase in the project life-cycle (i.e. assessment/design/construction).
- **Priority** – Criteria utilized to prioritize the project.
- **Project Class** – Type of project.
- **Project Description** - A basic understanding of the project’s intent and scope of work.
- **Project Justification** - A detailed explanation to why the project is needed.
- **Project Name** – Descriptive name assigned to the project.
- **Project Number** – Unique number(s) assigned to track the project from inception to completion. This number is established once a project is approved.
- **Risk(s)** - Outlines the risk(s) to the PWSA if the project is delayed or is not selected.

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Historical and Forecasted Capital Expenditures

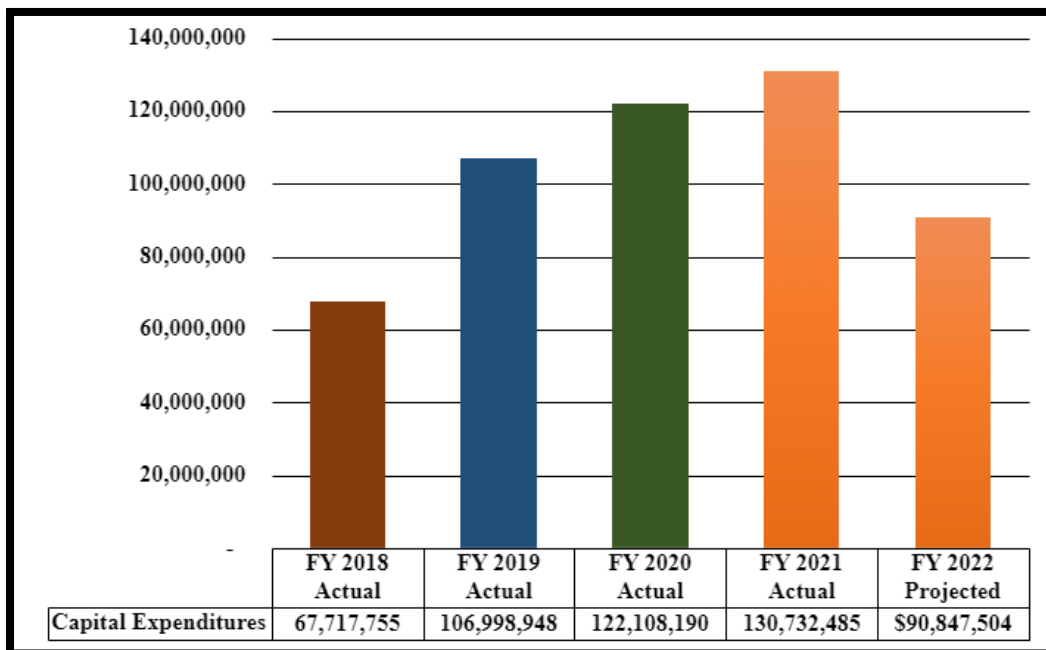
The figures below illustrate the historical capital expenditures by project class for FY 2018 – FY 2021 as well as the historical and forecasted capital expenditures for FY 2018 – FY 2021.

Figure 1. Historical Capital Expenditures by Project Class: FY 2018 – FY 2021



	FY 2018 - Actual	FY 2019 - Actual	FY 2020 - Actual	FY 2021 - Actual	Total
Water Treatment Plant	7,275,878	15,665,185	8,959,256	5,946,283	\$ 37,846,602
Water Pumping and Storage	11,732,850	9,667,165	7,304,722	5,941,184	34,645,921
Water Distribution	27,185,518	55,588,889	64,838,953	76,722,470	224,335,829
Wastewater System	9,225,987	15,152,656	8,767,047	20,632,500	53,778,189
Stormwater	3,156,175	6,901,255	15,791,622	15,614,923	41,463,976
Miscellaneous	9,141,347	4,023,798	16,446,590	5,875,126	35,486,861
Total	\$ 67,717,755	106,998,948	122,108,190	130,732,485	\$ 427,557,378

Figure 2. Historical and Forecasted Capital Expenditures: FY 2018 – FY 2022



2023-2027 Capital Improvement Program

The figures below illustrate the proposed breakdown of the project classes, funding sources, and yearly cash flows for the 2023 to 2027 CIP.

Figure 3. Proposed Yearly Capital Cash Flow by Project Class

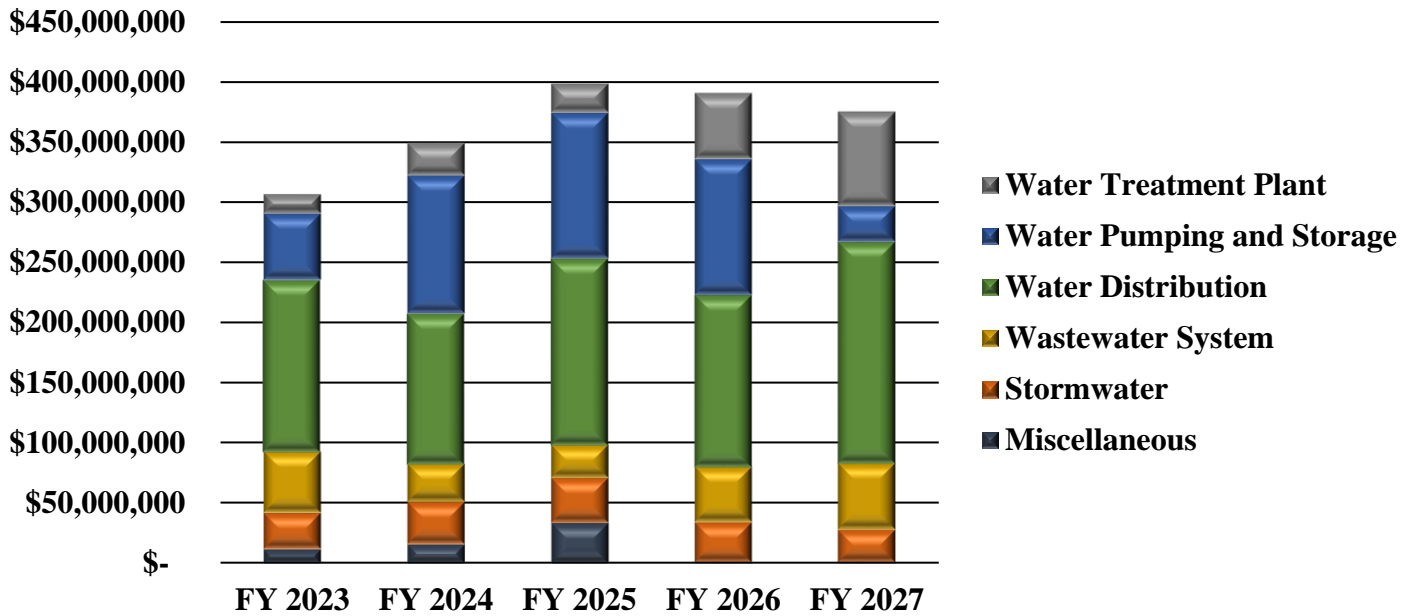


Figure 4. Capital Requirements

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total
Water Treatment Plant	\$ 16,030,211	26,885,665	24,038,988	54,790,691	78,451,718	\$ 200,197,272
Water Pumping and Storage	55,304,597	115,127,475	121,491,637	113,245,473	30,009,851	435,179,033
Water Distribution	143,302,527	125,439,446	155,468,790	143,283,004	184,525,120	752,018,887
Wastewater System	50,634,240	31,442,487	27,579,779	45,751,309	54,918,077	210,325,892
Stormwater	29,822,932	34,827,423	36,884,821	33,038,424	26,808,750	161,382,350
Miscellaneous	11,439,316	15,500,000	33,000,000	500,000	500,000	60,939,316
Total Capital Requirements	\$ 306,533,823	349,222,497	398,464,014	390,608,900	375,213,516	\$ 1,820,042,750

Figure 5. Funding Sources

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total
Debt (Revenue Bonds)	\$ 122,335,310	150,214,517	203,743,270	236,469,077	316,179,204	\$ 1,028,941,377
PENNVEST	127,409,339	97,299,382	86,216,706	47,511,528	10,020,526	368,457,481
WIFIA/PENNVEST	35,113,456	89,843,438	98,036,402	98,113,624	40,456,543	361,563,462
DSIC - Water	6,028,526	6,058,669	6,088,962	6,119,407	6,150,004	30,445,568
DSIC - Wastewater	2,359,691	2,371,490	2,383,347	2,395,264	2,407,240	11,917,032
ARPA	10,582,757	-	-	-	-	10,582,757
WIFIA	2,540,345	3,310,501	1,995,327	-	-	7,846,173
Cash (Rates)	164,400	124,500	-	-	-	288,900
Total Funding Sources	\$ 306,533,823	349,222,497	398,464,014	390,608,900	375,213,516	\$ 1,820,042,750



2023-2027 Project Summary



Page	Project Name	2023 Budget	2024 Budget	2025 Budget	2026 Budget	2027 Budget	Total
Project Class: Water Treatment Plant							
11	Algae Control for Open Basins	\$360,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$360,000.00
12	Aspinwall Water Treatment Plant Electrical and Backup Power Improvements	\$0.00	\$866,981.00	\$1,087,515.00	\$7,794,745.00	\$14,874,582.00	\$24,623,823.00
13	Aspinwall Water Treatment Plant Filter Improvements	\$123,706.90	\$164,942.53	\$246,599.62	\$1,208,045.99	\$1,006,704.99	\$2,750,000.02
14	Aspinwall Water Treatment Plant Filter Building Sodium Hypochlorite Improvements	\$3,222,924.72	\$0.00	\$0.00	\$0.00	\$0.00	\$3,222,924.72
15	Aspinwall Water Treatment Plant Raw Water Intakes - East Intake	\$0.00	\$465,000.00	\$1,116,000.00	\$756,000.00	\$36,000.00	\$2,373,000.00
16	Aspinwall Water Treatment Plant Raw Water Intakes - West Intake	\$469,736.84	\$1,127,368.42	\$767,368.42	\$5,747,368.42	\$8,597,368.42	\$16,709,210.53
17	Chemical Feed Modernization Project/Rapid Mix and Clarifier Improvements	\$1,252,063.75	\$2,789,028.23	\$2,936,058.88	\$16,350,331.00	\$19,072,483.58	\$42,399,965.45
18	Clearwell Emergency Response Project	\$2,741,630.73	\$7,408,660.00	\$7,408,660.00	\$7,408,660.00	\$1,234,457.00	\$26,202,067.73
19	Clearwell Improvements	\$4,293,312.12	\$2,448,008.62	\$107,717.51	\$107,717.51	\$16,708,182.43	\$23,664,938.19
20	Corrosion Control Chemical Storage & Feed Systems	\$50,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50,000.00
21	Highland Park Membrane Filtration Plant Assessment and Critical Process Improvements	\$150,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$150,000.00
22	Highland Park Microfiltration Plant Improvements Project	\$14,128.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14,128.00
23	Hydraulic Valve Replacement Program	\$89,942.53	\$302,298.85	\$2,144,252.89	\$713,505.75	\$0.00	\$3,250,000.02
24	Lime Slurry System Improvements	\$756,079.00	\$3,548,360.00	\$1,182,787.00	\$0.00	\$0.00	\$5,487,226.00
25	Overhead Crane Modernization	\$0.00	\$375,000.00	\$440,000.00	\$0.00	\$0.00	\$815,000.00
26	Phase 1 Sedimentation Basin Rehabilitation and Water Treatment Plant Gate Valve and 84-inch Coupling Project	\$224,921.63	\$299,895.51	\$448,362.94	\$2,196,447.25	\$1,830,372.70	\$5,000,000.03
27	Phase 2 Sedimentation Basin Rehabilitation Project	\$0.00	\$0.00	\$0.00	\$562,304.08	\$749,738.77	\$1,312,042.85
28	Post-Filter Chemical System Improvements	\$0.00	\$0.00	\$0.00	\$607,288.41	\$809,717.87	\$1,417,006.28
29	Powdered Activated Carbon System Improvements	\$40,588.77	\$0.00	\$0.00	\$0.00	\$0.00	\$40,588.77
30	Ross Pump Station	\$0.00	\$1,249,655.17	\$2,499,310.34	\$1,299,310.34	\$13,232,110.34	\$18,280,386.21
31	Sludge Chamber Pump Project	\$386,721.63	\$869,343.78	\$0.00	\$0.00	\$0.00	\$1,256,065.41
32	Water Treatment Plant Filter Backwash System Improvements	\$740,054.00	\$883,290.00	\$2,996,022.00	\$8,880,634.00	\$0.00	\$13,500,000.00
33	Water Treatment Plant Filter Building Roof	\$0.00	\$3,500,000.00	\$0.00	\$0.00	\$0.00	\$3,500,000.00
34	Water Treatment Plant HVAC Improvements	\$0.00	\$163,333.00	\$358,333.00	\$858,333.00	\$0.00	\$1,379,999.00
35	Water Treatment Plant NPDES Permit Autosamplers and Flow Meters	\$164,400.00	\$124,500.00	\$0.00	\$0.00	\$0.00	\$288,900.00
36	Water Treatment Plant Rail Siding Improvements	\$800,000.00	\$300,000.00	\$300,000.00	\$300,000.00	\$300,000.00	\$2,000,000.00
37	WTP Sodium Hypochlorite Tank Emergency Replacement	\$150,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$150,000.00
38	Water Treatment Plant Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Water Treatment Plant		\$16,030,210.63	\$26,885,665.11	\$24,038,987.61	\$54,790,690.74	\$78,451,718.12	\$200,197,272.21
Project Class: Water Pumping and Storage							
40	Aspinwall Pump Station Improvements	\$4,748,965.78	\$15,197,171.56	\$15,197,171.56	\$15,227,973.56	\$2,548,262.93	\$52,919,545.37
41	Aspinwall Pump Station to Lanpher Reservoir Rising Main	\$2,147,166.98	\$29,622,031.14	\$44,331,726.56	\$44,331,726.56	\$14,777,242.19	\$135,209,893.42
42	Aspinwall WTP Chemical Unloading Area Improvements, Underground Storage Tank Removal & Replacement	\$1,352,161.22	\$0.00	\$0.00	\$0.00	\$0.00	\$1,352,161.22
43	Bruecken Pump Station Concealed Gutters	\$0.00	\$175,000.00	\$0.00	\$0.00	\$0.00	\$175,000.00
44	Bruecken Pump Station Improvements	\$8,653,054.00	\$30,991,126.00	\$30,991,126.00	\$31,037,546.00	\$5,188,398.00	\$106,861,250.00
45	Chlorine Booster Station Improvements	\$311,268.79	\$6,436,147.83	\$7,007,549.12	\$583,962.43	\$0.00	\$14,338,928.16
46	Disinfection By-Products Mitigation	\$5,183,170.61	\$1,426,705.77	\$0.00	\$0.00	\$0.00	\$6,609,876.38
47	Garfield Tank Improvements	\$0.00	\$122,198.00	\$244,397.00	\$314,224.00	\$2,246,121.00	\$2,926,940.00
48	Herron Hill Pump Station Improvements	\$409,195.41	\$818,390.81	\$496,551.73	\$12,275,862.15	\$0.00	\$14,000,000.09
49	Herron Hill Reservoir Improvements	\$198,631.00	\$0.00	\$0.00	\$0.00	\$0.00	\$198,631.00
50	Herron Hill Reservoir Improvements - Sodium Hypochlorite Building	\$828,429.11	\$0.00	\$0.00	\$0.00	\$0.00	\$828,429.11
51	Herron Hill Tank Pump Station Improvements	\$0.00	\$164,077.30	\$195,528.61	\$1,320,197.05	\$1,320,197.05	\$3,000,000.02
52	Highland 1 Reservoir Liner	\$0.00	\$0.00	\$0.00	\$704,981.00	\$0.00	\$704,981.00
53	Highland No. 2 Reservoir Liner and Cover Replacements	\$2,122,235.00	\$6,515,354.50	\$4,072,096.57	\$0.00	\$0.00	\$12,709,686.07
54	Highland Reservoir Pump Station and Rising Main	\$23,789,287.16	\$14,537,145.09	\$8,983,409.85	\$0.00	\$0.00	\$47,309,842.10
55	Howard Pump Station Improvements	\$0.00	\$0.00	\$577,266.93	\$1,154,533.85	\$694,763.73	\$2,426,564.51
56	Inline Pump Station (Coral and Pacific) Improvements	\$0.00	\$32,979.66	\$39,434.13	\$264,367.82	\$263,218.39	\$600,000.00

Project Class: Water Pumping and Storage Cont.							
57	Lanpher Reservoir Improvements	\$2,778,963.09	\$6,370,326.38	\$3,716,023.72	\$0.00	\$0.00	\$12,865,313.19
58	Lincoln Pump Station Improvements	\$288,633.46	\$288,633.46	\$1,258,748.41	\$2,109,323.13	\$1,054,661.57	\$5,000,000.03
59	Lincoln Pump Station: Bypass Pump Station Project	\$2,155,907.00	\$2,164,264.00	\$0.00	\$0.00	\$0.00	\$4,320,171.00
60	Lincoln Tank Improvements	\$337,528.74	\$203,588.76	\$3,680,670.52	\$0.00	\$0.00	\$4,221,788.02
61	Mission Pump Station Improvements	\$0.00	\$0.00	\$577,267.00	\$1,154,534.00	\$694,764.00	\$2,426,565.00
62	Pump Station Architectural	\$0.00	\$0.00	\$0.00	\$2,500,000.00	\$0.00	\$2,500,000.00
63	Saline Pump Station Improvements	\$0.00	\$0.00	\$0.00	\$192,422.00	\$288,633.00	\$481,055.00
64	Spring Hill Tank Improvements	\$0.00	\$62,335.00	\$122,669.00	\$73,819.00	\$933,589.00	\$1,192,412.00
65	Water Pumping and Storage Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Water Pumping and Storage		\$55,304,597.34	\$115,127,475.27	\$121,491,636.70	\$113,245,472.55	\$30,009,850.86	\$435,179,032.71

Project Class: Water Distribution							
67	2019 Large Diameter Water Main Improvements - Rising Main 3/4	\$3,062,142.13	\$240,769.90	\$0.00	\$0.00	\$0.00	\$3,302,912.04
68	2019 Large Diameter Water Main Improvements - Rising Main 4	\$12,529,326.00	\$4,176,441.00	\$0.00	\$0.00	\$0.00	\$16,705,767.00
69	Bus Rapid Transit Water Distribution	\$1,500,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,500,000.00
70	District Metering Program	\$0.00	\$0.00	\$2,600,000.02	\$3,380,000.02	\$3,380,000.02	\$9,360,000.06
71	Hazelwood Backup Feed (formerly Duck Hollow Main Replacement)	\$175,156.10	\$175,156.10	\$1,115,470.61	\$1,534,487.21	\$0.00	\$3,000,270.02
72	Herron Hill - Squirrel Hill Boundary Adjustments	\$0.00	\$0.00	\$52,928.57	\$355,186.81	\$635,884.62	\$1,044,000.00
73	Interconnection Vault Stormwater Removal	\$453,007.96	\$1,225,931.03	\$611,310.34	\$0.00	\$0.00	\$2,290,249.34
74	Intermediate Diameter Water Main Replacement Program	\$0.00	\$0.00	\$2,603,833.08	\$4,488,230.43	\$42,775,187.01	\$49,867,250.52
75	Intermediate Meter Replacement Program	\$143,076.92	\$84,307.69	\$86,538.46	\$87,000.00	\$87,000.00	\$487,923.08
76	Large Diameter Water Main Replacement Program	\$2,980,665.80	\$4,820,095.96	\$23,316,701.96	\$38,087,876.89	\$33,256,579.29	\$102,461,919.89
77	Large Meter Replacement Program	\$1,557,508.32	\$1,341,456.69	\$567,307.69	\$337,000.00	\$337,000.00	\$4,140,272.71
78	Low Pressure Area Remediation	\$0.00	\$0.00	\$23,277.57	\$279,330.90	\$1,393,833.02	\$1,696,441.49
79	Neighborhood Lead Service Line Replacement Program	\$13,582,757.48	\$27,792,500.00	\$55,585,000.00	\$27,792,500.00	\$0.00	\$124,752,757.48
80	North Side Boundary Adjustments	\$0.00	\$0.00	\$79,392.86	\$532,780.22	\$953,826.92	\$1,566,000.00
81	Priority LSLR	\$3,000,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,000,000.00
82	Private Lead Service Line Reimbursement	\$400,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$400,000.00
83	Regulator Valve and Vault Replacement Program	\$378,494.08	\$1,839,360.70	\$3,446,738.96	\$4,173,179.80	\$3,439,080.48	\$13,276,854.01
84	Small Diameter Water Main Replacement Program	\$83,515,128.68	\$75,057,893.92	\$57,763,375.00	\$53,807,131.41	\$89,408,775.74	\$359,552,304.75
85	Small Meter Replacement Program	\$1,723,171.54	\$1,351,089.38	\$480,769.23	\$250,000.00	\$291,667.00	\$4,096,697.15
86	South Side Slopes Boundary Adjustments	\$0.00	\$0.00	\$79,392.86	\$532,780.22	\$953,826.92	\$1,566,000.00
87	Unmetered and Flat Rate Properties	\$327,250.00	\$635,250.00	\$0.00	\$0.00	\$0.00	\$962,500.00
88	Urgent Lead Service Line Replacement	\$1,778,653.60	\$1,749,194.10	\$1,670,085.73	\$1,590,751.08	\$1,246,677.20	\$8,035,361.70
89	Valve Replacement Program	\$2,505,485.32	\$2,800,000.00	\$2,674,358.97	\$2,800,000.00	\$2,925,641.03	\$13,705,485.32
90	Water and Wastewater Safety and Security Improvements	\$1,567,547.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,567,547.00
91	Water and Wastewater Safety and Security Improvements (Pennvest)	\$9,978,156.00	\$0.00	\$0.00	\$0.00	\$0.00	\$9,978,156.00
92	Water Relay Program	\$2,145,000.00	\$2,150,000.00	\$2,712,307.69	\$3,254,769.23	\$3,440,140.58	\$13,702,217.50
93	Water Distribution Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Water Distribution		\$143,302,526.93	\$125,439,446.48	\$155,468,789.61	\$143,283,004.22	\$184,525,119.82	\$752,018,887.06

Project Class: Wastewater System							
95	31st Ward Pump Station and Appurtenances - Phase 2	\$958,333.00	\$726,666.67	\$613,666.67	\$7,447,000.00	\$7,447,000.00	\$17,192,666.33
96	6122 and 6150 Mifflin Road Demolition	\$50,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50,000.00
97	Browns Hill Road Sewer Pump Station Replacement	\$432,000.00	\$1,608,000.00	\$1,880,000.00	\$0.00	\$0.00	\$3,920,000.00
98	Large Diameter Sewer Rehabilitation Program	\$12,774,486.37	\$2,997,238.10	\$4,266,000.00	\$4,897,000.00	\$4,957,000.00	\$29,891,724.46
99	M-29 Outfall Improvements	\$250,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$250,000.00
100	Maytide Storm and Sanitary Sewer System Improvements	\$118,026.95	\$4,026,497.00	\$1,957,785.00	\$0.00	\$0.00	\$6,102,308.95
101	Queenston Sewer Improvements	\$2,210,550.00	\$243,203.00	\$0.00	\$0.00	\$0.00	\$2,453,753.00
102	Sewer Reconstruction Program	\$2,691,769.00	\$1,810,000.00	\$1,810,000.00	\$1,886,458.21	\$2,701,329.79	\$10,899,557.00
103	Sewers Under Structures Program	\$6,786,029.94	\$2,373,663.24	\$2,422,730.16	\$3,530,382.94	\$3,386,507.35	\$18,499,313.62
104	Small Diameter Sewer Rehabilitation Program	\$24,363,045.00	\$17,657,219.00	\$14,629,597.00	\$27,990,467.53	\$36,426,240.26	\$121,066,568.79
105	Wastewater Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Wastewater System		\$50,634,240.26	\$31,442,487.00	\$27,579,778.83	\$45,751,308.67	\$54,918,077.41	\$210,325,892.16

Project Class: Stormwater							
107	Braywood Stormwater Improvements	\$434,625.00	\$439,375.00	\$0.00	\$0.00	\$0.00	\$874,000.00
108	Bus Rapid Transit Phase 2	\$0.00	\$500,000.00	\$500,000.00	\$500,000.00	\$0.00	\$1,500,000.00
109	Bus Rapid Transit Stormwater Infrastructure Improvements	\$71,382.00	\$785,634.29	\$703,637.86	\$0.00	\$0.00	\$1,560,654.15
110	Catch Basin and Inlet Replacement Program	\$11,539,876.64	\$16,007,303.03	\$14,436,109.17	\$14,867,220.83	\$15,308,750.00	\$72,159,259.67
111	Dragoon Way Stormwater Improvements	\$983,000.00	\$95,625.00	\$0.00	\$0.00	\$0.00	\$1,078,625.00
112	Fleury Way Stormwater Infrastructure Improvements	\$476,212.00	\$0.00	\$0.00	\$0.00	\$0.00	\$476,212.00
113	Four Mile Run Stormwater Infrastructure Improvements	\$645,557.00	\$4,500,108.00	\$8,723,924.00	\$6,171,203.00	\$0.00	\$20,040,792.00
114	Haverhill Street Improvements Project	\$1,003,900.00	\$104,500.00	\$0.00	\$0.00	\$0.00	\$1,108,400.00
115	Lawn and Ophelia	\$203,741.00	\$0.00	\$0.00	\$0.00	\$0.00	\$203,741.00
116	Martin Luther King Field Stormwater Infrastructure Improvements	\$3,096,867.00	\$1,324,108.00	\$0.00	\$0.00	\$0.00	\$4,420,975.00
117	Maryland Avenue Stormwater Infrastructure Improvements	\$6,925.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6,925.00
118	MS4 Permit PRP Plan Sediment Reduction Project	\$173,000.00	\$605,000.00	\$307,500.00	\$0.00	\$0.00	\$1,085,500.00
119	Saw Mill Run Municipal Separate Storm Sewer System Compliance	\$0.00	\$0.00	\$500,000.00	\$1,500,000.00	\$1,500,000.00	\$3,500,000.00
120	Saw Mill Run Watershed Improvements	\$850,000.00	\$150,000.00	\$0.00	\$0.00	\$0.00	\$1,000,000.00
121	Southside Flats Sewer Separation	\$3,327,529.00	\$2,232,587.00	\$0.00	\$0.00	\$0.00	\$5,560,116.00
122	Southside Stormwater Infrastructure Improvements	\$2,029,140.00	\$2,703,667.00	\$0.00	\$0.00	\$0.00	\$4,732,807.00
123	Stewart Avenue Stormwater Infrastructure Project	\$1,400,000.00	\$1,515,389.00	\$894,444.00	\$0.00	\$0.00	\$3,809,833.00
124	Thomas and McPherson Stormwater Infrastructure Improvements	\$854,905.13	\$0.00	\$0.00	\$0.00	\$0.00	\$854,905.13
125	Volunteer's Field Stormwater Infrastructure Improvements	\$413,125.42	\$0.00	\$0.00	\$0.00	\$0.00	\$413,125.42
126	Wet Weather Program Projects	\$500,000.00	\$2,500,000.00	\$10,000,000.00	\$10,000,000.00	\$10,000,000.00	\$33,000,000.00
127	Wightman Park Phase 2 Project	\$182,166.00	\$0.00	\$0.00	\$0.00	\$0.00	\$182,166.00
128	Woodland Road Stormwater Infrastructure Improvements	\$245,256.31	\$0.00	\$0.00	\$0.00	\$0.00	\$245,256.31
129	Woods Run Stream Removal Stormwater Infrastructure Improvements	\$1,385,724.66	\$1,364,127.00	\$819,206.00	\$0.00	\$0.00	\$3,569,057.66
130	Stormwater Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Stormwater		\$29,822,932.16	\$34,827,423.32	\$36,884,821.02	\$33,038,423.83	\$26,808,750.00	\$161,382,350.34
Project Class: Miscellaneous							
132	2023 Capital Project Reclassification	\$8,639,316.00	\$0.00	\$0.00	\$0.00	\$0.00	\$8,639,316.00
133	New Headquarters and Operations Facility	\$2,500,000.00	\$15,000,000.00	\$32,500,000.00	\$0.00	\$0.00	\$50,000,000.00
134	Utility Cost Shares	\$300,000.00	\$500,000.00	\$500,000.00	\$500,000.00	\$500,000.00	\$2,300,000.00
135	Miscellaneous Contingency	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total: Miscellaneous		\$11,439,316.00	\$15,500,000.00	\$33,000,000.00	\$500,000.00	\$500,000.00	\$60,939,316.00



Water Treatment Plant



Water Treatment Plant

Algae Control for Open Basins

PROJECT NUMBER: 2023-100-100-0

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Installation of up to 5 ultrasonic buoys in the Sedimentation Basin and Highland 1 Reservoir (open basins) to provide non-chemical control of algae growth in these waters exposed to sunlight. Installation includes solar powered buoy, anchor system, associated instrumentation, and remote monitoring service.

PROJECT JUSTIFICATION:
Open reservoirs subject to sunlight allow for the growth of algae starting in early spring through late fall. Algae can impact water production operations by increasing total organic carbon in the water and physically fouling downstream filters.

RISK(S):
Buoys require maintenance including removal in the winter to avoid ice damage. Instruments require infrequent maintenance.

IMPACT ON OPERATIONS:
Reduced chemical usage at Highland 1 for treating reservoir and reduced filter backwashed water requirements at Aspinwall Pump Station.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$360,000	\$0	\$0	\$0	\$0	\$360,000	

Water Treatment Plant

Aspinwall Water Treatment Plant Electrical and Backup Power Improvements

PROJECT NUMBER: 2017-322-100-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:

Improvements to electrical systems at the Water Treatment Plant, including provisions for stand-by or backup power systems, upgrades to existing electrical distribution system, replacement of motor control centers, and associated panels, conduit, wiring, and systems.

PROJECT JUSTIFICATION:

Electrical systems at the Water Treatment Plant have generally met the end of their useful lives and spare/replacement parts are unavailable.

RISK(S):

Electrical power is critical to maintain pumping and treatment of water. Failure of these systems will result in the inability to produce water to meet demand and/or quality requirements.

IMPACT ON OPERATIONS:

Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$866,981	\$1,087,515	\$7,794,745	\$14,874,582	\$24,623,823	Debt (Revenue Bonds)

Water Treatment Plant

Aspinwall Water Treatment Plant Filter Improvements

PROJECT NUMBER: 2023-100-101-0

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:
Improvements for filters at the Water Treatment Plant to address various recommendations from regulatory agencies including safety issues, improve process control, and monitoring. Project components including providing hand railing around filter basins to facilitate operator inspections, adding components to allow safer performance of required quarterly monitoring and cell entry, moving IFE turbidimeters to locate them within 10 feet of sample points, addressing structural issues, and other electrical and safety updates.

PROJECT JUSTIFICATION:
To meet industry standards and regulatory recommendations, turbidimeters should be located not more than 10 feet away from the sample taps. Currently, meters are located up to 30 feet away, reducing meter response time and data accuracy. Structural deficiencies in the floor and beams of the filter building have been observed as evidenced by cracks and water leakage.

RISK(S):
Violations of permit conditions as a result of turbidimeter locations and sample travel time. Safety and compliance issues with not accessing filter cells for observation during backwash and quarterly/annual inspections. Not properly assessing and repairing areas of structural deficiencies could lead to catastrophic failure. Foundation sagging in the filter building could result in excessive leakage or inability to produce filtered water.

IMPACT ON OPERATIONS:
Relocation of turbidimeters will shorten tubing distance between meter and sample point. Tubing is an annual replacement item, so less distance results in less time and material for replacement. Repair of structure deficiencies will result in less water leakage and maintain the integrity of the facility to reduce operational repairs and water in storage areas.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$123,707	\$164,943	\$246,600	\$1,208,045	\$1,006,705	\$2,750,000	

Water Treatment Plant

Aspinwall Water Treatment Plant Filter Building Sodium Hypochlorite Improvements

PROJECT NUMBER: 2017-322-101-8 / 9 / 10 / 11

DSIC Eligible: No

PHASE: Construction
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,
PROJECT DESCRIPTION: General and mechanical work will include demolition, new filling station, new storage and pumping room, furnishing and installing new storage tanks, feed pumps and piping. HVAC work will include furnishing and installing new HVAC system including air handling unit, condensing unit, exhaust system and ductwork. Plumbing work will include new water service lines inside building, furnishing and installing eyewash stations, hot water units, sanitary drain modifications and installation of a wet sprinkler fire suppression system and fire alarm system. Electrical work will include furnishing and installing power wiring and conduit to new equipment, control wiring to instrumentation and program system integration services to operate the new treatment process.
PROJECT JUSTIFICATION: To increase storage of sodium hypochlorite solution as required by PADEP and enhance the operational safety and efficiency of the system.
RISK(S): Not meeting requirements of PADEP if project not completed.
IMPACT ON OPERATIONS: Operating budget will likely decrease due to efficiencies.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$3,222,925	\$0	\$0	\$0	\$0	\$3,222,925	

Water Treatment Plant

Aspinwall Water Treatment Plant Raw Water Intakes - West Intake

PROJECT NUMBER: 2018-322-100-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory, Quality of Service

PROJECT DESCRIPTION:

Project will include condition assessment, renewing or replacing the existing West and East Raw Water Intake Gate House buildings and associated systems, including gates, screens, and associated mechanical equipment as well as the addition of SCADA. Influent piping through the Ross Pump Station will also be addressed.

PROJECT JUSTIFICATION:

The West Gate is 90% closed and inoperable. Both gate houses are in need of rehabilitation or replacement. The West Gatehouse is 100 years old, and the East Gate is almost 90 years old.

RISK(S):

Both gates have reach the end of their useful life and need replaced. Failure of the East Gate would cause a disruption to the supply of water.

IMPACT ON OPERATIONS:

Modernization of systems will require less time spent in operations and maintenance of these facilities.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$469,737	\$1,127,368	\$767,368	\$5,747,368	\$8,597,368	\$16,709,209	Debt (Revenue Bonds)

Water Treatment Plant

Aspinwall Water Treatment Plant Raw Water Intakes - East Intake

PROJECT NUMBER: 2023-100-102-0

DSIC Eligible: No

PHASE: Design
PRIORITY: Regulatory, Quality of Service
PROJECT DESCRIPTION: Project will include condition assessment, renewing or replacing the existing West and East Raw Water Intake Gate House buildings and associated systems, including gates, screens, and associated mechanical equipment as well as the addition of SCADA. Influent piping through the Ross Pump Station will also be addressed.
PROJECT JUSTIFICATION: The West Gate is 90% closed and inoperable. Both gate houses are in need of rehabilitation or replacement. The West Gatehouse is 100 years old, and the East Gate is almost 90 years old.
RISK(S): Only one gate is operational. Failure of the East Gate would result in a major disruption to the supply of water for the City of Pittsburgh.
IMPACT ON OPERATIONS: Modernization of systems will require less time spent in operations and maintenance of these facilities.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$465,000	\$1,116,000	\$756,000	\$36,000	\$2,373,000	Debt (Revenue Bonds)

Water Treatment Plant

Chemical Feed Modernization Project/Rapid Mix and Clarifier Improvements

PROJECT NUMBER: 2023-100-103-0

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Upgrade of chemical feed systems (equipment, storage, instrumentation, and injection points) to meet current regulatory requirements, improve chemical application, and optimize the water treatment process. Upgrades include ferric chloride, potassium permanganate, and other chemical systems located in the chemical building and possible construction of a new chemical building or repurposing of existing facilities. Assess, design, and construct repairs to structural defects associated with settlement with the pipe bridge between the Chemical Building and Screen Room.

PROJECT JUSTIFICATION:
Chemical feed improvements will address recommendations from both consultants and regulatory agencies. The lack of attention to the pretreatment chemical feed systems could cause over/under dosing of chemicals leading to permit violations or the loss of a chemical system resulting in an emergency project.

RISK(S):
Not addressing these recommendations will put the PWSA at risk for permit violations and failures at the Water Treatment Plant.

IMPACT ON OPERATIONS:
Optimization and flow/residual pacing of chemicals can result in reduced chemical consumption. New storage and chemical feed equipment will result in reduced maintenance costs associated with repairs on the existing pumps, maintaining storage bins and feeders. Improvements to SCADA system and flow/residual pacing will reduce manual adjustments to chemical feed systems.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$1,252,064	\$2,789,028	\$2,936,059	\$16,350,331	\$19,072,484	\$42,399,966	

Water Treatment Plant

Clearwell Emergency Response Project

PROJECT NUMBER: 2017-323-100-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

Long-term bypass of the existing 100 + year old clearwell (finished water structure) including the construction of pump wetwells at the Aspinwall and Bruecken Pump Stations, modifications to the clearwell inlet and outlet gate house, and the construction of a bypass line around the clearwell to the outlet gate house.

PROJECT JUSTIFICATION:

The clearwell was constructed in 1908 and has not undergone any major modifications or upgrades since. The clearwell has two main functions: providing equalization storage that allows the filters to operate independently of potential fluctuations in system demands and providing sufficient contact time for disinfection agents to meet the requirements of the Surface Water Treatment Rule and Long-Term 2 Enhanced Surface Water Treatment Rule. In order to replace the clearwell, a long-term bypass is required in order to provide adequate suction pressure for the pump stations.

RISK(S):

Failure of the Clearwell would cause a disruption to the supply of water.

IMPACT ON OPERATIONS:

Ability to meet system reliability and water quality regulations.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$2,741,631	\$7,408,660	\$7,408,660	\$7,408,660	\$1,234,457	\$26,202,068	

Water Treatment Plant

Clearwell Improvements

PROJECT NUMBER: 2023-100-104-0

DSIC Eligible: No

PHASE:

Planning

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:

Replacement of the existing 100 + year old clearwell (finished water structure) with multi-celled clearwell to allow for maintenance.

PROJECT JUSTIFICATION:

The clearwell was constructed in 1908 and has not undergone any major modifications or upgrades since. It has two main functions: providing equalization storage that allows the filters to operate independently of potential fluctuations in system demands, and providing sufficient retention contact time for disinfection agents to meet the requirements of the Surface Water Treatment Rule and Long-Term 2 Enhanced Surface Water Treatment Rule.

RISK(S):

Failure of the Clearwell would cause a disruption to the supply of water.

IMPACT ON OPERATIONS:

Ability to meet system reliability and water quality regulations.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$4,293,312	\$2,448,009	\$107,718	\$107,718	\$16,708,181	\$23,664,938	

Water Treatment Plant

Corrosion Control Chemical Storage & Feed Systems

PROJECT NUMBER: 2017-322-107-0

DSIC Eligible: No

PHASE: Construction
PRIORITY: Regulatory, Quality of Service
PROJECT DESCRIPTION: Installation of three phosphoric acid storage and feed systems located at Aspinwall Pump Station, Bruecken Pump Station, and the Membrane Filtration Plant to provide corrosion control in the distribution system.
PROJECT JUSTIFICATION: Required in order to lower lead levels in water.
RISK(S): Not completing this project will increase the risk of not maintaining lead levels below the PADEP action level.
IMPACT ON OPERATIONS: In order to prevent algae growth in the open Highland No. 1 Reservoir, treatment must occur at three major locations with 7 injection points. This requires additional maintenance of treatment facilities at satellite locations.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$50,000	\$0	\$0	\$0	\$0	\$50,000	

Water Treatment Plant

Highland Park Membrane Filtration Plant Assessment and Critical Process Improvements

PROJECT NUMBER: 2017-322-104-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals

PROJECT DESCRIPTION:
Complete a condition assessment of systems supporting the treatment process and perform critical improvements to maintain water treatment and allow full warranty of replacement modules. Improvements may include electrical, chemical feed, strainers, and other support systems.

PROJECT JUSTIFICATION:
Membrane module failure rate has continually increased over the last several years and are more than 5 years beyond the manufacturer’s recommended replacement cycle. To allow module membrane manufacturers to extend a full warranty, a system condition assessment is needed. A detailed condition assessment is needed to address other critical worker safety and degradation of equipment that are essential to maintain the water treatment process. Improvements to the plan are required in order to restart the Membrane Filtration Plant.

RISK(S):
Exposes the Authority to higher costs to address emergency failures and exposes the Highland No. 1 Service Area to a potentially deficient or non-complaint water supply.

IMPACT ON OPERATIONS:
Increase operating flexibility and reliability.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$150,000	\$0	\$0	\$0	\$0	\$150,000	

Water Treatment Plant

Highland Park Microfiltration Plant Improvements Project

PROJECT NUMBER: 2021-322-100-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Repair damage caused by process water leakage from second floor membrane racks to composite floor deck system and structural steel framing above main floor of Microfiltration Plant (MFP). Construction joints in floor were sealed during the MFP UV Project. This project will repair deterioration to composite deck system and structural steel support system and apply protective coatings. This project will also repair damage to the surface of concrete floor and sump pump in acid storage room caused by leakage from acid storage tanks, piping connections and acid mixing operations.
PROJECT JUSTIFICATION: This project will increase the safety and security of operations in addition to maintaining the integrity of chemical containment in the event of future failure.
RISK(S): The risk of delaying the project could cause potential damage to equipment on the first floor of the MFP from falling concrete or steel deck fragments. With respect to repair of the acid storage room floor, the risk of delaying the project is the lack of integrity in the provisions for chemical containment in the event of tank failure. Acid is able to leak through the damaged sump pump into the subfloor where it could damage underground cast iron plumbing and ductile iron process piping.
IMPACT ON OPERATIONS: This project will mitigate the potential for future emergency repairs to the first floor ceiling components or to the acid room floor that would likely be funded from the Operating Budget.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$14,128	\$0	\$0	\$0	\$0	\$14,128	

Water Treatment Plant

Hydraulic Valve Replacement Program

PROJECT NUMBER: 2023-100-105-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: This project is retrofitting the various hydraulic valve actuators primarily in the filters to electric valve actuators.
PROJECT JUSTIFICATION: Improve operational control while modernizing the facility to better align with industry standard practices.
RISK(S): Inefficient operations resulting from an aged facility that do not align with industry standard practices.
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$89,943	\$302,299	\$2,144,253	\$713,505	\$0	\$3,250,000	

Water Treatment Plant

Lime Slurry System Improvements

PROJECT NUMBER: 2017-322-101-7 / 12 / 13

DSIC Eligible: No

PHASE: Design
PRIORITY: Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Lime slurry system capacity expansion improvements to include demolition, installation of additional tanks, chemical feed equipment, minor revisions to the existing lime slurry system, and SCADA communications equipment and SCADA interface.
PROJECT JUSTIFICATION: Adequate lime storage is mandated by PADEP. New system will be more efficient/require less labor to operate and maintain.
RISK(S): The extra storage for liquid lime is critical to the reliable operation of the Water Treatment Plant.
IMPACT ON OPERATIONS: Adequate storage, increased reliability and efficiency, less housekeeping labor.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$756,079	\$3,548,360	\$1,182,787	\$0	\$0	\$5,487,226	

Water Treatment Plant

Overhead Crane Modernization

PROJECT NUMBER: 2024-100-100-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Replacement and upgrade of existing cranes at Bruecken, Mission, Aspinwal, and Ross Pump Stations.
PROJECT JUSTIFICATION: The current age of existing overhead cranes are well beyond their useful life and are in need of a replacement.
RISK(S): Inefficient operations resulting from an aged facility that do not align with industry standard practices.
IMPACT ON OPERATIONS: Increase operating flexibility and reliability.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$375,000	\$440,000	\$0	\$0	\$815,000	

Water Treatment Plant

Phase 1 Sedimentation Basin Rehabilitation and Water Treatment Plant Gate Valve and 84-inch Coupling Project

PROJECT NUMBER: 2023-100-106-0
DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Phase 1 of the rehabilitation of the existing sedimentation Basins as recommended by the 2019 WTP CIP (Arcadis 2019) and EPA CEP (2017). Projects including regrading around existing sedimentation Basins to mitigate stormwater infiltration, rehabilitation or replacement of existing sluice gates including drain gates, disconnect existing stormwater outfall including related permitting, repair of existing vaults. The WTP portion of the project will include replacement of various isolation valves at the plant and the encasement of an existing 84-inch diameter pipe coupling.

PROJECT JUSTIFICATION:
The sedimentation basins are the only system in the Water Treatment Plant process that is open to the environment. As such, care must be taken to prevent infiltration of contaminants via surface runoff. These repairs and valve replacements were recommended by regulating agencies. Working isolation valves are required in order to properly isolate and maintain treatment. Proactive repair/maintenance will reduce the chance of complete failure of the asset.

RISK(S):
Inability to isolate the sedimentation basins in the event of an emergency and/or uncontrolled runoff into the Basins could cause regulatory violations.

IMPACT ON OPERATIONS:
Ability for staff to quickly isolate the sedimentation basins as part of routine or emergency maintenance.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$224,922	\$299,896	\$448,363	\$2,196,447	\$1,830,372	\$5,000,000	

Water Treatment Plant

Phase 2 Sedimentation Basin Rehabilitation Project

PROJECT NUMBER: 2026-100-100-0

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Phase 2 of this project includes cleaning the sedimentation basins, rehabilitation of weirs, intakes, and associated structures.

PROJECT JUSTIFICATION:
The sedimentation basins serve a role in secondary clarification of water after the clarifiers. This clarification combined with the fact that the basins are uncovered has led to accumulation of sediment in the basins. Secondly, structural defects in the existing concrete structure cannot be detected due to the presence of this sediment. Once the sediment is removed, each basin will be removed from service for a structural inspection and concrete repair. If moderate/major structural defects are not proactively addressed, complete failure will eventually occur and excavation will be required. Any complete failure that occurs will result in dramatically increased expenditures for repair.

RISK(S):
Possible regulatory violations due to sediment, possible failure of structure due to lack of maintenance.

IMPACT ON OPERATIONS:
Ability for staff to quickly isolate the sedimentation basins as part of routine or emergency maintenance.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$0	\$562,304	\$749,739	\$1,312,043	

Water Treatment Plant

Post-Filter Chemical System Improvements

PROJECT NUMBER: 2026-100-101-0

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Construction of new building for soda ash, fluoride, and phosphoric acid system closer to the feed point providing updated equipment, storage, instrumentation, and injection points. This will result in meeting current regulatory requirements, improve chemical application, and optimize the water treatment process. Portions of this project may be combined with the Clearwell Improvements Project or Aspinwall Pump Station Project.

PROJECT JUSTIFICATION:
The improvements from this project will address the recommendations from various regulatory agencies. In addition, the lack of attention to the post-filter chemical feed systems could cause over/under dosing of chemicals leading to permit violations or the loss of a chemical system resulting in an emergency project.

RISK(S):
Potential violations of permit conditions as a result of improper dosing of chemicals or failure of a chemical system resulting in emergency action.

IMPACT ON OPERATIONS:
Optimization and flow/residual pacing of chemicals can result in reduced chemical consumption. New storage and chemical feed equipment will result in reduced maintenance costs associated with repairs on the existing pumps, maintaining storage bins and feeders. Moving soda ash closer to the point of injection will reduce issues with feeding the chemical from the other end of the plant. Improvements to SCADA system and flow/residual pacing will reduce manual adjustments to chemical feed systems.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$0	\$607,288	\$809,718	\$1,417,006	

Water Treatment Plant

Powdered Activated Carbon System Improvements

PROJECT NUMBER: 2017-322-101-2/ 3

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:
Powdered Activated Carbon System Improvements are to include the replacement of a carbon premix tank and existing carbon slurry pumping and dosing pipework.

PROJECT JUSTIFICATION:
Components of the chemical treatment systems can no longer be operated in an effective and reliable manner to meet water quality requirements. The storage and pumping systems associated with these chemicals have reached the end of their useful life and are susceptible to failures.

RISK(S):
Inefficient operation of chemical systems results in increased operating costs, including chemical consumption, labor, solids generation and disposal, and wear on equipment.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, reliability, and life expectancy and improved safety conditions.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$40,589	\$0	\$0	\$0	\$0	\$40,589	

Water Treatment Plant

Ross Pump Station

PROJECT NUMBER: 2018-323-101-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

Replacement of aged pump and valve equipment, meters, SCADA, electrical equipment, HVAC, auxiliary systems, as well as the rehabilitation of the building architectural and energy management systems.

PROJECT JUSTIFICATION:

Pump station is in need of rehabilitation. Pumps and ancillary systems are beyond their design life.

RISK(S):

Exposes the Authority to higher capital costs to address emergency failures, and exposes customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:

Increased operating efficiency, flexibility, reliability, life expectancy, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$1,249,655	\$2,499,310	\$1,299,310	\$13,232,110	\$18,280,385	Debt (Revenue Bonds)

Water Treatment Plant

Sludge Chamber Pump Project

PROJECT NUMBER: 2021-322-102-0

DSIC Eligible: No

PHASE: Design
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Replacement of existing Sludge Pump and related components to the sludge chamber.
PROJECT JUSTIFICATION: The submersible pumps are not operational because they are not capable of handling the type of sludge coming from the clarifier drainage. The pump system needs to be designed to ensure the proper pump size and selection suitable for sludge handling is utilized.
RISK(S): Inefficient operations resulting from an aged facility that do not align with industry standard practices.
IMPACT ON OPERATIONS: Increased operating efficiency, flexibility, reliability, and life expectancy,.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$386,722	\$869,343	\$0	\$0	\$0	\$1,256,065	Debt (Revenue Bonds)

Water Treatment Plant

Water Treatment Plant Filter Backwash System Improvements

PROJECT NUMBER: 2023-100-107-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Improvements to filter backwash system to increase capacity and provide greater high backwash flow rates and addressing issues.
PROJECT JUSTIFICATION: The backwash system cannot attain high wash flow rates recommended by regulators, which may be impacting filter performance/backwash frequency. In addition, the backwash system has areas that can be improved to help with operations including resolving pump vibration and shutdown issues at low flow rates.
RISK(S): Potential noncompliance with permitted design of filter system and water quality issues.
IMPACT ON OPERATIONS: Improved operating efficiency.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$740,054	\$883,290	\$2,996,022	\$8,880,634	\$0	\$13,500,000	

Water Treatment Plant

Water Treatment Plant Filter Building Roof

PROJECT NUMBER: 2024-100-101-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Roof and parapet flashing replacement at the Water Treatment Plant filter building.
PROJECT JUSTIFICATION: The existing roof is aged and in need of replacement.
RISK(S): Continued deterioration of the roof could result in a emergency replacement.
IMPACT ON OPERATIONS: Decrease in yearly maintenance for the existing roof.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$3,500,000	\$0	\$0	\$0	\$3,500,000	

Water Treatment Plant

Water Treatment Plant HVAC Improvements

PROJECT NUMBER: 2024-100-102-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Improvements to aged HVAC systems at the Water Treatment Plant.
PROJECT JUSTIFICATION: The HVAC systems at the Water Treatment Plant are at risk for failure due to its age.
RISK(S): Failure of HVAC systems.
IMPACT ON OPERATIONS: Reduction in future maintenance costs associated with aging equipment and multiple HVAC units.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$163,333	\$358,333	\$858,333	\$0	\$1,379,999	

Water Treatment Plant

Water Treatment Plant NPDES Permit Autosamplers and Flow Meters

PROJECT NUMBER: 2023-100-108-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Purchase and installation of autosamplers to improve the ability of DEP required sampling.
PROJECT JUSTIFICATION: This project is necessary to ensure that all of the required DEP sampling gets performed in a safe and efficient manner.
RISK(S): The risks with not completing or delaying this project would be potentially missing sampling deadlines for DEP required sampling.
IMPACT ON OPERATIONS: Improved operating efficiency.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Cash (Rates)
Annual Allocation	\$164,400	\$124,500	\$0	\$0	\$0	\$288,900	

Water Treatment Plant

Water Treatment Plant Rail Siding Improvements

PROJECT NUMBER: 2023-100-109-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Replacement of failed railroad ties, missing aggregate, and switch/track/stop repairs or removal for the rail siding at Aspinwall Pump Station.
PROJECT JUSTIFICATION: Rail siding is required to maintain an alternate means of chemical delivery to Aspinwall Pump Station. This project will allow for the annual replacement of rail siding in order to meet rail standards.
RISK(S): Failure to pass rail inspection and loss of alternate chemical delivery means.
IMPACT ON OPERATIONS: Improved operating efficiency.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$800,000	\$300,000	\$300,000	\$300,000	\$300,000	\$2,000,000	

Water Treatment Plant

WTP Sodium Hypochlorite Tank Emergency Replacement

PROJECT NUMBER: 2022-322-101-0

DSIC Eligible: No

PHASE: Construction
PRIORITY: Regulatory Compliance, Safety, Quality of Service
PROJECT DESCRIPTION: The project includes the replacement of three Sodium Hypochlorite storage tanks.
PROJECT JUSTIFICATION: This is an urgent project to maintain adequate treatment capabilities.
RISK(S): The project includes the emergency replacement of three Sodium Hypochlorite storage tanks. There are four existing storage tanks. Two of the storage tanks will be removed from service in 2022 due to leakage and the age of the other two is such that they are at the end of their useful life. They will be replaced with three new tanks in kind to maintain the required storage capacity.
IMPACT ON OPERATIONS: Maintain adequate treatment capabilities.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$150,000	\$0	\$0	\$0	\$0	\$150,000	Debt (Revenue Bonds)

Water Treatment Plant

Water Treatment Plant Contingency

PROJECT NUMBER: 2023-100-110-0

DSIC Eligible: No

PHASE: Not Applicable
PRIORITY: Not Applicable
PROJECT DESCRIPTION: Water Treatment Plant contingency pass-through project.
PROJECT JUSTIFICATION: Improved efficiency of capital improvement plan fund management.
RISK(S): No identified risks.
IMPACT ON OPERATIONS: Improved efficiency of capital improvement plan management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$0	\$0	\$0	\$0	\$0	



Water Pumping and Storage



Water Pumping and Storage

Aspinwall Pump Station Improvements

PROJECT NUMBER: 2017-323-104-0

DSIC Eligible: No

PHASE:
Construction – Project Close

PRIORITY:
Regulatory Compliance, Safety Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems at the Bruecken and Aspinwall Pump Stations or replacement with a single high service pump station at the Water Treatment Plant.

PROJECT JUSTIFICATION:
The pump Station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff. Additionally, installation of variable frequency drives will reduce water pressure surges during start-up, and allow the pumps to operate over a wide range of flow, allow the pumps to operate while the clearwell is being replaced. Alternately, a new high service pump station to replace the existing pump stations is also being investigated.

RISK(S):
Exposes the Authority to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$4,748,966	\$15,197,172	\$15,197,170	\$15,227,974	\$2,548,263	\$52,919,545	WIFIA/PENN VEST

Water Pumping and Storage

Aspinwall Pump Station to Lanpher Reservoir Rising Main

PROJECT NUMBER: 2018-323-100-0

DSIC Eligible: No

PHASE:

Design – Project Close

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:

Construction of a new, redundant rising main from Aspinwall Pump Station to Lanpher Reservoir.

PROJECT JUSTIFICATION:

The existing 60" rising main that supplies the Lanpher Reservoir is a 150 year old riveted steel pipe, has several tap connections to critical and bulk customers, and has experienced recent pipe failures. The proposed rising main would serve as a primary supply source for the Lanpher Reservoir during the Clearwell Replacement Project and a redundant supply line in case of a failure or planned cleaning and rehabilitation of the existing 60" supply main.

RISK(S):

Failure of the rising main could impact up to half of PWSA's customers.

IMPACT ON OPERATIONS:

Increased operating flexibility and reliability.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$2,147,167	\$29,622,031	\$44,331,727	\$44,331,727	\$14,777,241	\$135,209,893	WIFIA/PENN VEST

Water Pumping and Storage

Aspinwall WTP Chemical Unloading Area Improvements and Underground Storage Tank Removal and Replacement

PROJECT NUMBER: 2022-322-100-0

DSIC Eligible: No

PHASE:
Design – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Design and construction of secondary spill containment around railcar and truck chemical unloading areas. A nearby tunnel underdrain must also be disconnected from the combined sewers, and will be completed as part of the work in the area.

PROJECT JUSTIFICATION:
Required as part of PADEP regulatory recommendations.

RISK(S):
Not completing the work could lead to future environmental incidents and potential violations from regulatory agencies due to chemical spills.

IMPACT ON OPERATIONS:
Increased flexibility and reliability, system compliance, and improved environmental conditions.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$1,352,161	\$0	\$0	\$0	\$0	\$1,352,161	Debt (Revenue Bonds)

Water Pumping and Storage

Bruecken Pump Station Concealed Gutters

PROJECT NUMBER: 2024-300-100-0

DSIC Eligible: No

PHASE:
Planning – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Concealed gutter replacement and related improvements at Bruecken Pump Station.

PROJECT JUSTIFICATION:
The existing concealed gutters backup with water and can cause leakage inside of the building.

RISK(S):
Continued leaks will eventually damage roof substrate and interior and exterior masonry.

IMPACT ON OPERATIONS:
Reduced service repair needs and improved efficiency of operations.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$175,000	\$0	\$0	\$0	\$175,000	Debt (Revenue Bonds)

Water Pumping and Storage

Bruecken Pump Station Improvements

PROJECT NUMBER: 2017-323-106-0

DSIC Eligible: No

PHASE:
Construction – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems.

PROJECT JUSTIFICATION:
The pump station was constructed in 1931. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff. Additionally, installation of variable frequency drives will reduce water pressure surges during start-up, allow the pumps to operate more efficiently over a wide range of flow demands, and will reduce the required size of the new Clearwell.

RISK(S):
Exposes PWSA to higher capital costs to address emergency facility failures and its customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, reliability, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$8,653,054	\$30,991,126	\$30,991,126	\$31,037,546	\$5,188,398	\$106,861,250	WIFIA/PENN VEST

Water Pumping and Storage

Chlorine Booster Station Improvements

PROJECT NUMBER: 2019-323-101-0

DSIC Eligible: No

PHASE:
Design – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Replacement of existing chlorine injection facilities at reservoirs and tanks for chlorine residual.

PROJECT JUSTIFICATION:
PWSA boosts chlorine residual at a majority of its storage facilities. Recent changes to PADEP regulations require an increase in minimum chlorine residual levels in the distribution system. All chlorine booster facilities need to be upgraded in order to meet these requirements.

RISK(S):
Exposes the Authority's customers to poor water quality.

IMPACT ON OPERATIONS:
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$311,269	\$6,436,148	\$7,007,549	\$583,962	\$0	\$14,338,928	

Water Pumping and Storage

Disinfection By-Products Mitigation

PROJECT NUMBER: 2020-323-101-0

DSIC Eligible: No

PHASE:
Design – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Replacement of existing trihalomethane (THM) removal systems at Allentown tanks, Squirrel Hill tank, and Brashears tanks.

PROJECT JUSTIFICATION:
Repair of the existing system to improve the level of service provided to customers.

RISK(S):
Delaying the replacement of the existing systems will result in increased downtime of the existing systems that need to be repaired. This will lead to possible regulatory violations for exceeding THM levels.

IMPACT ON OPERATIONS:
Decrease in yearly maintenance for the existing system.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$5,183,171	\$1,426,705	\$0	\$0	\$0	\$6,609,876	Debt (Revenue Bonds)

Water Pumping and Storage

Garfield Tank Improvements

PROJECT NUMBER: 2024-300-101-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Rehabilitation or replacement of the existing tank. Increase of tank capacity may be necessary.

PROJECT JUSTIFICATION:
The Garfield Elevated Storage Tank was constructed in 1959 and last rehabilitated in 1992. The existing tank does not have sufficient capacity to meet PADEP's requirements for sizing, which states that a tank must have sufficient capacity to meet average day demand plus fire flow demand. This project will provide adequate storage through system redundancy to meet the pressure district's demand and fire flow conditions.

RISK(S):
Exposes PWSA customers to poor water quality from coating problems or a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$122,198	\$244,397	\$314,224	\$2,246,121	\$2,926,940	

Water Pumping and Storage

Herron Hill Pump Station Improvements

PROJECT NUMBER: 2023-300-100-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

PROJECT JUSTIFICATION:
The pump station was originally constructed in the late 1890's. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

RISK(S):
Lack of facility planning exposes PWSA to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$409,195	\$818,391	\$496,552	\$12,275,862	\$0	\$14,000,000	Debt (Revenue Bonds)

Water Pumping and Storage

Herron Hill Reservoir Improvements

PROJECT NUMBER: 2019-323-100-0

DSIC Eligible: No

PHASE:
Construction – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Replacement of existing reservoir liner and cover and associated reservoir rehabilitation. Replacement of existing chlorine injection system. Project close-out phase in 2023.

PROJECT JUSTIFICATION:
The existing cover has reached the end of its useful life and must be replaced. Existing chlorine feed systems are beyond their useful life and must be replaced.

RISK(S):
Exposes the Authority's customers to poor water quality from reservoir failure and inadequate booster disinfection.

IMPACT ON OPERATIONS:
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$198,631	\$0	\$0	\$0	\$0	\$198,631	

Water Pumping and Storage

Herron Hill Reservoir Improvements - Sodium Hypochlorite Building

PROJECT NUMBER: 2019-323-100-1 / 2 / 3 / 4

DSIC Eligible: No

PHASE: Construction – Project Close
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Replacement of existing chlorine injection system.
PROJECT JUSTIFICATION: Existing chlorine feed systems are beyond their useful life and must be replaced.
RISK(S): Exposes the Authority's customers to poor water quality and possible PADEP violations due to inadequate booster disinfection.
IMPACT ON OPERATIONS: Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$828,429	\$0	\$0	\$0	\$0	\$828,429	Debt (Revenue Bonds)

Water Pumping and Storage

Herron Hill Tank Pump Station Improvements

PROJECT NUMBER: 2024-300-102-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

PROJECT JUSTIFICATION:
The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

RISK(S):
Lack of facility planning exposes PWSA to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$164,077	\$195,529	\$1,320,197	\$1,320,197	\$3,000,000	Debt (Revenue Bonds)

Water Pumping and Storage

Highland 1 Reservoir Liner

PROJECT NUMBER: 2026-300-100-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of existing Highland 1 Reservoir liner.

PROJECT JUSTIFICATION:
The reservoir liner is past it's useful design life and is in need of replacement.

RISK(S):
Failure to replace the liner could result an emergency repairs or replacement.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, reliability, and life expectancy,.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$0	\$0	\$704,981	\$0	\$704,981	

Water Pumping and Storage

Highland No. 2 Reservoir Liner and Cover Replacements

PROJECT NUMBER: 2019-323-102-0 / 1

DSIC Eligible: No

PHASE:
Construction – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Replacement of existing reservoir liner and cover and associated reservoir rehabilitation. Replacement of existing chlorine injection system and an upgrade of the reservoir outlet structure.

PROJECT JUSTIFICATION:
The Highland No. 2 Reservoir will be used as a temporary Clearwell while the new Clearwell is being constructed. Existing chlorine feed facilities must be upgraded to meet PADEP regulatory requirements for distribution chlorine residual. Existing reservoir outlet structure must be upgraded to accommodate new Highland Reservoir Pump Station.

RISK(S):
Exposes PWSA customers to poor water quality from reservoir failure and inadequate booster disinfection.

IMPACT ON OPERATIONS:
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$2,122,235	\$6,515,355	\$4,072,096	\$0	\$0	\$12,709,686	WIFIA/Debt (Revenue Bonds)

Water Pumping and Storage

Highland Reservoir Pump Station and Rising Main

PROJECT NUMBER: 2017-323-101-0/ 5

DSIC Eligible: No

PHASE:

Design – Project Close

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

Construction of a new finished water pump station and transmission main to supply water to the Highland No. 1 Service Area from Highland No. 2 Reservoir.

PROJECT JUSTIFICATION:

All water supply for the Highland No. 1 Service Area currently flows through the Highland No. 1 Reservoir and the MFP. There is no other source water supply for the Highland No. 1 Service Area. In addition to providing alternate supply, this project is to temporarily provide finished water that meets the chlorine disinfection rules to the Highland No. 1 Service Area during the Clearwell Replacement Project. Additionally, this new facility could also be designed to service the Garfield pressure district, thus eliminating the rehabilitation of the Highland Pump Station.

RISK(S):

Failure of the two rising mains (No. 1 or No. 2), MFP, or Bruecken Pump Station would result in significant service disruption.

IMPACT ON OPERATIONS:

Increased operation and maintenance labor and expenses. Increased operating flexibility in the future.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$23,789,287	\$14,537,145	\$8,983,410	\$0	\$0	\$47,309,842	

Water Pumping and Storage

Howard Pump Station Improvements

PROJECT NUMBER: 2025-300-100-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

PROJECT JUSTIFICATION:
The pump station was originally constructed between 1900 and 1904. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for the staff.

RISK(S):
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$0	\$577,267	\$1,154,534	\$694,764	\$2,426,565	Debt (Revenue Bonds)

Water Pumping and Storage

Inline Pump Station (Coral and Pacific) Improvements

PROJECT NUMBER: 2024-300-103-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

PROJECT JUSTIFICATION:
The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

RISK(S):
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, reliability, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$32,980	\$39,434	\$264,368	\$263,218	\$600,000	Debt (Revenue Bonds)

Water Pumping and Storage

Lanpher Reservoir Improvements

PROJECT NUMBER: 2017-323-105-0 / 1 / 2 / 3

DSIC Eligible: No

PHASE:
Construction – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Replacement of existing reservoir liner and cover and associated reservoir rehabilitation. Replacement of existing chlorine injection system.

PROJECT JUSTIFICATION:
The existing cover failed and had to be replaced on an emergency basis as part of the PADEP October 2017 Administrative Order. Existing chlorine feed systems are beyond their useful life and must be replaced.

RISK(S):
Exposes the Authority's customers to poor water quality from reservoir failure and inadequate booster disinfection.

IMPACT ON OPERATIONS:
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$2,778,963	\$6,370,326	\$3,716,024	\$0	\$0	\$12,865,313	

Water Pumping and Storage

Lincoln Pump Station Improvements

PROJECT NUMBER: 2023-300-101-0

DSIC Eligible: No

PHASE:
Planning – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, and auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

PROJECT JUSTIFICATION:
The pump station was originally constructed in 1952. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

RISK(S):
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$288,633	\$288,633	\$1,258,748	\$2,109,323	\$1,054,663	\$5,000,000	Debt (Revenue Bonds)

Water Pumping and Storage

Lincoln Pump Station: Bypass Pump Station Project

PROJECT NUMBER: 2020-323-100-0/ 1/ 2

DSIC Eligible: No

PHASE:
Construction – Project Close

PRIORITY:
Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Construction of a temporary bypass pump station that will be used at the Lincoln Pump Station and Saline Pump Station. This pump station will allow for the existing pump station to be taken off line completely for rehabilitation.

PROJECT JUSTIFICATION:
Repair of existing pump station while trying to keep it online increases the cost and construction time. This is a cost effective way to provide temporary pumping.

RISK(S):
Delaying the construction of this pump station will delay the renewal of existing pump stations that are in need of upgrades.

IMPACT ON OPERATIONS:
Decrease in yearly maintenance for the existing system.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$2,155,907	\$2,164,264	\$0	\$0	\$0	\$4,320,171	

Water Pumping and Storage

Lincoln Tank Improvements

PROJECT NUMBER: 2023-300-102-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Rehabilitation or replacement of the existing tank.

PROJECT JUSTIFICATION:
Constructed in 1939, this tank is nearing the end of its useful life. The last inspection, which was performed in 2018, noted deficiencies that need to be addressed to ensure water quality standards are met.

RISK(S):
Exposes the Authority's customers to poor water quality from coating problems or a potentially deficient water supply in the event of tank failure.

IMPACT ON OPERATIONS:
Increased flexibility and reliability and system compliance.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$337,529	\$203,589	\$3,680,670	\$0	\$0	\$4,221,788	

Water Pumping and Storage

Mission Pump Station Improvements

PROJECT NUMBER: 2025-300-101-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

PROJECT JUSTIFICATION:
The Mission Pump Station is the only pumping station located south of the Monongahela River and was originally constructed between 1910 and 1912. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

RISK(S):
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$0	\$577,267	\$1,154,534	\$694,764	\$2,426,565	

Water Pumping and Storage

Pump Station Architectural

PROJECT NUMBER: 2026-300-101-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Rehabilitate exterior and interior masonry, glazing, and roof of existing pump stations

PROJECT JUSTIFICATION:
Existing building façade, roof, and window systems are in need of upgrade to protect interior pumps and electrical equipment from the elements. Rehabilitation of these pump stations has not occurred within the past 40 years for most facilities.

RISK(S):
Façade collapse, leaking roof and windows could lead to equipment failures

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$0	\$0	\$2,500,000	\$0	\$2,500,000	

Water Pumping and Storage

Saline Pump Station Improvements

PROJECT NUMBER: 2026-300-102-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

PROJECT JUSTIFICATION:
The pump station was originally constructed in 1935. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

RISK(S):
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

IMPACT ON OPERATIONS:
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$0	\$0	\$192,422	\$288,633	\$481,055	Debt (Revenue Bonds)

Water Pumping and Storage

Spring Hill Tank Improvements

PROJECT NUMBER: 2024-300-104-0

DSIC Eligible: No

PHASE:
Not Started – Project Close

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Perform a comprehensive inspection of the existing storage tanks and rehabilitation or replacement of the existing tanks.

PROJECT JUSTIFICATION:
Constructed in 1929 of riveted steel, the coatings and structure of these tanks need to be rehabilitated due to corrosion.

RISK(S):
Exposes the Authority's customers to poor water quality from coating problems or a potentially deficient water supply in the event of tank failure.

IMPACT ON OPERATIONS:
Increased flexibility and reliability and system compliance.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$62,335	\$122,669	\$73,819	\$933,589	\$1,192,412	Debt (Revenue Bonds)

Water Pumping and Storage

Water Pumping and Storage Contingency

PROJECT NUMBER: 2023-300-103-0

DSIC Eligible: No

PHASE:
Not Applicable – Project Close

PRIORITY:
Not Applicable

PROJECT DESCRIPTION:
Water Pumping and Storage contingency pass-through project.

PROJECT JUSTIFICATION:
Improved efficiency of capital improvement plan fund management.

RISK(S):
No identified risks.

IMPACT ON OPERATIONS:
Improved efficiency of capital improvement plan management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$0	\$0	\$0	\$0	\$0	\$0	



Water Distribution



Water Distribution System

2019 Large Diameter Water Main Improvements - Rising Main 3/4

PROJECT NUMBER: 2019-325-103-0

DSIC Eligible: No

PHASE: Construction
PRIORITY: Regulatory Compliance, Safety Operating Efficiency, Quality of Service,
PROJECT DESCRIPTION: Strategic replacement or rehabilitation of large diameter water mains (16-inch and larger) and appurtenances to improve system reliability and hydraulics, including internal and external inspections.
PROJECT JUSTIFICATION: Maintaining a proactive approach to replacing large mains will ensure that large mains are replaced before the end of their useful life.
RISK(S): The consequences of failure for larger mains are much greater than for smaller distribution mains, which typically include significant service outages (larger area and longer time frame impacts), as well as property and roadway damage.
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	WIFIA/Debt (Revenue Bonds)
Annual Allocation	\$3,062,142	\$240,770	\$0	\$0	\$0	\$3,302,912	

Water Distribution System

2019 Large Diameter Water Main Improvements - Rising Main 4

PROJECT NUMBER: 2019-325-103-1

DSIC Eligible: No

PHASE: Procurement
PRIORITY: Regulatory Compliance, Safety Operating Efficiency, Quality of Service,
PROJECT DESCRIPTION: Strategic replacement or rehabilitation of large diameter water mains (16-inch and larger) and appurtenances to improve system reliability and hydraulics, including internal and external inspections.
PROJECT JUSTIFICATION: Maintaining a proactive approach to replacing large mains will ensure that large mains are replaced before the end of their useful life.
RISK(S): The consequences of failure for larger mains are much greater than for smaller distribution mains, which typically include significant service outages (larger area and longer time frame impacts), as well as property and roadway damage.
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$12,529,326	\$4,176,441	\$0	\$0	\$0	\$16,705,767	WIFIA/PENNV EST

Water Distribution System

Bus Rapid Transit Water Distribution

PROJECT NUMBER: 2020-325-102-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
The City of Pittsburgh is making roadway improvements on Fifth Ave and Forbes Ave from downtown through Oakland, with full depth reconstruction planned on Forbes from Crosstown Blvd to Craft Ave and on Fifth between Crosstown Blvd and the Birmingham Bridge. The City's work, in partnership with the Port Authority, will include signal pole upgrades, traffic redesign, sidewalk bumpouts, and new bus shelters. The full depth reconstruction portion of the project has the potential to affect existing 15-inch, 16-inch, 20-inch, and 6-inch mains that are 80-100+ years old. The full depth replacement of the roadway along with lowering of the roadway could result in damage to these mains. These mains should be replaced as part of this project.

PROJECT JUSTIFICATION:
The full depth replacement of the roadway along with lowering of the roadway could result in damage to these mains.

RISK(S):
Replacement of water mains along the Fifth and Forbes corridor reduces the risk of service outages due to breaks, reduces the potential for inadequate capacity for firefighting activities, and improves water quality.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

CASH FLOW SUMMARY

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>FUNDING SOURCE(S)</u>
Annual Allocation	\$1,500,000	\$0	\$0	\$0	\$0	\$1,500,000	Debt (Revenue Bonds)

Water Distribution System

District Metering Program

PROJECT NUMBER: 2025-200-100-0, Unidentified

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Installation of system flow meters to track the flow of water and compare to area consumption to determine where leaks are the greatest.

PROJECT JUSTIFICATION:
The district metering is intended to gather additional information on areas with suspected leakage and then prioritize areas for rehabilitation and replacement.

RISK(S):
Failure to track water loss will result in loss of revenue.

IMPACT ON OPERATIONS:
Decreased water loss.

<u>Program Years</u>	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$0	\$0	\$2,600,000	\$3,380,000	\$3,380,000	\$9,360,000	Debt (Revenue Bonds)
2025 District Metering	\$0	\$0	\$2,600,000	\$780,000	\$0	\$3,380,000	
2026 District Metering	\$0	\$0	\$0	\$2,600,000	\$780,000	\$3,380,000	
2027 District Metering	\$0	\$0	\$0	\$0	\$2,600,000	\$2,600,000	

Water Distribution System

Hazelwood Backup Feed

PROJECT NUMBER: 2023-200-100-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Either repair the existing failed 16" main or abandon and provide interconnections with the Squirrel Hill system.
PROJECT JUSTIFICATION: The Duck Hollow 16" main failed as a result of a landslide in 2018. The main will need to either be abandoned and replaced with emergency interconnections.
RISK(S): Existing failed 16" main does not provide any backup water supply leading to a loss of resiliency.
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$175,156	\$175,156	\$1,115,471	\$1,534,487	\$0	\$3,000,270	Debt (Revenue Bonds)

Water Distribution System

Herron Hill - Squirrel Hill Boundary Adjustments

PROJECT NUMBER: 2025-200-101-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Main and valve adjustments to move the boundary between the Herron Hill Reservoir and Squirrel Hill pressure districts.
PROJECT JUSTIFICATION: Herron Hill and Squirrel Hill operate on similar hydraulic gradients. There are areas where these two systems intertwine, which has resulted in long dead end lines as well as frequent opening and altering of dividing pressure valves. Moving the boundary of the two zones to incorporate more of the Herron Hill system into the Squirrel Hill system will alleviate these issues as well as alleviate demand on the Herron Hill Reservoir.
RISK(S): Existing long dead ends can cause water quality issues.
IMPACT ON OPERATIONS: Decreased leakage between pressure districts.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$52,928	\$355,187	\$635,885	\$1,044,000	

Water Distribution System

Interconnection Vault Stormwater Removal

PROJECT NUMBER: 2022-325-102-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: The purpose of this project is to install permanent sump pumps for stormwater dewatering at all of our interconnection vault locations. This project is required by a Consent Order Agreement.
PROJECT JUSTIFICATION: This project is required by a Consent Order Agreement.
RISK(S): Failure to maintain regulatory compliance.
IMPACT ON OPERATIONS: Improved system efficiency.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$453,008	\$1,225,931	\$611,310	\$0	\$0	\$2,290,249	

Water Distribution System

Intermediate Diameter Water Main Replacement Program

PROJECT NUMBER: 2025-200-102-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Strategic replacement of water mains to improve system reliability as well as improve water pressure, maintain water quality, and minimize disturbance to the community. Program will focus on 16" to 36" diameter mains.

PROJECT JUSTIFICATION:
By maintaining a proactive approach to asset management, efforts can be directed towards remedying assets before their failure, thus saving overall replacement cost. Additionally, projects will be coordinated with other utilities to minimize disturbance to the community and street surface restoration costs. Water quality will also improve by removing tuberculated mains.

RISK(S):
Customers may be subject to service outages or the potential for inadequate pressure.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability, decrease in non-revenue water due to leaks.

<u>Program Years</u>	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$0	\$0	\$2,603,833	\$4,488,230	\$42,775,187	\$49,867,251	
2025 Intermediate Main Replacement	\$0	\$0	1,283,549	1,541,899	20,364,552	\$23,190,000	Debt (Revenue Bonds)
2026 Intermediate Main Replacement	\$0	\$0	\$1,320,284	\$1,584,614	20,774,834	\$23,679,732	
2027 Intermediate Main Replacement	\$0	\$0	\$0	\$1,361,717	\$1,635,801	\$2,997,518	

Water Distribution System

Intermediate Meter Replacement Program

PROJECT NUMBER: 2021-325-100-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: Replacement of customer meters size 1.5" to 2".
PROJECT JUSTIFICATION: Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed.
RISK(S): Failure to replace meters annually could result in lost revenue or violate regulatory requirements.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$143,077	\$84,308	\$86,538	\$87,000	\$87,000	\$487,923	

Water Distribution System

Large Diameter Water Main Replacement Program

PROJECT NUMBER: 2019-325-103-0, 2019-323-103-1, 2020-325-109-0, 2023-200-101-0, 2024-200-100-0, 2025-200-103-0, 2026-200-100-0, 2027-200-100-0, Unidentified

DSIC Eligible: No

PHASE:
Construction / Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Strategic replacement or rehabilitation of large diameter water mains (16" and larger) and appurtenances to improve system reliability and hydraulics, including internal and external inspections.

PROJECT JUSTIFICATION:
The Authority's water system has approximately 122 miles of large diameter water mains. Maintaining a proactive approach to replacing large mains will ensure that large mains are replaced before the end of their useful life.

RISK(S):
The consequences of failure for larger mains are much greater than for smaller distribution mains, which typically include significant service outages (larger area and longer time frame impacts).

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

Program Year	CASH FLOW SUMMARY						FUNDING SOURCE(S)
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total	Debt (Revenue Bonds)
	\$2,980,666	\$4,820,096	\$23,316,702	\$38,087,877	\$33,256,579	\$102,461,920	
2020 Large Diameter Main Replacement – Four Mile Run	\$801,877	\$850,000	\$7,156,250	\$17,175,000	\$10,018,750	\$36,001,877	
2023 Large Diameter Main Replacement	\$1,244,067	\$1,137,890	\$11,464,181	\$5,713,862	\$0	\$19,560,000	
2024 Large Diameter Main Replacement	\$934,721	\$1,869,443	\$1,779,098	\$10,361,857	\$8,634,881	\$23,580,000	
2025 Large Diameter Main Replacement	\$0	962,763	1,925,526	1,832,471	10,672,713	\$15,393,473	
2026 Large Diameter Main Replacement	\$0	\$0	\$991,646	\$1,983,292	\$1,887,445	\$4,862,383	
2027 Large Diameter Main Replacement	\$0	\$0	\$0	\$1,021,395	\$2,042,791	\$3,064,186	

Water Distribution System

Large Meter Replacement Program

PROJECT NUMBER: 2023-200-102-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Annual replacement of water meters larger than 1".
PROJECT JUSTIFICATION: Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed.
RISK(S): Failure to replace meters annually could result in lost revenue.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$1,557,508	\$1,341,457	\$567,308	\$337,000	\$337,000	\$4,140,273	Debt (Revenue Bonds)

Water Distribution System

Low Pressure Area Remediation

PROJECT NUMBER: 2021-325-101-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Fix chronically low pressure areas by either extending neighboring higher pressure districts into the area, booster pump stations, or household booster pumps.
PROJECT JUSTIFICATION: This project is in response to the low pressure monitors required by the October 2017 Administrative Order.
RISK(S): Customers may experience temporary service outages as a result of the work on this project.
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$23,278	\$279,331	\$1,393,832	\$1,696,441	

Water Distribution System

Neighborhood Lead Service Line Replacement Program

PROJECT NUMBER: 2021-325-109-0

DSIC Eligible: Yes

PHASE: Planning/Construction
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Neighborhood Lead Service Line Replacement (LSLR) program to replace all remaining public and private lead service lines within the PWSA water service area. Program will be developed once 2023-2026 Small Diameter Water Main Replacement program is fully planned.
PROJECT JUSTIFICATION: Comply with PWSA goals in the Lead Infrastructure Plan approved by PUC.
RISK(S): Compliance with PWSA goals and regulatory recommendations.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability and water quality.

CASH FLOW SUMMARY							FUNDING SOURCE(S)
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$13,582,757	\$27,792,500	\$55,585,000	\$27,792,500	\$0	\$124,752,757	ARPA/PEN NVEST

Water Distribution System

North Side Boundary Adjustments

PROJECT NUMBER: 2025-200-104-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: Main and valve installation to move some low pressure areas from the McNaugher Pressure District to the Brashears Pressure District.
PROJECT JUSTIFICATION: Areas within the McNaugher Pressure District that are near the Brashears Pressure District could have increased pressure by moving the pressure zone boundary through main improvements and valve adjustments.
RISK(S): Existing services are near or below minimum standards (20 psi).
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$79,393	\$532,780	\$953,827	\$1,566,000	

Water Distribution System

Priority LSLR

PROJECT NUMBER: 2021-325-107-0

DSIC Eligible: No

PHASE: Construction
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Provide for LSLR at Priority sides including childcare facilities and exceedance locations.
PROJECT JUSTIFICATION: Comply with PWSA goals in the Lead Infrastructure Plan approved by PUC.
RISK(S): Failure to replace private lead service lines poses a public health risk.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability and water quality.

CASH FLOW SUMMARY

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>FUNDING SOURCE(S)</u>
Annual Allocation	\$3,000,000	\$0	\$0	\$0	\$0	\$3,000,000	PENNVEST

Water Distribution System

Private Lead Service Line Reimbursement Program

PROJECT NUMBER: 2023-200-103-0

DSIC Eligible: Yes

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Reimbursement of private line lead service line costs.
PROJECT JUSTIFICATION: Replacing both private and public lead service lines is required to eliminate lead in the water system.
RISK(S): Failure to replace private lead service lines poses a public health risk.
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

CASH FLOW SUMMARY

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>FUNDING SOURCE(S)</u>
Annual Allocation	\$400,000	\$0	\$0	\$0	\$0	\$400,000	Debt (Revenue Bonds)

Water Distribution System

Regulator Valve and Vault Replacement Program

PROJECT NUMBER: 2021-325-102-0, 2023-200-104-0, 2024-200-101-0, 2025-200-105-0, 2026-200-101-0, 2027-325-200-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Replacement of pressure zone interconnection vaults including new pressure regulators, flow meters, pressure transmitters, and SCADA communications.
PROJECT JUSTIFICATION: Existing regulator stations are in need of replacement. This will also aid in identification of non-revenue water.
RISK(S): Failure to fix could result in failure of the vault.
IMPACT ON OPERATIONS: Decreased leakage will result in decrease of pumping energy.

Program Years	CASH FLOW SUMMARY						FUNDING SOURCE(S)
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total	
	\$378,494	\$1,839,361	\$3,446,739	\$4,173,180	\$3,439,080	\$13,276,854	
2021 Regulator Valve and Vault Replacement	\$233,422	\$933,717	914,264	\$0	\$0	\$2,081,403	Debt (Revenue Bonds)
2022 Regulator Valve and Vault Replacement	\$89,723	\$517,050	\$257,850	\$292,720	\$0	\$1,157,343	
2023 Regulator Valve and Vault Replacement	\$55,349	\$305,570	\$1,760,920	\$878,161	\$0	\$3,000,000	
2024 Regulator Valve and Vault Replacement	\$0	\$83,024	\$458,355	\$2,641,379	\$1,317,242	\$4,500,000	
2025 Regulator Valve and Vault Replacement	\$0	\$	\$55,349	\$305,570	\$1,760,920	\$2,121,839	
2026 Regulator Valve and Vault Replacement	\$0	\$0	\$0	\$55,350	\$305,570	\$360,920	
2027 Regulator Valve and Vault Replacement	\$0	\$0	\$0	\$0	55,349	\$55,349	

Water Distribution System

Small Diameter Water Main Replacement Program

PROJECT NUMBER: 2020-325-106-0 / 1 / 2, 2021-325-104-0/ 1/ 2, 2022-325-113-0/ 2/ 3, 2023-200-105-0, 2024-200-102-0, 2025-200-106-0, 2026-200-102-0, Unidentified

DSIC Eligible: Yes

PHASE: Construction / Design / Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: Strategic replacement of water mains to improve system reliability as well as improve water pressure, maintain water quality, and minimize disturbance to the community. Program will initially focus on replacing existing 4" and 6" unlined cast iron mains and mains with a history of frequent breaks.
PROJECT JUSTIFICATION: By maintaining a proactive approach to asset management, efforts can be directed towards remedying assets before their failure, thus saving overall replacement cost. Additionally, projects will be coordinated with other utilities to minimize disturbance to the community and street surface restoration costs. Water quality will also improve by removing tuberculated mains.
RISK(S): Customers may be subject to service outages.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

Program Year	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$83,515,129	\$75,057,894	\$57,763,375	\$53,807,131	\$89,408,776	\$359,552,305	
2021 Small Main Replacement	\$27,077,320	\$0	\$0	\$0	\$0	\$27,077,320	Debt (Revenue Bonds) / PENNVEST
2022 Small Main Replacement	\$47,405,571	\$33,861,122	\$0	\$0	\$0	\$81,266,693	
2023 Small Main Replacement	\$7,982,472	\$26,104,038	\$8,701,346	\$0	\$0	\$42,787,856	
2024 Small Main Replacement	\$1,049,756	\$14,287,293	\$37,846,331	\$9,461,583	\$0	\$62,644,963	
2025 Small Main Replacement	\$0	\$805,441	\$10,109,849	\$26,498,219	\$6,624,555	\$44,038,064	
2026 Small Main Replacement	\$0	\$0	\$1,105,849	\$14,431,097	\$38,033,034	\$53,569,980	
2027 Small Main Replacement	\$0	\$0	\$0	\$3,416,232	\$44,751,187	\$48,167,419	

Water Distribution System

Small Meter Replacement Program

PROJECT NUMBER: 2023-200-106-0

DSIC Eligible: No

PHASE: Construction / Not Started
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Annual replacement of water meters 1" or less.
PROJECT JUSTIFICATION: Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed.
RISK(S): Failure to replace meters annually could result in lost revenue or violate regulatory requirements.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

CASH FLOW SUMMARY

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>FUNDING SOURCE(S)</u>
Annual Allocation	\$1,723,172	\$1,351,089	\$480,769	\$250,000	\$291,667	\$4,096,697	Debt (Revenue Bonds)

Water Distribution System

South Side Slopes Boundary Adjustments

PROJECT NUMBER: 2025-200-107-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: Main and valve adjustments to move the boundary between the Highland No. 2 and Allentown Pressure Districts.
PROJECT JUSTIFICATION: Areas within the Highland No. 2 pressure district that are near the Allentown pressure district could have increased pressure by moving the pressure zone boundary through main improvements and valve adjustments.
RISK(S): Existing services are near or below minimum standards (20 psi).
IMPACT ON OPERATIONS: Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$79,393	\$532,780	\$953,827	\$1,566,000	

Water Distribution System

Unmetered and Flat Rate Properties

PROJECT NUMBER: 2021-325-103-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Regulatory Compliance, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Metering unmetered and flat rate properties as required by regulations.
PROJECT JUSTIFICATION: Required per the PUC regulations. The impact of not installing meters is the loss of revenue and lack of ability to accurately estimate water loss in the system.
RISK(S): Failure to comply with PUC regulations and the potential of lost revenue.
IMPACT ON OPERATIONS: Increased system reliability, reliability, and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$327,250	\$635,250	\$0	\$0	\$0	\$962,500	Debt (Revenue Bonds)

Water Distribution System

Urgent Lead Service Line Replacement

PROJECT NUMBER: 2021-325-112-0, 2023-200-107-0, 2024-200-103-0, 2025-200-108-0, 2026-200-103-0, 2027-200-102-0

DSIC Eligible: Yes

PHASE: Not Started
PRIORITY: Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact
PROJECT DESCRIPTION: This project involves the private side Lead Service Line Replacements (LSLR) associated with operations public side replacements. It includes provisions for some full line replacements when operations requests both sides be completed due to their workload or other factors.
PROJECT JUSTIFICATION: Compliance with the Lead Infrastructure Plan approved by the PUC. PUC requires termination if a private side lead service line is not replaced the same time the public service line is replaced. Not completing this project would lead to water service terminations.
RISK(S): Required to terminate service if property owners do not replace their private side lead service lines after operations replaces a public side service line.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability and water quality.

Program Year	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$1,778,654	\$1,749,194	\$1,670,086	\$1,590,751	\$1,246,677	\$8,035,362	
2022 Urgent Lead Service Line Replacement	\$762,720	\$0	\$0	\$0	\$0	\$762,720	DSIC - Water
2023 Urgent Lead Service Line Replacement	\$1,015,934	\$721,566	\$0	\$0	\$0	\$1,737,500	
2024 Urgent Lead Service Line Replacement	\$0	\$1,027,628	\$729,872	\$0	\$0	\$1,757,500	
2025 Urgent Lead Service Line Replacement	\$0	\$0	940,214	\$667,786	\$0	\$1,578,500	
2026 Urgent Lead Service Line Replacement	\$0	\$0	\$0	\$922,965	\$655,535	\$1,578,500	
2027 Urgent Lead Service Line Replacement	\$0	\$0	\$0	\$0	591,142	\$591,142	

Water Distribution System

Valve Replacement Program

PROJECT NUMBER: 2021-325-113-0, 2023-200-108-0, 2024-200-104-0, 2025-200-109-0, 2026-200-104-0, 2027-200-103-0

DSIC Eligible: Yes

PHASE: Construction / Not Started
PRIORITY: Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Replacement of defective or non-operational valves on transmission and distribution mains throughout the water distribution system, excluding valves replaced during waterline relays.
PROJECT JUSTIFICATION: Increasing the number of operable valves in the system will reduce the number of valves that would need to be closed during emergency conditions, and therefore the number of customers that may be impacted.
RISK(S): A larger number of customers may be subject to service outages.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

Program Year	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$2,505,485	\$2,800,000	\$2,674,359	\$2,800,000	\$2,925,641	\$13,705,485	
2021 Valve Replacement	\$150,000	\$0	\$0	\$0	\$0	\$150,000	DSIC - Water
2022 Valve Replacement	\$722,152	\$0	\$0	\$0	\$0	\$722,152	
2023 Valve Replacement	\$1,633,333	\$1,166,667	\$0	\$0	\$0	\$2,800,000	
2024 Valve Replacement	\$0	\$1,633,333	\$1,166,667	\$0	\$0	\$2,800,000	
2025 Valve Replacement	\$0	\$0	\$1,507,692	\$1,292,308	\$0	\$2,800,000	
2026 Valve Replacement	\$0	\$0	\$0	\$1,507,692	\$1,292,308	\$2,800,000	
2027 Valve Replacement	\$0	\$0	\$0	\$0	\$1,633,333	\$1,633,333	

Water Distribution System

Water and Wastewater Safety and Security Improvements

PROJECT NUMBER: 2022-325-101-0

DSIC Eligible: No

PHASE: Construction / Not Started
PRIORITY: Safety, Operating Efficiency
PROJECT DESCRIPTION: Safety and security improvements throughout PWSA facilities.
PROJECT JUSTIFICATION: Failure to implement safety and security measures will increase the likelihood of a security breach causing harm to PWSA employees and customers.
RISK(S): Security breaches.
IMPACT ON OPERATIONS: Increased safety and security at all PWSA facilities.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$1,567,547	\$0	\$0	\$0	\$0	\$1,567,547	

Water Distribution System

Water and Wastewater Safety and Security Improvements (Pennvest)

PROJECT NUMBER: 2023-200-109-0

DSIC Eligible: No

PHASE: Design
PRIORITY: Safety, Operating Efficiency
PROJECT DESCRIPTION: Safety and security improvements throughout PWSA facilities.
PROJECT JUSTIFICATION: Failure to implement safety and security measures will increase the likelihood of a security breach causing harm to PWSA employees and customers.
RISK(S): Security breaches.
IMPACT ON OPERATIONS: Increased safety and security at all PWSA facilities.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$9,978,156	\$0	\$0	\$0	\$0	\$9,978,156	PENNVEST

Water Distribution System

Water Relay Program

PROJECT NUMBER: 2021-325-110-0, 2023-200-110-0, 2024-200-105-0, 2025-200-110-0, 2026,200-105-0, 2027-200-104-0

DSIC Eligible: Yes

PHASE: Construction
PRIORITY: Safety, Operating Efficiency, Quality of Service
PROJECT DESCRIPTION: Replacement of existing water mains, valves, fittings, service connections, and hydrants due to emergency situations.
PROJECT JUSTIFICATION: The existing water distribution system is aging and updates are required to address failures that could be significant public safety hazards.
RISK(S): Customers will be subject to service outages or inadequate pressure.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

Program Year	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
	\$2,145,000	\$2,150,000	\$2,712,308	\$3,254,769	\$3,440,141	\$13,702,218	
2022 Water Relay	\$1,500,000	\$0	\$0	\$0	\$0	\$1,500,000	
2023 Water Relay	\$645,000	\$1,290,000	\$0	\$0	\$0	\$1,935,000	
2024 Water Relay	\$0	\$860,000	\$1,720,000	\$0	\$0	\$2,580,000	
2025 Water Relay	\$0	\$0	\$992,308	\$2,232,692	\$0	\$3,225,000	
2026 Water Relay	\$0	\$0	\$0	\$1,022,077	\$2,299,673	\$3,321,750	
2027 Water Relay	\$0	\$0	\$0	\$0	\$1,140,468	\$1,140,468	

Water Distribution System

Water Distribution Contingency

PROJECT NUMBER: 2023-200-111-0

DSIC Eligible: No

PHASE: Not Applicable
PRIORITY: Not Applicable
PROJECT DESCRIPTION: Water Distribution System contingency pass-through project.
PROJECT JUSTIFICATION: Improved efficiency of capital improvement plan fund management.
RISK(S): No identified risks.
IMPACT ON OPERATIONS: Improved efficiency of capital improvement plan management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$0	\$0	\$0	\$0	



Wastewater System



Wastewater System

31st Ward Pump Station and Appurtenances - Phase 2

PROJECT NUMBER: 2022-424-108-0

DSIC Eligible: No

PHASE:

Planning

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:

Evaluation to identify and locate the source(s) of the infiltration and inflow (I/I), removal of public I/I sources, and rehabilitation/replacement of the Rogers Street and Mifflin Road Pump Station and force main.

PROJECT JUSTIFICATION:

Both sewage pump stations and the force main that convey flow to the Streets Run Sanitary Trunk Sewer were constructed in the late 1940's and are reaching the end of their useful life. Additionally, past studies suggest this sewershed may be significantly impacted by high levels of infiltration/inflow.

RISK(S):

Increased combined sewer overflows and pump station system failures.

IMPACT ON OPERATIONS:

Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$958,333	\$726,667	\$613,667	\$7,447,000	\$7,447,000	\$17,192,667	

Wastewater System

6122 and 6150 Mifflin Road Demolition

PROJECT NUMBER: 2022-424-104-0

DSIC Eligible: No

PHASE:

Planning

PRIORITY:

Safety, Quality of Service

PROJECT DESCRIPTION:

This project associated with 31st Ward Pump Station and Appurtences - Phase 2 - providing for the demolition of 6122 and 6150 Mifflin Road.

PROJECT JUSTIFICATION:

This project is essential to the completion of the 31st Ward Pump Station and Appurtences project.

RISK(S):

Decreased ability to complete existing projects.

IMPACT ON OPERATIONS:

Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$50,000	\$0	\$0	\$0	\$0	\$50,000	

Wastewater System

Browns Hill Road Sewer Pump Station Replacement

PROJECT NUMBER: 2022-424-109-0

DSIC Eligible: No

PHASE:

Planning

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:

Construction of a replacement 160 GPM sanitary sewer pump station, including standby power, safer ingress and egress for routine maintenance, a water supply for equipment wash down and odor control facilities, if required. Additionally, perform a condition assessment of the 4" force main (approx. 790 l.f.) constructed in 2007, but not utilized and confirm sanitary sewer separation occurred. Additional sewer separation may need to occur prior to modifying the existing diversion chamber.

PROJECT JUSTIFICATION:

The existing sanitary sewer pump station has reached the end of its useful life. The replacement station will provide increased operating efficiency and resiliency and improved safety conditions for staff.

RISK(S):

If the station is not replaced, pump or wet well failures could occur, which would result in sanitary sewer overflows. Sanitary sewer overflows could result in fines and notice of violations from regulating agencies.

IMPACT ON OPERATIONS:

Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$432,000	\$1,608,000	\$1,880,000	\$0	\$0	\$3,920,000	

Wastewater System

Large Diameter Sewer Rehabilitation Program

PROJECT NUMBER: 2020-424-101-0, 2020-424-107-0, 2021-424-105-0, 2022-424-110-0, 2024-400-100-0, 2025-400-100-0, 2026-400-100-0, 2027-400-100-0

DSIC Eligible: No

PHASE:
Design / Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:
Proactive, trenchless rehabilitation of 36" diameter or greater sewer mains to restore structural integrity, reduce root intrusion, and reduce infiltration and inflow; including cleaning and pre and post construction CCTV inspections.

PROJECT JUSTIFICATION:
Provides the Authority with a means to address several moderate/major structural defects in pipe segments prior to complete failure. This trenchless pipe renewal method renews the asset, eliminates disruptive excavation, and is more cost effective than replacement.

RISK(S):
If moderate/major structural defects are not proactively addressed, complete failure will eventually occur and excavation will be required. Any complete failure that occurs will result in dramatically increased expenditures for repair.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability.

Program Year	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$12,774,486	\$2,997,238	\$4,266,000	\$4,897,000	\$4,957,000	\$29,891,724	
2020 Large Diameter Sewer Rehabilitation	\$623,290	\$0	\$0	\$0	\$0	\$623,290	Debt (Revenue Bonds) / DSIC – Wastewater
2021 Large Diameter Sewer Rehabilitation	\$7,136,911	\$0	\$0	\$0	\$0	\$7,136,911	
2022 Large Diameter Sewer Rehabilitation	\$4,536,190	\$522,000	\$0	\$0	\$0	\$5,058,190	
2023 Large Diameter Sewer Rehabilitation	\$478,095	\$1,935,238	\$0	\$0	\$0	\$2,413,333	
2024 Large Diameter Sewer Rehabilitation	\$0	\$540,000	\$3,706,000	\$414,000	\$0	\$4,660,000	
2025 Large Diameter Sewer Rehabilitation	\$0	\$0	\$560,000	\$3,903,000	\$437,000	\$4,900,000	
2026 Large Diameter Sewer Rehabilitation	\$0	\$0	\$0	\$580,000	\$4,100,000	\$4,680,000	
2027 Large Diameter Sewer Rehabilitation	\$0	\$0	\$0	\$0	\$420,000	\$420,000	

Wastewater System

M-29 Outfall Improvements

PROJECT NUMBER: 2018-424-103-0

DSIC Eligible: No

PHASE: Construction
PRIORITY: Regulatory Compliance, Quality of Service
PROJECT DESCRIPTION: Modifying diversion chamber, rehabilitating culvert, constructing an endwall, and installing flapgate associated with the M-29 outfall structure.
PROJECT JUSTIFICATION: The M-29 outfall structure is critical infrastructure that has been in jeopardy of failing for several years due to significant structural defects in the existing culvert.
RISK(S): Project close-out phase. The M-29 outfall structure could have failed if not addressed through this project.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$250,000	\$0	\$0	\$0	\$0	\$250,000	

Wastewater System

Maytide Storm and Sanitary Sewer System Improvements

PROJECT NUMBER: 2017-424-109-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:

Reconstruction of storm infrastructure from Merritt Avenue to the storm interceptor on Ravilla Avenue and the realignment of the 10" sanitary sewer on Maytide (Sanderson to Valline).

PROJECT JUSTIFICATION:

Localized property and street flooding has been well-documented for several years at this location and the undeveloped right-of-way of Sanderson has significantly deteriorated. Additionally, an inspection of the 10" sanitary sewer on Maytide Street revealed structural and construction defects.

RISK(S):

Continual degradation to a steep slope could result in property damage and an increased cost to stabilize.

IMPACT ON OPERATIONS:

Increased operating reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$118,027	\$4,026,497	\$1,957,785	\$0	\$0	\$6,102,309	

Wastewater System

Queenston Sewer Improvements

PROJECT NUMBER: 2019-424-103-2

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory Compliance, Safety, Quality of Service

PROJECT DESCRIPTION:

Removal of a combined sewer diversion chamber and installation of new sewer infrastructure, which will result in the separation of the sewershed.

PROJECT JUSTIFICATION:

The existing sewer infrastructure (both storm and sanitary) have significant structural defects, which are located under a large structure in a paper street over 40 feet deep.

RISK(S):

The existing sewer infrastructure (both storm and sanitary) have significant structural defects, which if not mitigated, could result in property damage and increased costs.

IMPACT ON OPERATIONS:

Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$2,210,550	\$243,203	\$0	\$0	\$0	\$2,453,753	Debt (Revenue Bonds)

Wastewater System

Sewer Reconstruction Program

PROJECT NUMBER: 2022-424-100-0, 2023-400-100-0, 2024-400-101-0, 2025-400-101-0, 2026-400-101-0, 2027-400-101-0

DSIC Eligible: Yes

PHASE:
Construction / Not Started

PRIORITY:
Regulatory Compliance, Safety, Quality of Service

PROJECT DESCRIPTION:
Reconstruction of existing sewers, manholes, catch basins, and inlets due to emergency situations or pipe failures.

PROJECT JUSTIFICATION:
The existing sewer system is aging and immediate repairs are required.

RISK(S):
The Authority may be subject to related fines due to sewer overflows or for non-compliance as outlined in the Consent Order and Agreement.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability.

Program Year	<u>CASH FLOW SUMMARY</u>						<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$2,691,769	\$1,810,000	\$1,810,000	\$1,886,458	\$2,701,330	\$10,899,557	
2021 Sewer Reconstruction	\$200,000	\$0	\$0	\$0	\$0	\$200,000	Debt (Revenue Bonds) / DSIC – Wastewater
2022 Sewer Reconstruction	\$1,456,849	\$0	\$0	\$0	\$0	\$1,456,849	
2023 Sewer Reconstruction	\$1,034,920	\$775,080	\$0	\$0	\$0	\$1,810,000	
2024 Sewer Reconstruction	\$0	\$1,034,920	\$775,080	\$0	\$0	\$1,810,000	
2025 Sewer Reconstruction	\$0	\$0	\$1,034,920	\$775,080	\$775,080	\$2,585,080	
2026 Sewer Reconstruction	\$0	\$0	\$0	\$1,111,378	\$833,622	\$1,945,000	
2027 Sewer Reconstruction	\$0	\$0	\$0	\$0	\$1,092,628	\$1,092,628	

Wastewater System

Sewers Under Structures Program

PROJECT NUMBER: 2017-424-110-0,
 2020-424-104-0 / 1,
 2022-424-107-0, 2023-400-101-0, 2024-400-102-0, 2025-400-102-0, 2026-400-102-0, 2027-400-102-0
DSIC eligible No

PHASE: Design / Not Started
PRIORITY: Regulatory Compliance, Safety, Quality of Service
PROJECT DESCRIPTION: Rehabilitation, relocation, and abandonment, if applicable, of existing sewer infrastructure located under or adjacent to buildings, bridges, or railroads or located on steep slopes.
PROJECT JUSTIFICATION: In recent years, there has been an increasing rate of failure of this asset type due to limited accessibility and pipe age. By maintaining a proactive approach to asset management, efforts can be directed towards remedying assets before their failure, thus saving in overall replacement cost.
RISK(S): Failure of this asset type could result in increased replacement cost, and increased service outages or bypass pumping.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

<u>Program</u> <u>Year</u>	<u>CASH FLOW SUMMARY</u>						<u>FUNDING</u> <u>SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$6,786,030	\$2,373,663	\$2,422,730	\$3,530,383	\$3,386,507	\$18,499,314	
2018 Sewers Under Structures	\$1,030,897	\$1,300,707	\$0	\$0	\$0	\$2,331,604	Debt (Revenue Bonds) / DSIC – Wastewater
2020 Sewers Under Structures	\$5,480,280	\$672,368	\$0	\$0	\$0	\$6,152,648	
2022 Sewers Under Structures	\$226,103	\$117,647	\$2,028,730	\$831,270	\$0	\$3,203,750	
2023 Sewers Under Structures	\$48,750	\$234,191	\$111,059	\$2,303,238	\$672,762	\$3,370,000	
2024 Sewers Under Structures	\$0	\$48,750	\$234,191	\$111,059	\$2,303,238	\$2,697,238	
2025 Sewers Under Structures	\$0	\$0	\$48,750	\$234,191	\$111,059	\$394,000	
2026 Sewers Under Structures	\$0	\$0	\$0	\$50,625	\$243,199	\$293,824	
2027 Sewers Under Structures	\$0	\$0	\$0	\$0	\$56,250	\$56,250	

Wastewater System

Small Diameter Sewer Rehabilitation Program

PROJECT NUMBER: 2020-424-108-0, 2020-424-106-0 / 1 / 2, 2021-424-101-0 / 1/ 2, 2021-424-108-0/ 1/ 2/ 3, 2024-400-103-0, 2025-400-102-0, 2026-400-103-0, 2027-400-103-0, Unidentified

DSIC Eligible: Yes

PHASE:
Design, Construction, Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:
Proactive, trenchless rehabilitation of sewer mains (36" diameter and less) to restore structural integrity, reduce root intrusion, and reduce infiltration and inflow; including cleaning and pre and post construction CCTV inspections.

PROJECT JUSTIFICATION:
Provides the Authority with a means to address several moderate/major structural defects in pipe segments prior to complete failure. This trenchless pipe renewal method renews the asset, eliminates disruptive excavation, and is more cost effective than replacement.

RISK(S):
If moderate/major structural defects are not proactively addressed, complete failure will eventually occur and excavation will be required. Any complete failure that occurs will result in dramatically increased expenditures for repair.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability.

Program Year	CASH FLOW SUMMARY						FUNDING SOURCE(S)
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total	
	\$24,363,045	\$17,657,219	\$14,629,597	\$27,990,468	\$36,426,240	\$121,066,569	
2020 Small Diameter Sewer Rehabilitation Contract 2 Defined Sites	\$731,123	\$0	\$0	\$0	\$0	\$731,123	Debt (Revenue Bonds) / PENNVEST
2021 Small Diameter Rehabilitation	\$1,928,755	\$0	\$0	\$0	\$0	\$1,928,755	
2022 Small Diameter Rehabilitation	\$7,469,189	\$0	\$0	\$0	\$0	\$7,469,189	
2023 Small Diameter Rehabilitation	\$11,723,978	\$5,736,816	\$0	\$0	\$0	\$17,460,794	
2024 Small Diameter Rehabilitation	\$2,510,000	\$11,920,403	\$9,339,597	\$0	\$0	\$23,770,000	
2025 Small Diameter Rehabilitation	\$0	\$0	\$2,590,000	\$12,236,474	\$9,583,526	\$24,410,000	
2026 Small Diameter Rehabilitation	\$0	\$0	\$2,700,000	\$12,813,994	\$10,046,006	\$25,560,000	
2027 Small Diameter Rehabilitation	\$0	\$0	\$0	\$2,940,000	\$13,796,708	\$16,736,708	
2028 Small Diameter Rehabilitation	\$0	\$0	\$0	\$0	\$3,000,000	\$3,000,000	

Wastewater System

Wastewater Contingency

PROJECT NUMBER: 2023-400-102-0

DSIC Eligible: No

PHASE:
Not Applicable

PRIORITY:
Not Applicable

PROJECT DESCRIPTION:
Wastewater contingency pass-through project.

PROJECT JUSTIFICATION:
Improved efficiency of capital improvement plan fund management.

RISK(S):
No identified risks.

IMPACT ON OPERATIONS:
Improved efficiency of capital improvement plan management.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$0	\$0	\$0	\$0	\$0	\$0	



Stormwater



Stormwater System

Braywood Stormwater Improvements

PROJECT NUMBER: 2022-424-105-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

PROJECT DESCRIPTION:

Stormwater detention system in the right-of-way in and around Braywood Way to increase stormwater control and mitigate flooding experienced by residents. Infrastructure could include permeable pavement, bioswales, subsurface detention, etc. depending on design determinations. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

PROJECT JUSTIFICATION:

There's a low point on Braywood Way that experiences persistent, severe flooding. This system is undersized and deteriorating, keeping up with minor precipitation events but the majority cause flooding.

RISK(S):

Risks associated with not completing this project include poor level of service.

IMPACT ON OPERATIONS:

This project would decrease the need for persistent catch basin cleaning in this location.

CASH FLOW SUMMARY

**FUNDING
SOURCE(S)**

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$434,625	\$439,375	\$0	\$0	\$0	\$874,000	Debt (Revenue Bonds)

Stormwater System

Bus Rapid Transit Phase 2

PROJECT NUMBER: 2023-500-100-0

DSIC Eligible: No

PHASE:

Planning

PRIORITY:

Safety, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:

The betterments in phase 2 currently includes the stormwater/green infrastructure (GI) improvements in the Uptown Neighborhood.

PROJECT JUSTIFICATION:

The construction of the BRT Project requires that certain facilities owned and/or operated by PWSA be removed, replaced, and/or relocated.

RISK(S):

Could result in PWSA being 100% responsible for the removal, replacement, and/or relocation of certain facilities owned and/or operated by PWSA.

IMPACT ON OPERATIONS:

Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$500,000	\$500,000	\$500,000	\$0	\$1,500,000	Debt (Revenue Bonds)

Stormwater System

Bus Rapid Transit Stormwater Infrastructure Improvements

PROJECT NUMBER: 2020-GI-100-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Safety, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:

A cost share with the City of Pittsburgh's Department of Mobility and Infrastructure on the redesign of Forbes Avenue and Fifth Avenue to accommodate bus rapid transit from downtown to Birmingham Bridge. This project will include the installation of permeable paving, underground storage, and bioretention plantings and is tributary to the M-05 and M-19 outfall.

PROJECT JUSTIFICATION:

This project will help slow or reduce runoff into the combined sewer system during wet weather events.

RISK(S):

Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could cause issues during wet weather events.

IMPACT ON OPERATIONS:

Increased system reliability and improved system management.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$71,382	\$785,634	\$703,638	\$0	\$0	\$1,560,654	Debt (Revenue Bonds)

Stormwater System

Catch Basin and Inlet Replacement Program

PROJECT NUMBER: 2020-424-107-0, 2020-424-106-0/ 1/ 2, 2021-424-107-0, 2022-424-106-0, 2024-500-100-0, 2025-500-100-0, 2026-500-100-0, 2027-500-100-0, Unidentified

DSIC Eligible: No

PHASE:
Construction / Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Strategic replacement of catch basins and storm inlets throughout the system to replace failed units, stormwater control reliability, and minimize disturbance to the community.

PROJECT JUSTIFICATION:
By maintaining a proactive approach to asset management, efforts can be directed towards remedying assets before their failure, thus saving in overall replacement cost.

RISK(S):
Overland and street flooding could occur due to a defective or undersized catch basin or storm inlet, creating a public health and safety hazard during wet weather events.

IMPACT ON OPERATIONS:
Increased operating reliability.

<u>Program</u> <u>Year</u>	<u>CASH FLOW SUMMARY</u>						<u>FUNDING</u> <u>SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
	\$11,539,877	\$16,007,303	\$14,436,109	\$14,867,221	\$15,308,750	\$72,159,260	PENNVEST /Debt (Revenue Bonds)
2022 Catch Basin and Inlet Replacement	\$2,803,513	\$0	\$0	\$0	\$0	\$2,803,513	
2023 Catch Basin and Inlet Replacement	\$8,736,364	\$4,963,636	\$0	\$0	\$0	\$13,700,000	
2024 Catch Basin and Inlet Replacement	\$0	\$11,043,667	\$3,067,333	\$0	\$0	\$14,111,000	
2025 Catch Basin and Inlet Replacement	\$0	\$0	\$11,368,776	\$3,165,554	\$0	\$14,534,330	
2026 Catch Basin and Inlet Replacement	\$0	\$0	\$0	\$11,701,667	\$3,248,333	\$14,950,000	
2027 Catch Basin and Inlet Replacement	\$0	\$0	\$0	\$0	\$12,060,417	\$12,060,417	

Stormwater System

Dragoon Way Stormwater Improvements

PROJECT NUMBER: 2020-424-103-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

This would involve upsizing stormwater infrastructure as well as road paving on Dragoon Way. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

PROJECT JUSTIFICATION:

This area experiences significant roadway and property flooding. Runoff flows down Dragoon Way and through multiple Adelphia Street properties, flooding Adelphia Street. PWSA currently owns stormwater infrastructure on Adelphia Street that is undersized and deteriorating.

RISK(S):

Risks associated with not completing this project include poor level of service.

IMPACT ON OPERATIONS:

Reduced need for catch basin cleaning after significant precipitation events.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$983,000	\$95,625	\$0	\$0	\$0	\$1,078,625	Debt (Revenue Bonds)

Stormwater System

Fleury Way Stormwater Infrastructure Improvements

PROJECT NUMBER: 2021-424-102-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Construction of storm sewer infrastructure to address persistent and severe street flooding and roadway damage. Project will include installing approximately 500 ft of 18" storm sewers and 4 new catch basins as well as inverting the crown of the road and adding proper curbing for optimal drainage. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

PROJECT JUSTIFICATION:
After field assessment and review, the stormwater group ranked this issue as a "high priority" because of the severity of road degradation and persistent street flooding caused by lack of stormwater infrastructure and improper road design. This issue is located in the A-42 Green First sewershed.

RISK(S):
Continued road degradation and persistent flooding.

IMPACT ON OPERATIONS:
4 additional inlets, operations will need to be added to the cleaning schedule.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$476,212	\$0	\$0	\$0	\$0	\$476,212	

Stormwater System

Four Mile Run Stormwater Infrastructure Improvements

PROJECT NUMBER: 2018-GI-102-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Sewer separation, stream restoration, stream daylighting, bioretention, and underground storage to remove the existing stream base and wet weather flow currently discharging into the combined sewer located in M-29.

PROJECT JUSTIFICATION:
This project will separate wet weather flow being directly discharged into the Authority's combined sewer system.

RISK(S):
Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could create issues during wet weather events.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$645,557	\$4,500,108	\$8,723,924	\$6,171,203	\$0	\$20,040,792	

Stormwater System

Haverhill Street Improvements Project

PROJECT NUMBER: 2022-424-102-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

This project will capture and redirect an existing nuisance groundwater seep into retention/slow release subsurface infrastructure, either in the form of a perforated pipe and gravel bed or a retention tank. The project will also involve landslide stabilization to prevent current persistent sediment accumulation in the downstream sewer and green infrastructure as well as associated roadway restoration. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

PROJECT JUSTIFICATION:

There is currently an unmanaged groundwater seep flowing down Haverhill Street, flooding properties, depositing significant amounts of sediment into PWSA's sewer system and a PWSA green infrastructure site (Oakwood and Batavia). This project would decrease private property flooding, reduce the amount of sediment entering the sewer system, save PWSA maintenance costs involved with removing sediment from nearby catch basins and green infrastructure and stop continued green infrastructure system degradation caused by this seep.

RISK(S):

Risk of persistent depositing of sediment into PWSA's sewer system.

IMPACT ON OPERATIONS:

This would decrease maintenance needs for both the green infrastructure maintenance contract as well as the catch basin cleaning contract.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$1,003,900	\$104,500	\$0	\$0	\$0	\$1,108,400	Debt (Revenue Bonds)

Stormwater System

Lawn and Ophelia

PROJECT NUMBER: 2017-424-104-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Regulatory Compliance, Organizational Goals

PROJECT DESCRIPTION:
Project is located in the South Oakland neighborhood in the City of Pittsburgh and is a tributary to the M-19B outfall. This project is intended to be a community gathering space combined with stormwater management features.

PROJECT JUSTIFICATION:
It is anticipated that 1.9 impervious acres from neighboring roads and roofs can be managed.

RISK(S):
Risk of service disruption.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$203,741	\$0	\$0	\$0	\$0	\$203,741	

Stormwater System

Martin Luther King Field Stormwater Infrastructure Improvements

PROJECT NUMBER: 2019-GI-104-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

Installation of regenerative bioswale and underground detention facilities to capture and detain impervious acres from the adjacent streets and upstream separate storm sewers, which currently discharges into the combined sewer located in M-19.

PROJECT JUSTIFICATION:

This project will help slow or reduce runoff into the combined sewer system during wet weather events.

RISK(S):

Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could cause issues during wet weather events.

IMPACT ON OPERATIONS:

Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$3,096,867	\$1,324,108	\$0	\$0	\$0	\$4,420,975	

Stormwater System

Maryland Avenue Stormwater Infrastructure Improvements

PROJECT NUMBER: 2017-424-101-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Permeable paver based GSI project to manage approximately 5.3 acres of impervious acres for 1.5" runoff event.

PROJECT JUSTIFICATION:
The project purpose is to reduce combined sewer overflows at the downstream A-22 outfall while also improving performance of the local combined sewer system that has experienced surcharge and flooding during intense rain events in downstream areas of Shadyside.

RISK(S):
Risk of flooding and service disruption.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$6,925	\$0	\$0	\$0	\$0	\$6,925	Debt (Revenue Bonds)

Stormwater System

MS4 Permit PRP Plan Sediment Reduction Project

PROJECT NUMBER: 2023-500-101-0

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
Pollutant Reduction Plan (PRP) project to reduce sediment and phosphate levels from entering designated impaired streams per the MS4 permit.

PROJECT JUSTIFICATION:
The MS4 permit requires a reduction of sediment and phosphate loading from baseline levels.

RISK(S):
Failure to meet future regulatory requirements.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	Debt (Revenue Bonds)
Annual Allocation	\$173,000	\$605,000	\$307,500	\$0	\$0	\$1,085,500	

Stormwater System

Saw Mill Run Municipal Separate Storm Sewer System Compliance

PROJECT NUMBER: 2025-500-101-0

DSIC Eligible: No

PHASE:

Planning

PRIORITY:

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:

Identifying and completing projects related to Municipal Separate Storm Sewer System (MS4) compliance.

PROJECT JUSTIFICATION:

This project is necessary to become compliant with MS4 regulatory requirements.

RISK(S):

The timeline to complete the MS4 compliance projects could take longer than expected.

IMPACT ON OPERATIONS:

Increased system reliability and improved system management.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$0	\$500,000	\$1,500,000	\$1,500,000	\$3,500,000	Debt (Revenue Bonds)

Stormwater System

Saw Mill Run Watershed Improvements

PROJECT NUMBER: 2020-424-109-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

Implementation of stormwater treatment and reconnection of streams to vegetated floodplains to help mitigate stormwater peak flows and reduce sediment and other pollutant loads. This project will demonstrate the effectiveness of green infrastructure in reducing pollutants, controlling CSO/SSOs, and restoring the health of the aquatic ecosystems in the Saw Mill Run watershed to comply with regulatory obligations.

PROJECT JUSTIFICATION:

This project will help to comply with regulatory obligations by reducing pollutants and controlling CSO/SSOs.

RISK(S):

It may be difficult to comply with certain regulatory obligations prior to the completion of the project.

IMPACT ON OPERATIONS:

Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$850,000	\$150,000	\$0	\$0	\$0	\$1,000,000	

Stormwater System

Southside Flats Sewer Separation

PROJECT NUMBER: 2021-424-106-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

Separation of 17 acres of combined sewer through the construction of storm drain along Wharton Street to 18th Street.

PROJECT JUSTIFICATION:

This project will help slow or reduce runoff into the combined sewer system during wet weather events.

RISK(S):

Community members are concerned about disruptions during construction and potential rooftop disconnect costs.

IMPACT ON OPERATIONS:

Increased system reliability and improved system management.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$3,327,529	\$2,232,587	\$0	\$0	\$0	\$5,560,116	Debt (Revenue Bonds)

Stormwater System

Southside Stormwater Infrastructure Improvements

PROJECT NUMBER: 2019-GI-100-0

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

The Southside Green / Stormwater project is located in the M-16 sewershed, which discharges approximately 103MG of CSOs in a typical year as it is defined in the current system model. Additionally, there are 15 known surface streams/seeps within the park that appear to connect into the combined sewer system. The project will focus on stormwater management source control opportunities within Southside Park. The project will look at separating the stormwater runoff from the park and road right-of-way areas. It will connect through a new storm sewer discharge to be built under South 21st Street to the Monongahela River. The project will detain and slowly return the stormwater runoff to the combined sewer system.

PROJECT JUSTIFICATION:

This project will help comply with regulatory requirements by reducing CSOs.

RISK(S):

It may be difficult to comply with certain regulatory obligations prior to the completion of the project.

IMPACT ON OPERATIONS:

Increased system reliability and improved system management.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$2,029,140	\$2,703,667	\$0	\$0	\$0	\$4,732,807	Debt (Revenue Bonds)

Stormwater System

Stewart Avenue Stormwater Infrastructure Project

PROJECT NUMBER: 2022-424-1010

DSIC Eligible: No

PHASE:

Design

PRIORITY:

Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:

Overland stormwater runoff during larger precipitation events in the Stewart Avenue area contribute to downstream flooding along Saw Mill Run Blvd, flooding of nearby private properties, street flooding, and roadway damage. Catch basins and storm inlets once discharged to an open drainage channel along Stewart Avenue, however this is no longer operational as the road was recently paved and widened, eliminating the channel. Recognizing that the Saw Mill Run stream corridor is overwhelmed during relatively small rainfall events, PWSA desires to evaluate alternatives with an emphasis toward source control measures and other green strategies where peak flows from the Stewart Avenue runoff area can be possibly detained and mitigated. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

PROJECT JUSTIFICATION:

This project is necessary to increase stormwater service and control in the area, which is currently lacking adequate stormwater infrastructure.

RISK(S):

Failing to complete this project will lead to persistent private property and roadway flooding, chronic depreciation of roadway conditions, and continued worsening flooding and impairment of Saw Mill Run.

IMPACT ON OPERATIONS:

Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$1,400,000	\$1,515,389	\$894,444	\$0	\$0	\$3,809,833	

Stormwater System

Thomas and McPherson Stormwater Infrastructure Improvements

PROJECT NUMBER: 2018-GI-106-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Installation of roadside bioretention features to capture and detain impervious road runoff in the North Point Breeze neighborhood of the City of Pittsburgh, which is a tributary to the A-42 combined sewer outfall.

PROJECT JUSTIFICATION:
This project will help slow or reduce runoff into the combined sewer system during wet weather events.

RISK(S):
Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could in issues during wet weather events.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$854,905	\$0	\$0	\$0	\$0	\$854,905	

Stormwater System

Volunteer's Field Stormwater Infrastructure Improvements

PROJECT NUMBER: 2018-GI-104-0/ 1

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Project is located in the Carrick neighborhood of the City of Pittsburgh and is a tributary to Saw Mill Run. Installation of green infrastructure within the park to reduce sediment and other pollutant loads.

PROJECT JUSTIFICATION:
Required for compliance with the MS4 permit and EPA TMDL requirements. Project will also detain stormwater to reduce downstream flooding in Saw Mill Run.

RISK(S):
It may be difficult to comply with certain regulatory obligations prior to the completion of the project.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$413,125	\$0	\$0	\$0	\$0	\$413,125	

Stormwater System

Wet Weather Program Projects

PROJECT NUMBER: 2023-500-102-0

DSIC Eligible: No

PHASE:
Not Started

PRIORITY:
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

PROJECT DESCRIPTION:
This project is for improvements to the sewer system facilities to bring combined sewer overflows into compliance with the negotiated consent decree and to remediate sanitary sewer overflows.

PROJECT JUSTIFICATION:
This project is required to ensure PWSA meets regulatory requirements related to wet weather flow being directly discharged into the PWSA's combined sewer system.

RISK(S):
Failure to meet future regulatory requirements.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$500,000	\$2,500,000	\$10,000,000	\$10,000,000	\$10,000,000	\$33,000,000	

Stormwater System

Wightman Park Phase 2 Project

PROJECT NUMBER: 2017-424-105-0 / 1

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Operating Efficiency, Quality of Service, Social Impact

PROJECT DESCRIPTION:
Project is located in the Squirrel Hill neighborhood of the City of Pittsburgh and is a tributary to the M-29 outfall. Stormwater management within the park itself as well as the necessary piping or inlet work to direct up to 3.25 impervious acres from the adjacent streets into the park. The Wightman Park project along with future street bioswale projects are expected to increase the impervious acres captured as well as alleviate reported sewer basement backups in the neighborhood around Wightman Park.

PROJECT JUSTIFICATION:
2.24 million gallons of stormwater runoff will be managed through this project in a typical year, producing downstream CSO reduction. The project will also improve the performance of adjacent, downstream sewers through peak flow reduction.

RISK(S):
Risk of fines due to sewer overflows or for non-compliance as outlined in the Consent Order and Agreement.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$182,166	\$0	\$0	\$0	\$0	\$182,166	

Stormwater System

Woodland Road Stormwater Infrastructure Improvements

PROJECT NUMBER: 2018-GI-108-0

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
Bioretention based GSI project to manage approximately 7 acres of impervious acres for 1.5" runoff event. Project location is in A-22 sewershed on the campus of Chatham University adjacent to Woodland Road

PROJECT JUSTIFICATION:
The project purpose is to reduce combined sewer overflows at the downstream A-22 outfall while also improving performance of the local combined sewer system that has experienced surcharge and flooding during intense rain events in downstream areas of Shadyside.

RISK(S):
Risk of service disruption.

IMPACT ON OPERATIONS:
Increased system reliability and improved system management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$245,256	\$0	\$0	\$0	\$0	\$245,256	Debt (Revenue Bonds)

Stormwater System

Woods Run Stream Removal Stormwater Infrastructure Improvements

PROJECT NUMBER: 2017-424-108-0 / 1

DSIC Eligible: No

PHASE:
Construction

PRIORITY:
Safety, Operating Efficiency, Quality of Service

PROJECT DESCRIPTION:
This project will redirect an existing stream inflow location into a detain and slow release subsurface storage facility. The stream base and wet weather flow currently discharge directly into a 36" diameter combined sewer on Mairdale Avenue.

PROJECT JUSTIFICATION:
This project will separate wet weather flow being directly discharged into the PWSA's combined sewer system.

RISK(S):
Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could in issues during wet weather events.

IMPACT ON OPERATIONS:
Increased operating flexibility and reliability.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	<u>Debt (Revenue Bonds)</u>
Annual Allocation	\$1,385,725	\$1,364,127	\$819,206	\$0	\$0	\$3,569,058	

Stormwater System

Stormwater Contingency

PROJECT NUMBER: 2023-500-103-0

DSIC Eligible: No

PHASE:
Not Applicable

PRIORITY:
Not Applicable

PROJECT DESCRIPTION:
Stormwater contingency pass-through project.

PROJECT JUSTIFICATION:
Improved efficiency of capital improvement plan fund management.

RISK(S):
No identified risks.

IMPACT ON OPERATIONS:
Improved efficiency of capital improvement plan management.

<u>CASH FLOW SUMMARY</u>							<u>FUNDING SOURCE(S)</u>
	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$0	\$0	\$0	\$0	\$0	Debt (Revenue Bonds)



Miscellaneous



Miscellaneous

2023 Capital Project Reclassification

PROJECT NUMBER: 2023-600-100-0

DSIC Eligible: No

PHASE: Not Applicable
PRIORITY: Operating Efficiency, Organizational Goals
PROJECT DESCRIPTION: Annual capital project reclassification project.
PROJECT JUSTIFICATION: This project is required to reclassify operating costs related to urgent water replacements, urgent sewer replacements, and manhole and point repairs.
RISK(S): Failure to fully capitalize PWSA assets.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$8,639,316	\$0	\$0	\$0	\$0	\$8,639,316	Debt (Revenue Bonds)

Miscellaneous

New Headquarters and Operations Facility

PROJECT NUMBER: 2023-600-101-0

DSIC Eligible: No

PHASE: Planning
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: PWSA is searching for an area to build a new headquarters location that would also include a space for the operations division.
PROJECT JUSTIFICATION: A new location would provide additional space that is needed as a result of increased operations.
RISK(S): Increased operational challenges.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$2,500,000	\$15,000,000	\$15,000,000	\$32,500,000	\$0	\$50,000,000	Debt (Revenue Bonds)

Miscellaneous

Utility Cost Shares

PROJECT NUMBER: 2023-600-102-0

DSIC Eligible: No

PHASE: Not Started
PRIORITY: Operating Efficiency, Quality of Service, Organizational Goals
PROJECT DESCRIPTION: This project will fund future cost sharing projects.
PROJECT JUSTIFICATION: Cost sharing projects can provide a savings to the Authority.
RISK(S): Cost sharing projects have the potential to be delayed due to coordination issues.
IMPACT ON OPERATIONS: Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$300,000	\$500,000	\$500,000	\$500,000	\$500,000	\$2,300,000	Debt (Revenue Bonds)

Miscellaneous

Miscellaneous Contingency

PROJECT NUMBER: 2023-600-103-0

DSIC Eligible: No

PHASE: Not Applicable
PRIORITY: Not Applicable
PROJECT DESCRIPTION: Miscellaneous contingency pass-through project.
PROJECT JUSTIFICATION: Improved efficiency of capital improvement plan fund management.
RISK(S): No identified risks.
IMPACT ON OPERATIONS: Improved efficiency of capital improvement plan management.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Total</u>	
Annual Allocation	\$0	\$0	\$0	\$0	\$0	\$0	Debt (Revenue Bonds)

Exhibit EB-5



Financial Management Policy

PURPOSE:

This policy provides a framework to maintain the PWSA's financial integrity, while serving the long-term interests of its customers and other constituencies. The PWSA recognizes that maintaining financial integrity is critical to accomplishing its goals and discharging the PWSA's customer and public service responsibilities. This policy establishes processes to be used by the PWSA Board of Directors to define the strategic financial plans for the PWSA and to approve specific financial program goals, objectives, and associated budgets.

SCOPE:

This Financial Management Policy applies to all financial practices within the PWSA.

POLICY:

In seeking to fulfill its customer and public service objectives, the PWSA will maintain a high level of financial stability and will seek not to compromise long-term financial integrity to achieve short-term benefits. This philosophy will ensure the sustainable financial health of the organization.

The Chief Executive Officer is authorized to engage financial service providers and other related professional service providers, if deemed necessary and appropriate by the Chief Executive Officer in consultation with the Chief Financial Officer or designee, considering the expertise and cost of any such service provider. The engagement of professional service providers will adhere to applicable policies regarding procurements enacted by the PWSA. The Executive Director will provide an annual report to the Board listing all contracts into which the PWSA entered pursuant to this paragraph.

Debt Service Coverage: To provide a margin of safety and flexibility in the PWSA's financial affairs, revenue levels will be set to target a minimum debt service coverage ratio of 1.35x on the total debt service for all senior debt obligations and 1.15x on the annual debt service for all subordinate debt obligations. In the event overall debt service coverage is projected to be below 1.35x for any fiscal year, the Board will promptly implement a plan, to be recommended by staff, which could include rate increases, cost reductions or other means to achieve a debt service coverage ratio of 1.35x over a maximum three-year (3) time period. The plan will take into consideration approved and pending rate increases with the Pennsylvania Public Utilities Commission.

Rates and Prices: The PWSA will design rates and prices that are intended to ensure the PWSA meets its financial obligations, recovers reasonable costs in a timely manner, and maintains financial integrity as required by regulatory and contractual requirements. These rates will provide a stable and predictable flow of revenues to maintain appropriate levels of revenue to achieve the PWSA's goals. Revenue levels will be evaluated in consideration of, but not limited to, bond ratings, capital funding requirements, current business conditions, economic

projections, and consumption estimates, delays inherent in the regulatory process, and the projected size and frequency of necessary rate adjustments. These revenues will be adequate to cover operating and maintenance expenses, debt service, covenanted debt service reserves, liquidity requirements, and equity funding for the capital program. Rates and Prices for the PWSA's water and wastewater services will be based on the current tariff filing with the Public Utility Commission (PUC).

Sources of Financing: The PWSA may use a combination of equity and debt to finance capital additions to the system such that both current and future customers are allocated an equitable portion of the costs. The PWSA may borrow for capital projects when it is appropriate to spread the costs of capital assets over an approximation of their useful lives.

- Capital market considerations require an equity base to support financing. The PWSA will build equity during those periods when major capital projects are not being undertaken by financing capital projects from revenues. In this way, the PWSA will build equity sufficient to maintain financial integrity, ensure access to the debt markets, and provide for the growing needs of customers.
- As appropriate, the PWSA will evaluate mechanisms to restructure or refinance debt. PWSA will continually evaluate financing opportunities that achieve the objective of lowering the overall cost of capital for ratepayers while also not increasing risks within the debt portfolio.

Pay-As-You-Go Funding and Cash Reserves: The PWSA will adopt the following financial goals to reduce the long-term borrowing requirements of capital projects in addition to providing for maximum liquidity flexibility.

- As part of the annual capital budgeting process, financial performance will be evaluated with the goal of funding at least ten (10) percent of capital expenditures not supported by grants or intergovernmental aid from pay-as-you-go funding as measured on a five-year basis.
- Maintain cash reserves, including the operating reserves, rate stabilization fund, and revenue fund at a level of 100 days cash on hand with the goal of increasing to over 300 days over the next five (5) years.

Variable-Rate Financing: The variable-rate debt limit is ten percent (10%) of total capitalization, long-term debt plus capital employed as presented periodically in the PWSA's financial statements. Variable-rate debt that is hedged by derivative products, such as interest rate swap agreements, will not be considered variable-rate debt when calculating the variable-rate limit. The PWSA will be very cautious about using variable-rate debt because of its increased risk potential. Variable-rate debt will only be used to provide flexibility in its overall capital program and to manage its overall interest rate exposure. In these instances, the Board must be educated on why the use of variable-rate is preferred over fixed rate debt. The Board must ultimately approve the use of variable-rate debt.

Debt Service Reserves: The amount of debt service requirements for each bond issuance will be governed by the existing Bond Indenture and will support the marketing goals of the bond issue. As allowed in the Restated and Amended Indenture, the PWSA can either secure bonds as a part of the Common Debt Service Reserve Fund or with a Series Debt

Service Reserve Fund after considering the financial and market implications.

PLANNING:

Business Plan/Budget Planning: The PWSA will prepare a business plan/budget to be submitted for Board approval before the start of each fiscal year. The business plan/budget will include the organization's goals and objectives and will describe the projects, products and services that comprise a five-year (5) forecast for the capital improvement plan and a three-year (3) forecast for the operating budget:

- Operating and maintenance expenses.
- Capital expenditures.
- Capital funding sources.
- Operating and other reserve requirements.
- Debt service requirements.

This information will be provided in appropriate detail to the PWSA staff.

Adoption of the business plan/budget authorizes the Chief Executive Officer to complete work plans and make associated expenditures within budgets as provided for in accordance with Board policies. The resolution adopting the business plan/budget will establish the capital and operating budgets for the upcoming fiscal year. Such amounts may not be exceeded without Board approval. Approval of the business plan constitutes authorization to proceed with capital projects included in year one (1) of the plan and establishes the projects' respective lifetime budgets. The resolution adopting the business plan/budget also will include guidelines for authorizing capital spending and reporting requirements for business plan/budget results.

Quarterly Business Plan/Budget Update: The Chief Executive Officer will provide quarterly updates that include indicators of year-to-date operational and financial performance, progress toward key goals, and financial performance projections.

Exhibit EB-6

The Pittsburgh Water and Sewer Authority Debt Summary
Outstanding Bonds and Loans Payable (\$000's)



As of February 1, 2023

	A	B	C	D	E	F	G	H	I	J	K	L
Senior Lien												
Series Name	Date of Issue	Date of Maturity	Amount Issued	Amount Outstanding	Coupon Rate / Bank Index	Fixed Rate Swap (Paid)	Variable Swap Rate (Received)	Net Rate	Discount at Issuance	Premium at Issuance	Issuance Expenses ¹	Net Proceeds
Series B of 1998 ²	Mar-1998	9/1/2030	\$ 36,440	\$ 70,011	5.18%	N/A	N/A	N/A	\$ -	\$ -	\$ -	\$ 32,400
Series 2013A	Dec-2013	9/1/2033	130,215	59,230	0.75%-5.00%	N/A	N/A	N/A	-	10,903	798	127,682
Series 2013B	Dec-2013	9/1/2040	86,695	38,760	3.00%-5.25%	N/A	N/A	N/A	-	3,926	553	90,068
Series 2017A	Dec-2017	9/1/2032	159,795	115,960	3.00%-5.00%	N/A	N/A	N/A	-	23,374	1,778	181,391
Series 2017C-1 (JPM Swap) ^{3,4}	Dec-2017	9/1/2039	72,748	72,748	SIFMA + .65%	3.784% + 0.118%	SIFMA	4.5520%	-	-	693	72,054
Series 2017C-2 (MLCS Swap) ^{3,4}	Dec-2017	9/1/2039	72,748	72,748	SIFMA + .65%	3.77% + 0.118%	SIFMA	4.5380%	-	-	693	72,054
Series 2017C-3 (JPM Swap) ^{3,4}	Dec-2017	9/1/2040	71,225	71,225	SIFMA + .65%	3.826% + 0.118%	SIFMA	4.5935%	-	-	679	70,546
Series 2017C-4 (Unhedged) ⁵	Dec-2017	9/1/2035	2,085	2,085	SIFMA + .65%	N/A	N/A	2.5000%	-	-	20	2,065
Series 2019A	July-2019	9/1/2044	109,855	105,145	5.00%	N/A	N/A	N/A	-	22,468	1,123	131,200
Series 2020B	Dec-2020	9/1/2050	91,520	91,520	3.00%-5.00%	N/A	N/A	N/A	-	16,665	1,185	107,000
Series 2022A	Nov-2022	9/1/2052	44,550	44,550	5.00%-5.50%	N/A	N/A	N/A	-	986	537	45,537
Total Senior				\$ 743,982								

Subordinate Lien												
Series Name	Date of Issue	Final Maturity	Issue Size	Outstanding Principal	Coupon Rate / Bank Index	Fixed Rate Swap (Paid)	Variable Swap Rate (Received)	Net Rate	Discount at Issuance	Premium at Issuance	Issuance Expenses ^{1,6}	Net Proceeds
Series 2019B	July-2019	9/1/2035	104,290	104,290	4.00%-5.00%	N/A	N/A	N/A	-	22,621	28,952	103,660
Total Subordinate				\$ 104,290								

Third Lien												
Series Name	Date of Issue	Final Maturity	Issue Size	Outstanding Principal	Coupon Rate / Bank Index	Fixed Rate Swap (Paid)	Variable Swap Rate (Received)	Net Rate	Discount at Issuance	Premium at Issuance	Issuance Expenses	Net Proceeds
Pennvest Loans	Various	4/1/2045	588,970	546,387	1.00% - 2.97%	N/A	N/A	N/A	-	-	-	-
PNC Capital Line of Credit ⁷	June-2022	6/23/2025	150,000	131,712	SIFMA + 0.39%	N/A	N/A	N/A	-	-	-	-
Total Third Lien				\$ 678,099								

¹ Includes legal and professional costs, underwriters' discount, bond insurance premium, surety premium and/or swap termination payments, if applicable, to respective series of bonds.
² Column C is the Initial Stated Amount (Capital Appreciation Bonds); Column D is based on accreted value as of 02/01/2023 and Column E is the total amount paid and/or refunded as of 02/01/2023.
³ Column C represents the portion of the Series C of 2017 which is connected to certain swap agreements or is unhedged.
⁴ The Authority entered into a SIFMA vs. 70% of 1M LIBOR overlay basis swap with Merrill Lynch Capital Services to manage variable rate interest payments associated with the 2017C Bonds. The overlay basis swap effectively converts the floating leg receipts of the Authority's three fixed payer swaps from 70% of 1M LIBOR to SIFMA in order to match the floating leg payment of the remarketed 2017C Bonds for the three year remarketed period. The overlay basis swap also contains a fixed leg component, payable by the Authority to the swap counterparty, of 0.1180% which effectively increases the fixed rates paid by the Authority on its three fixed payer swaps while the overlay basis swap is outstanding.
⁵ Net rate is assumed of 2.50% for the purposes of this summary.
⁶ Issuance expense includes \$27.605 million for a swap termination payment.
⁷ Has unutilized fee of 0.40% if less than 50% is drawn on the LOC and an unutilized fee of 0.25% if more than 50% is drawn on the LOC.

Exhibit EB-7

2024 ABT Calculations - Existing Rates

2022 Rate Covenant Net Revenues	\$70,465,678.00
Plus Transfer to Rate Stabilization Fund	1,000,000.00
Less Grant Revenues	0.00
Less Proceeds from Business Interruption Insurance	0.00
Less Earnings on Construction/Rate Stabilization Fund	0.00
Additional Authorized Net Revenues	0.00
Additional Indebtedness Test Net Revenues	\$71,465,678.00
2022 Rate Covenant First Lien Debt Service	61,663,907.00
Series A of 2023 Maximum Annual Debt Service	9,054,184.00
First Lien Debt Service for Additional Bonds Test	70,718,091.00
First Lien Debt Service for Additional Bonds Test * 125%	88,397,613.75
First Lien Revenue Surplus / (Deficiency)	(\$16,931,935.75)
2022 Rate Covenant Subordinate Lien Debt Service	18,516,886.00
Additional PENNVEST	3,964,098.00
WIFIA Maximum Annual Debt Service	3,639,101.00
Subordinate Lien Debt Service for Additional Bonds Test	26,120,085.00
2022 Rate Covenant Subordinate Lien Debt Service * 110%	28,732,093.50
125% First + 110% Subordinate Lien Rate Covenant Debt Service	117,129,707.25
Subordinate Lien Revenue Surplus / (Deficiency)	(\$45,664,029.25)
Total Debt Service for Additional Bonds Test (100%)	96,838,176.00
Total Revenue Surplus / (Deficiency)	(\$25,372,498.00)

2025 ABT Calculations - Existing Rates

2022 Rate Covenant Net Revenues	\$61,443,453.00
Plus Transfer to Rate Stabilization Fund	7,000,000.00
Less Grant Revenues	0.00
Less Proceeds from Business Interruption Insurance	0.00
Less Earnings on Construction/Rate Stabilization Fund	0.00
Additional Authorized Net Revenues	0.00
Additional Indebtedness Test Net Revenues	\$68,443,453.00
2022 Rate Covenant First Lien Debt Service	70,718,091.00
Series A of 2023 Maximum Annual Debt Service	9,054,184.00
First Lien Debt Service for Additional Bonds Test	79,772,275.00
First Lien Debt Service for Additional Bonds Test * 125%	99,715,343.75
First Lien Revenue Surplus / (Deficiency)	(\$31,271,890.75)
2022 Rate Covenant Subordinate Lien Debt Service	26,120,085.00
Additional PENNVEST	12,315,133.00
WIFIA Maximum Annual Debt Service	8,020,184.00
Subordinate Lien Debt Service for Additional Bonds Test	46,455,402.00
2022 Rate Covenant Subordinate Lien Debt Service * 110%	51,100,942.20
125% First + 110% Subordinate Lien Rate Covenant Debt Service	150,816,285.95
Subordinate Lien Revenue Surplus / (Deficiency)	(\$82,372,832.95)
Total Debt Service for Additional Bonds Test (100%)	126,227,677.00
Total Revenue Surplus / (Deficiency)	(\$57,784,224.00)

2026 ABT Calculations - Existing Rates

2022 Rate Covenant Net Revenues	\$47,586,183.00
Plus Transfer to Rate Stabilization Fund	17,000,000.00
Less Grant Revenues	0.00
Less Proceeds from Business Interruption Insurance	0.00
Less Earnings on Construction/Rate Stabilization Fund	0.00
Additional Authorized Net Revenues	0.00
Additional Indebtedness Test Net Revenues	\$64,586,183.00
2022 Rate Covenant First Lien Debt Service	79,772,275.00
Series A of 2023 Maximum Annual Debt Service	12,072,245.00
First Lien Debt Service for Additional Bonds Test	91,844,520.00
First Lien Debt Service for Additional Bonds Test * 125%	114,805,650.00
First Lien Revenue Surplus / (Deficiency)	(\$50,219,467.00)
2022 Rate Covenant Subordinate Lien Debt Service	46,455,402.00
Additional PENNVEST	468,243.00
WIFIA Maximum Annual Debt Service	2,084,569.00
Subordinate Lien Debt Service for Additional Bonds Test	49,008,214.00
2022 Rate Covenant Subordinate Lien Debt Service * 110%	53,909,035.40
125% First + 110% Subordinate Lien Rate Covenant Debt Service	168,714,685.40
Subordinate Lien Revenue Surplus / (Deficiency)	(\$104,128,502.40)
Total Debt Service for Additional Bonds Test (100%)	140,852,734.00
Total Revenue Surplus / (Deficiency)	(\$76,266,551.00)

Exhibit EB-8

2024 ABT Calculations - Proposed Rates

2024 Rate Covenant Net Revenues	\$116,855,868.00
Plus Transfer to Rate Stabilization Fund	1,000,000.00
Less Grant Revenues	0.00
Less Proceeds from Business Interruption Insurance	0.00
Less Earnings on Construction/Rate Stabilization Fund	0.00
Additional Authorized Net Revenues	0.00
Additional Indebtedness Test Net Revenues	\$117,855,868.00
2024 Rate Covenant First Lien Debt Service	61,663,907.00
Series A of 2024 Maximum Annual Debt Service	9,054,184.00
First Lien Debt Service for Additional Bonds Test	70,718,091.00
First Lien Debt Service for Additional Bonds Test * 125%	88,397,613.75
First Lien Revenue Surplus / (Deficiency)	\$29,458,254.25
2024 Rate Covenant Subordinate Lien Debt Service	18,516,886.00
Additional PENNVEST	3,964,098.00
WIFIA Maximum Annual Debt Service	3,639,101.00
Subordinate Lien Debt Service for Additional Bonds Test	26,120,085.00
2024 Rate Covenant Subordinate Lien Debt Service * 110%	28,732,093.50
125% First + 110% Subordinate Lien Rate Covenant Debt Service	117,129,707.25
Subordinate Lien Revenue Surplus / (Deficiency)	\$726,160.75
Total Debt Service for Additional Bonds Test (100%)	96,838,176.00
Total Revenue Surplus / (Deficiency)	\$21,017,692.00

2025 ABT Calculations - Proposed Rates

2025 Rate Covenant Net Revenues	\$151,277,680.00
Plus Transfer to Rate Stabilization Fund	7,000,000.00
Less Grant Revenues	0.00
Less Proceeds from Business Interruption Insurance	0.00
Less Earnings on Construction/Rate Stabilization Fund	0.00
Additional Authorized Net Revenues	0.00
Additional Indebtedness Test Net Revenues	\$158,277,680.00
2025 Rate Covenant First Lien Debt Service	70,718,091.00
Series A of 2025 Maximum Annual Debt Service	9,054,184.00
First Lien Debt Service for Additional Bonds Test	79,772,275.00
First Lien Debt Service for Additional Bonds Test * 125%	99,715,343.75
First Lien Revenue Surplus / (Deficiency)	\$58,562,336.25
2025 Rate Covenant Subordinate Lien Debt Service	26,120,085.00
Additional PENNVEST	12,315,133.00
WIFIA Maximum Annual Debt Service	8,020,184.00
Subordinate Lien Debt Service for Additional Bonds Test	46,455,402.00
2025 Rate Covenant Subordinate Lien Debt Service * 110%	51,100,942.20
125% First + 110% Subordinate Lien Rate Covenant Debt Service	150,816,285.95
Subordinate Lien Revenue Surplus / (Deficiency)	\$7,461,394.05
Total Debt Service for Additional Bonds Test (100%)	126,227,677.00
Total Revenue Surplus / (Deficiency)	\$32,050,003.00

2026 ABT Calculations - Proposed Rates

2026 Rate Covenant Net Revenues	\$190,146,359.00
Plus Transfer to Rate Stabilization Fund	17,000,000.00
Less Grant Revenues	0.00
Less Proceeds from Business Interruption Insurance	0.00
Less Earnings on Construction/Rate Stabilization Fund	0.00
Additional Authorized Net Revenues	0.00
Additional Indebtedness Test Net Revenues	\$207,146,359.00
2026 Rate Covenant First Lien Debt Service	79,772,275.00
Series A of 2026 Maximum Annual Debt Service	12,072,245.00
First Lien Debt Service for Additional Bonds Test	91,844,520.00
First Lien Debt Service for Additional Bonds Test * 125%	114,805,650.00
First Lien Revenue Surplus / (Deficiency)	\$92,340,709.00
2026 Rate Covenant Subordinate Lien Debt Service	46,455,402.00
Additional PENNVEST	468,243.00
WIFIA Maximum Annual Debt Service	2,084,569.00
Subordinate Lien Debt Service for Additional Bonds Test	49,008,214.00
2022 Rate Covenant Subordinate Lien Debt Service * 110%	53,909,035.40
125% First + 110% Subordinate Lien Rate Covenant Debt Service	168,714,685.40
Subordinate Lien Revenue Surplus / (Deficiency)	\$38,431,673.60
Total Debt Service for Additional Bonds Test (100%)	140,852,734.00
Total Revenue Surplus / (Deficiency)	\$66,293,625.00

Exhibit EB-9

The Pittsburgh Water and Sewer Authority
Cost-Benefit Analysis - Arrearage Forgiveness Program

Exhibit EB-9

As of February, 2022

	2022	2023	2024
Current Charges*			
Water - Residential 5/8"	\$ 602,406	677,341	677,341
Water - Residential 5/8" (<50% FPL)	106,044	119,915	119,915
Water - Residential 3/4"	4,091	4,600	4,600
Water - Residential 3/4" (<50% FPL)	703	795	795
Water - Residential 1"	5,114	5,750	5,750
Water - Residential 1" (<50% FPL)	528	597	597
Wastewater - Residential 5/8"	181,153	155,827	155,827
Wastewater - Residential 5/8" (<50% FPL)	-	-	-
Wastewater - Residential 3/4"	561	482	482
Wastewater - Residential 3/4" (<50% FPL)	-	-	-
Wastewater - Residential 1"	187	161	161
Wastewater - Residential 1" (<50% FPL)	-	-	-
Total Current Charges:	\$ 900,785	965,468	965,468
Arrearages			
Water - Residential 5/8"	\$ 525,655	525,655	525,655
Water - Residential 5/8" (<50% FPL)	221,022	221,022	221,022
Water - Residential 3/4"	2,182	2,182	2,182
Water - Residential 3/4" (<50% FPL)	2,887	2,887	2,887
Water - Residential 1"	3,531	3,531	3,531
Water - Residential 1" (<50% FPL)	438	438	438
Wastewater - Residential 5/8"	475,518	475,518	475,518
Wastewater - Residential 5/8" (<50% FPL)	-	-	-
Wastewater - Residential 3/4"	348	348	348
Wastewater - Residential 3/4" (<50% FPL)	-	-	-
Wastewater - Residential 1"	141	141	141
Wastewater - Residential 1" (<50% FPL)	-	-	-
Total Arrearages Forgiven:	\$ 1,231,722	1,231,722	1,231,722
Net Cost/Benefit			
Water	\$ (36,830)	53,282	53,282
Wastewater	(294,107)	(319,537)	(319,537)
Net Benefits (Cost):	\$ (330,937)	(266,255)	(266,255)

* Assumes residential customer using 3,000 gal. per month and tier 2 stormwater customer

VERIFICATION

I, Edward Barca hereby state that: (1) I am Director of Finance of The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities).

05/03/2023 | 7:44 AM PDT

Dated

DocuSigned by:
Edward Barca
415E545AD9514E4...

Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

WILLIAM J. MCFADDIN

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Valve Maintenance

Meter Replacement

Flushing Distribution System

May 9, 2023

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is William J. McFaddin and I am the Director of Operations for The Pittsburgh
4 Water and Sewer Authority (“PWSA”).

5 **Q. WHEN DID YOU ASSUME THIS ROLE?**

6 A. I assumed the Director role in November 2021.

7 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.**

8 A. I received my Bachelor of Science degree in Management and Accounting from the
9 University of Pittsburgh in 1997.

10 **Q. PLEASE PROVIDE A SUMMARY OF YOUR RELEVANT EXPERIENCE.**

11 A. Over the last five years, I have been progressively responsible for Field Operations and
12 Production Operations. I started with PWSA as a Deputy Director of Field Operations,
13 and was then promoted to Deputy Director of Operations, before becoming Director of
14 Operations.

15 **Q. WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES WITH PWSA?**

16 A. As Director of Operations, I oversee the operations team. The team is responsible for
17 operation of the treatment plant, which produces about 65 to 70 million gallons of water
18 per day. The team also oversees the field of operations of the water and sewer systems,
19 including any incidents in the streets involving water mains and fire hydrants.

20 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA**
21 **PUBLIC UTILITY COMMISSION (“PUC” OR “COMMISSION”)?**

22 A. Yes. I provided testimony before the Commission in *Musgrave v. The Pittsburgh Water*
23 *and Sewer Authority*, Docket No. C-2020-3020714, on February 9, 2023 regarding a
24 variety of issues, including private ownership of lines and PWSA’s overall obligations

1 and operations regarding the repair and maintenance of such lines. In addition, during the
 2 last two base rate case proceedings filed by PWSA, in 2020 at Docket Nos. R-2020-
 3 3017951 and R-2020-3017970, and in 2021 at Docket Nos. R-2021-3024773, R-2021-
 4 3024774 and R-2021-3024779, I provided support through contributing information for
 5 written testimony and responses to discovery requests on the topics that I am addressing
 6 in this Direct Testimony.

7 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

8 A. The purpose of my testimony is to provide information regarding PWSA’s continued
 9 compliance with obligations in prior settlements in the areas of valve maintenance, the
 10 replacement of meters and flushing of the distribution system.

11 **II. UPDATE REGARDING PRIOR RATE CASE SETTLEMENT OBLIGATIONS**

12 **A. Valve Maintenance**

13 **Q. DID PWSA MAKE A COMMITMENT IN THE PRIOR RATE CASE**
 14 **SETTLEMENTS REGARDING VALVE MAINTENANCE?**

15 A. Yes. In the 2020 Settlement, PWSA committed to exercising approximately 5,000
 16 isolation valves per year and to repair the isolation valves that are found to be
 17 inoperable.¹ The 2021 Settlement obligates PWSA to continue its current practice of
 18 repairing or replacing isolation valves at the time they are found to be inoperable, and
 19 recognizing that valves 16” or greater may require additional time to repair or replace,
 20 document the planned date for repair and replacement.²

¹ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2020-3017951 and R-2020-3017970 (Order entered December 3, 2020), approving Joint Petition for Settlement (“2020 Joint Petition for Settlement”). 2020 Joint Petition for Settlement, III.H.2.

² *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773, R-2021-3024774, and R-2021-3024779 (Order entered November 18, 2021), approving Joint Petition for Settlement (“2021 Joint Petition for Settlement”). 2021 Joint Petition for Settlement, III.E.2.

1 **Q. WHAT IS THE STATUS OF FULFILLING THOSE COMMITMENTS?**

2 A. As to the commitment to exercising 5,000 valves per year and repairing or replacing
 3 those that are inoperable, PWSA implemented this valve maintenance program in 2021
 4 and has continued to date. In addition, PWSA has made an internal commitment to
 5 exercise 1/5 of the valves or approximately 5,200 each year. In 2021, the Authority
 6 inspected 5,400 valves. In 2022, PWSA inspected 5,169 valves, and as of April 26, 2023,
 7 has inspected 1,786 valves in 2023. Therefore, PWSA is on track to meet its annual goal
 8 in 2023.

9 When a valve is located and found to be inoperable, an order is created in the
 10 SpryMobile application, which is the PWSA work order system, for the repair and
 11 replacement of that valve. Since the same process applies regardless of the size of the
 12 valve, no separate or additional steps are taken for valves that are 16” and larger. All
 13 repairs and replacements are completed as quickly as possible.

14 **Q. PLEASE SET FORTH THE COMMITMENTS CONCERNING VALVE**
 15 **MAINTENANCE AND RECORD-KEEPING THAT PWSA MADE IN THE 2021**
 16 **SETTLEMENT.**

17 A. In the 2021 Settlement, PWSA made the following commitments with respect to record
 18 keeping, ownership and exercising valves:³

- 19 i. Subject to the discussion pursuant to Section III.E.1.a.iii below,
 20 PWSA will create a plan to implement a record-keeping procedure
 21 for valve maintenance, including valve location (GPS
 22 coordinates), age, size manufacturer, serial number (when
 23 available from the manufacturer), number of rotations to fully
 24 open and fully close valve, and overall condition of valves for all
 25 new valve installations beginning in 2022.
- 26 ii. PWSA will endeavor to incorporate information about existing
 27 valves to the extent such information is attainable as part of
 28 PWSA’s normal operating processes.

³ 2021 Joint Petition for Settlement, III.E.1.a.

- 1 iii. PWSA will meet with I&E’s Safety Division and interested
2 parties within 30 days of the final filing of this Settlement
3 Agreement and Statements in Support for the purposes of:
 - 4 (a) Discussing PWSA’s plan to implement a record-keeping
5 procedure for valve maintenance, including valve location
6 (GPS coordinates), age, size, number of rotations to fully open
7 and fully close valve, and overall condition of valves for all
8 existing valves.
 - 9 (b) At the meeting, if any portion of the identified information is
10 not available to PWSA, PWSA will convey that information,
11 including the reason why it is not available, to I&E’s Safety
12 Division and interested parties.
 - 13 (c) PWSA will provide more detail about its recent determination
14 that 6,000 valves in the PWSA system are privately owned,
15 including the identity of the private owner and how the
16 determination of ownership was made.
 - 17 (d) PWSA will provide information relative to whether and how
18 PWSA’s system is impacted by such private ownership,
19 including but not limited the following:
 - 20 (1) identification of who has the right to operate the privately
21 owned valves;
 - 22 (2) confirmation of whether PWSA has investigated if it needs
23 additional valves to ensure safety;
 - 24 (3) an explanation of how PWSA is able to isolate valves as
25 may be required if it is reliant upon on others to operate
26 valves on its system.
 - 27 (e) PWSA will continue its current valve exercising program,
28 under which it attempts to exercise 5,000 isolation valves per
29 calendar year, pending the discussion and outcome of this
30 meeting.
- 31 iv. By January 31, 2022, PWSA will file a report for calendar year
32 2021 identifying each valve that it attempted to exercise and
33 whether it was broken or operable.

34 **Q. PLEASE SPECIFICALLY ADDRESS PWSA’S RECORDKEEPING**
35 **COMMITMENTS.**

36 A. Pursuant to Section III.E.1.a.i of the Settlement, PWSA agreed to create a plan to
37 implement a record-keeping procedure for valve maintenance for all new valve
38 installations beginning in 2022. Further, PWSA committed to incorporating information

1 about existing valves to the extent such information is attainable as part of PWSA's
2 normal operating processes. To facilitate these efforts, PWSA agreed in Section
3 III.E.1.a.iii of the Settlement to meet with the parties to discuss the feasibility of
4 recording information for new and existing valves. The meeting was held on September
5 29, 2021 with a follow-up meeting on October 29, 2021.

6 As to new valve installations, PWSA committed during those discussions to
7 record the following information:

- 8 • Valve Location (GPS Coordinates)
- 9 • Age
- 10 • Size
- 11 • Manufacturer
- 12 • Model Number
- 13 • Installed Date
- 14 • Number of Rotations to Fully Open and Fully Close Valve
- 15 • Overall Condition of Valves

16
17 The recordkeeping plan for new valve installations will not include serial numbers
18 because the manufacturers have indicated that they do not provide them. When new
19 valves are being installed, PWSA agreed to identify surrounding valves and gather the
20 following data points to include in its recordkeeping plan for existing valves:

- 21 • Size
- 22 • Number of Rotations to Fully Open and Fully Close Valve
- 23 • Overall Condition of Valves

24
25 At that time, PWSA explained that it already maintains locations of existing valves in its
26 geographic information system by asset identification. The manufacturer will not
27 included because it is either not available or not readily accessible. In addition, for the
28 same reason as with new valves, serial numbers will not be recorded because they are not
29 provided by the manufacturer. As to age, this data point cannot be determined through a

1 visual inspection of the valve, and therefore will not be included in the recordkeeping
 2 plan.

3 **Q. WHAT HAS PWSA DONE TO FULFILL THE RECORDKEEPING**
 4 **COMMITMENTS?**

5 PWSA staff has created work orders in SpryMobile application to capture the information
 6 for new/replaced valves, valve inspections and hydrant flushing/inspections. Senior
 7 Management in Field Operations are working with staff to make sure that the appropriate
 8 fields are marked mandatory so that field operations capture the required information.

9 **Q. HAS PWSA PROVIDED THE REPORT REQUIRED BY THE 2021 RATE CASE**
 10 **SETTLEMENT IDENTIFYING EACH VALVE THAT IT ATTEMPTED TO**
 11 **EXERCISE AND WHETHER IT WAS BROKEN OR OPERABLE?**

12 A. Yes. On April 8, 2022, PWSA filed this Report for calendar year 2021 identifying each
 13 valve that it attempted to exercise and whether it was broken or operable. The report
 14 included the condition of the valve if known and reported at the time the valve was
 15 exercised. In 2021, PWSA did not record this information for each valve exercised and,
 16 therefore, the information is unavailable for some of the valves. However, since then,
 17 PWSA has taken steps to ensure that the condition of the valve at the time it is exercised
 18 is recorded for all work orders.

19 **Q. PLEASE ADDRESS THE PRIVATE OWNERSHIP COMMITMENTS IN THE**
 20 **2021 RATE CASE SETTLEMENT.**

21 A. In Section III.9.E.1.a.iii of the 2021 Rate Case Settlement, PWSA agreed to meet with
 22 the parties to provide more detail about privately-owned isolation valves. This
 23 provision in the Settlement was triggered by a change made by PWSA during the base
 24 rate proceeding to the total number of isolation valves that it must exercise. The

1 meeting was held on September 29, 2021 with a follow-up meeting on October 29,
 2 2021.

3 **Q. WHAT DID PWSA EXPLAIN DURING THOSE MEETINGS?**

4 A. During those meetings, PWSA explained the discrepancy in the number of isolation
 5 valves it must exercise. PWSA had originally indicated that it was responsible for
 6 maintenance of a total of 26,344 isolation valves. Upon further review, PWSA
 7 discovered that although 26,344 isolation valves are recorded in the Authority’s
 8 geographic information system (“GIS”), it is responsible for exercising only 19,265
 9 isolation valves. Although PWSA was at all times fully aware of the abandoned and
 10 privately-owned valves recorded in its GIS, the Authority had mistakenly provided the
 11 total number of valves without subtracting them. PWSA further explained to the
 12 parties that the private valves are not part of Authority’s distribution system, that PWSA
 13 does not rely on these valves to operate it system and that its system is not impacted by
 14 the private ownership of isolation valves. This information, along with a breakdown of
 15 PWSA’s valves, was provided in a Post Rate Case Quarterly Report filed with the
 16 Commission on April 1, 2022 at Docket Nos. R-2021-3024773, R-2021-3024774 and
 17 R-2021-3024779.

18 **Q. PLEASE DESCRIBE PWSA’S COMMITMENTS IN THE 2021 RATE CASE**
 19 **SETTLEMENT REGARDING VALVE PRIORITIZATION.**

20 A. In the 2021 Rate Case Settlement, PWSA made the following commitments regarding
 21 valve prioritization:

- 22 i. PWSA will work with a third party expert for assistance with any
 23 necessary modeling, GIS layers, Standard Operating Procedures
 24 (SOPs) and planning efforts to develop a prioritization plan to be
 25 implemented in 2022.

1 (a) PWSA will file a progress report once a formal timeline has
2 been developed.

3 (b) With at least 30 days advance notice, PWSA will coordinate a
4 meeting with interested parties to discuss the final plan and to
5 ensure that members of I&E's Safety Division will be able to
6 attend.
7

8 **Q. PLEASE DESCRIBE PWSA'S COMPLIANCE WITH THESE COMMITMENTS.**

9 A. PWSA has a prioritization plan for all valves. In the Post Rate Case Quarterly Report
10 filed on January 3, 2023 for the quarter ending on December 31, 2022, PWSA noted that
11 staff members have finalized the list of critical valves and are working to determine the
12 frequency of inspections. The Authority is now in the process of setting the critical
13 valves aside for their own exercising programs on an accelerated basis.

14 **B. Meter Replacement**

15 **Q. PLEASE DESCRIBE THE 2021 SETTLEMENT'S PROVISION CONCERNING**
16 **METER REPLACEMENT.**

17 A. Subject to the willingness of customers to permit PWSA access to their meters given
18 concerns about social distancing associated with the pandemic, PWSA agreed in the 2021
19 Settlement that it would strive to test or replace 8,000 meters per calendar year beginning
20 in 2022 until all undocumented meters are either tested or replaced.⁴

21 **Q. PLEASE PROVIDE THE NUMBER OF METERS PWSA REPLACED IN 2021,**
22 **2022 AND 2023 TO DATE.**

23 A. In 2021, PWSA processed 6,972 meter changes on customer accounts, and in 2022,
24 PWSA replaced an additional 5,865 meters. For the first four months of 2023, PWSA
25 has completed 1,630 meter upgrades.

⁴ 2021 Joint Petition for Settlement, III.E.3.

1 **Q. PLEASE EXPLAIN WHY THE NUMBER OF METER REPLACEMENTS IN**
 2 **2022 HAS NOT MET THE 8,000 TARGET IN THE 2021 SETTLEMENT.**

3 A. Although customers in 2022 became generally less concerned about the need for social
 4 distancing due to the pandemic than they were in 2020 and 2021, PWSA encountered
 5 delays in restarting the non-access process following the launch of its Enterprise
 6 Resource Planning system in August 2022. This is the automated process that sends
 7 regulated notices to customers to facilitate meter upgrade appointments, and it could not
 8 be fully tested until after the go-live date of the new system. In addition, the vendor
 9 experienced turnover in their resources, which greatly delayed their ability to
 10 troubleshoot and resolve bugs in the code.

11 More recently, PWSA Field Operations has had some unexpected reductions in
 12 the staff in the Plumbing section, with three plumbers on long-term leave due to personal
 13 issues. This section also has some openings for plumbers, for which PWSA is actively
 14 recruiting and hopes to fill soon. As these new hires come on board, the Authority
 15 expects to ramp up the number of meter replacements.

16 **C. Flushing Distribution System**

17 **Q. WHAT WERE PWSA'S SETTLEMENT COMMITMENTS REGARDING**
 18 **FLUSHING THE DISTRIBUTION SYSTEM?**

19 A. In the 2020 Settlement, PWSA agreed that within 90 days after entry of the
 20 Commission's Order approving the Settlement, it would implement a program to flush
 21 one-third of the distribution system each year so that one-third of the distribution system
 22 is flushed during 2021. The 90-day period ended on March 3, 2021.⁵ In the 2021

⁵ 2020 Joint Petition for Settlement, III.H.4.

1 Settlement, PWSA committed to continue to flush one-third of its distribution system
2 each year.⁶

3 **Q. PLEASE EXPLAIN PWSA’S COMPLIANCE WITH THESE COMMITMENTS.**

4 A. As of the filing of the 2021 base rate case, the distribution system flushing program had
5 been implemented. PWSA inspected and flushed 2,624 hydrants in 2021, which met the
6 goal of inspecting and flushing one-third of the system. In 2022, PWSA inspected and
7 flushed 2,552 hydrants, which also met the annual goal. As of April 26, 2023, PWSA has
8 inspected and flushed 418 hydrants. This number is on track for this time of year since
9 the inspection of hydrants significantly ramps up during warmer weather.

10 **III. CONCLUSION**

11 **Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?**

12 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

⁶ 2021 Joint Petition for Settlement, III.E.4.

VERIFICATION

I, William J. McFaddin, hereby state that: (1) I am the Director of Operations for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 05/03/2023 | 7:58 AM PDT

DocuSigned by:
William McFaddin
90912C6707E04D9...

William J. McFaddin
Director of Operations
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

BARRY KING, PE

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Capital Projects
Wastewater Laterals
Minimum Warranty

May 9, 2023

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TABLE OF EXHIBITS

BK-1	2019 Consent Order and Agreement
BK-2	DEP COVID Extension Letter
BK-3	First Amendment of 2019 Consent Order and Agreement
BK-4	Second Amendment of 2019 Consent Order and Agreement

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Barry King and I am the Director of Engineering and Construction for The
4 Pittsburgh Water and Sewer Authority (“PWSA”).

5 **Q. WHEN DID YOU ASSUME THIS ROLE?**

6 A. I assumed this role in June 2016, filling the role of Interim Director of Engineering and
7 Construction for the PWSA, and subsequently selected as the permanent Director of
8 Engineering and Construction in April 2019.

9 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.**

10 A. I received my Bachelor of Science in Environmental Engineering from Rensselaer
11 Polytechnic Institute. I am currently completing my Master of Science in Environmental
12 Engineering from Worcester Polytechnic Institute in 2021.

13 **Q. PLEASE PROVIDE A SUMMARY OF YOUR RELEVANT EXPERIENCE.**

14 A. Over the last 28 years, I have been progressively responsible for engineering, project
15 management, leadership, and administration in the fields of water supply, treatment,
16 storage, and distribution; wastewater conveyance and treatment; and other civil/
17 environmental engineering-related projects and roles within both the public and private
18 sectors. I have served in a range of capacities including Director of Engineering and
19 Construction, Program Manager, Utilities Bureau Chief, Assistant Director of Public
20 Works, Design Manager, Principal Engineer, Project Engineer, Design Engineer, Project
21 Manager, and QA/QC Reviewer. With respect to employment in the public sector, I have
22 over 10 years of experience working directly for water and sewer municipal authorities in
23 primary leadership roles. I am a licensed Professional Engineer in the State of
24 Pennsylvania, as well as current registrations in New York, Maryland, and Delaware.

1 With specific respect to water and sewer infrastructure and facilities, I have performed,
2 coordinated, managed, and/or supervised technical studies, evaluations, and site
3 assessments; planning; engineering conceptualization and design; cost estimating;
4 permitting; bidding; construction project management and contract administration; water
5 and sewer rate and fee studies and adoption; conducted public hearings and informational
6 meetings; performed staff management and program administration; supported full
7 proposal/bid procurement processes; and completed consultant and contractor selections.

8 **Q. WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES WITH PWSA?**

9 A. Since 2016, I have been involved in the daily design and construction of PWSA’s
10 infrastructure projects, as well as coordinating staff and consultant activities. I utilize my
11 extensive hands-on experience in the fields of water and wastewater to manage PWSA’s
12 engineering endeavors.

13 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA
14 PUBLIC UTILITY COMMISSION (“PUC” OR “COMMISSION”)?**

15 A. Yes. In PWSA’s base rate case in 2020 at Docket Nos. R-2020-3017951 and R-2020-
16 3017970, I submitted Direct Testimony on March 6, 2020, Supplemental Direct
17 Testimony on May 15, 2020 and Rebuttal Testimony on August 18, 2020. In PWSA’s
18 base rate case in 2021 at Docket Nos. R-2021-3024773, R-2021-3024774 and R-2021-
19 3024779, I submitted Direct Testimony on April 13, 2021, Rebuttal Testimony on July
20 28, 2021 and Rejoinder Testimony on August 10, 2021.

21 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

22 A. The purpose of my testimony is to: (1) describe PWSA’s Capital Improvement Plan
23 (“CIP”), with an emphasis on the total capital requirements of over \$1.8 billion for fiscal

1 years 2023-2027; and (2) provide updates regarding prior rate case settlement
2 commitments.

3 **Q. HOW IS PWSA’S CIP ORGANIZED?**

4 A. PWSA’s five-year CIP is organized into three primary project classes, which consists of
5 water (further broken down under treatment plant, pumping and storage, and distribution
6 subclasses), wastewater, and stormwater classes. PWSA undertakes the same
7 programmatic approach for the identifying, planning, designing, and constructing
8 stormwater capital projects as it undertakes for water and wastewater capital projects.
9 My testimony will primarily focus on the water and wastewater project classes. Mr. Tony
10 Igwe’s and Mr. Keith Readling’s direct testimonies address the stormwater program in
11 detail.

12 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

13 A. Yes. I am sponsoring PWSA Exhibit BK-1, which is the 2019 Consent Order and
14 Agreement issued by the Pennsylvania Department of Environmental Protection
15 (“DEP”); PWSA Exhibit BK-2, which is DEP’s COVID Extension Letter; PWSA Exhibit
16 BK-3, which is DEP’s First Amendment of the 2019 Consent Order and Agreement; and
17 PWSA Exhibit BK-4, which is DEP’s Second Amendment of the 2019 Consent Order
18 and Agreement.

19 **II. CAPITAL PROJECTS**

20 **(A) General Overview**

21 **Q. PLEASE PROVIDE A GENERAL OVERVIEW OF PWSA’S CIP.**

22 A. As a result of about 30 years of little to no investment in our water, sewer and stormwater
23 systems, PWSA’s CIP focuses on restoring and sustaining cost-effective operations that
24 comply with all regulatory requirements, while optimizing the system’s asset

1 performance and life expectancy in accordance with accepted utility metrics. The 2023-
2 2027 CIP invests in programs that balance risk and consequence of asset failure and
3 levels of service benefits, with overall customer affordability.

4 **Q. PLEASE DESCRIBE YOUR OVERALL VISION FOR PWSA'S SYSTEM.**

5 A. My vision for PWSA is to build a sustainable program of operation, maintenance and
6 capital activities and investments to sustain performance of safe, affordable and
7 manageable water, sewer and stormwater systems for the City of Pittsburgh and
8 surrounding populations. PWSA needs to restore full operational resiliency and
9 redundancy of our water and sewer systems to meet our current and future challenges.

10 PWSA's Engineering Department recognizes that we are responsible to provide our
11 customers with safe, reliable, and uninterrupted water, sewer and stormwater services that
12 are in full compliance with quality and regulatory requirements. We continue striving to
13 build a team of dedicated Engineers, Scientists, and Project Managers to solidify a strong,
14 competent, effective and stable work force with the requisite education, initiative and
15 innovation to undertake this work either directly or as project managers, and identify
16 projects that balance the cost of the project, ensuring just and reasonable rates, with the
17 scope and outcome of the project. We will continue to embrace technology, where
18 appropriate and cost effective. With a considerable number of significant, complex, and
19 large-scale projects required over the next 5 to 7 years, we will seek to build the
20 necessary technical and skilled workforce to undertake projects, and to complement the
21 responsibilities and actions of other PWSA Departments.

1 **Q. PLEASE EXPLAIN PWSA’S PROCESS TO IDENTIFY CAPITAL PROJECTS**
 2 **THAT NEED TO BE COMPLETED.**

3 A. PWSA’s CIP process begins each year in the second quarter when project nominations
 4 are solicited from the entire organization. At the completion of the nomination period,
 5 the department group managers (engineering, finance, operations and executive
 6 departments) screen and evaluate the nominated projects and recommend which projects
 7 should be considered for further planning, design or construction. A Project Sheet is
 8 prepared to provide more detailed information on a project’s potential scope, risks,
 9 schedule and preliminary cost estimate. This process takes several months and
 10 culminates with the presentation of the updated CIP to PWSA’s Board of Directors.
 11 Projects that are not selected for implementation are re-assessed during the next year’s
 12 CIP process.

13 **Q. WHAT CRITERIA ARE USED TO EVALUATE AND PRIORITIZE CAPITAL**
 14 **PROJECTS?**

15 A. Due to funding limitations and the need to renew or replace a significant amount of aging
 16 infrastructure, PWSA uses the following criteria to evaluate and prioritize capital
 17 projects:

- 18 1) Regulatory Compliance – Ranking a project’s relative importance for
 19 maintaining current compliance levels or mitigating future compliance impacts;
 20
- 21 2) Safety – Ranking a project’s relative importance in maintaining or improving
 22 employee or public health & safety; the relative impact of failing to complete the
 23 project has on health & safety;
 24
- 25 3) Operating Efficiency – Ranking the level of operating efficiency (i.e. operating
 26 budget savings through increased efficiencies or increased revenues as a result of
 27 quality replacements, such as meter or aged line replacements);
 28
- 29 4) Quality of Service – Ranking a project’s role in maintaining or improving
 30 current quality of services;
 31

1 5) Organizational Goals – Ranking how well a project addresses one or more of
 2 the stated PWSA organizational goals; and
 3

4 6) Social Impact – Ranking a project’s relative importance to customer quality of
 5 life, education, shared community goals, environmental sustainability, etc.
 6

7 **Q. WHAT ARE PWSA’S FUNDING SOURCES FOR ITS CIP?**

8 A. PWSA’s CIP is funded through several primary sources to which specific programs and
 9 projects are allocated. These capital project funding sources basically result from
 10 revenues received through rates paid by PWSA’s customers. Capital Funds for Capital
 11 works primarily originate from Authority market-solicited Bond indebtedness from
 12 leading institutions state and federal grants. Subsidized loans are also a component of
 13 our Bond portfolio, as well as cost shares with other utilities and public grants. PWSA is
 14 dedicated to identifying and pursuing funding from all potential sources to offset planned
 15 capital investments. More detail about funding is set forth in the direct testimony of Ed
 16 Barca, Director of Finance.

17 **Q. HOW IS PWSA’S CIP ORGANIZED?**

18 A. The CIP is organized into six project classes: 1) Water Treatment Plant; 2) Water
 19 Pumping and Storage; 3) Water Distribution System (including lead service line
 20 replacements); 4) Wastewater System; 5) Stormwater System; and 6) Miscellaneous. The
 21 project class designated as “Miscellaneous” consists of Utility Cost Shares, Capital
 22 Project Reclassification, and New Headquarters and Operations Facility. Each project
 23 class is then made up of individual projects, which are defined based upon current
 24 information and range from annual allowances for asset renewal and/or replacement
 25 activities to major, multiple phase facility renewal projects.

1 **Q. PLEASE DESCRIBE THE INFORMATION THAT IS PROVIDED FOR EACH**
 2 **PROJECT.**

3 A. Each project is identified by type (project class) and a descriptive name given to it. Other
 4 information includes the DSIC eligibility, current phase (in the project’s life cycle),
 5 priority, project description, project justification, risk(s), impact on Operations, estimated
 6 five-year cash flow summary, and proposed funding source(s). Once approved and
 7 opened in our project management software, unique project numbers are assigned to track
 8 the project from inception to completion.

9 **(B) CIP for Fiscal Years 2023-2027**

10 **Q. FOR THE CAPITAL PROJECTS APPROVED BY THE BOARD, WHAT IS**
 11 **PWSA’S TOTAL CAPITAL REQUIREMENT FOR THE CIP FOR FISCAL**
 12 **YEARS 2023-2027?**

13 A. The total capital requirement for Fiscal Years 2023-2027 is approximately \$1.8 billion.
 14 This amount is broken out by project class and by fiscal year, as shown on page 5 of the
 15 CIP. As shown in the table below, the capital requirements by fiscal year are:

16 *Figure 4. Capital Requirements*

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total
Water Treatment Plant	\$ 16,030,211	26,885,665	24,038,988	54,790,691	78,451,718	\$ 200,197,272
Water Pumping and Storage	55,304,597	115,127,475	121,491,637	113,245,473	30,009,851	435,179,033
Water Distribution	143,302,527	125,439,446	155,468,790	143,283,004	184,525,120	752,018,887
Wastewater System	50,634,240	31,442,487	27,579,779	45,751,309	54,918,077	210,325,892
Stormwater	29,822,932	34,827,423	36,884,821	33,038,424	26,808,750	161,382,350
Miscellaneous	11,439,316	15,500,000	33,000,000	500,000	500,000	60,939,316
Total Capital Requirements	\$ 306,533,823	349,222,497	398,464,014	390,608,900	375,213,516	\$ 1,820,042,750

18
 19
 20 **Q. PLEASE IDENTIFY THE PROJECTS THAT HAVE BEEN APPROVED.**

21 A. The entire list of projects approved by the 2023-2027 CIP are listed on pages 7-9 of the
 22 CIP, which is attached to Mr. Barca’s testimony as PWSA Exhibit EB-4, or available
 23 electronically [here](#).

1 (C) *Prioritization of Capital Projects*

2 **Q. HOW DOES PWSA PRIORITIZE ITS CAPITAL PROJECTS?**

3 A. PWSA uses the aforementioned criteria to evaluate and prioritize capital projects, except
4 when a legal mandate has been issued. PWSA prioritizes its capital projects based on
5 legal mandates such that it places the highest priority on non-negotiable regulatory
6 requirements. Three such directives issued by DEP have established PWSA’s priorities
7 in recent years, which I discuss below.

8 On October 25, 2017, DEP issued an Administrative Order (“Safe Drinking Water
9 Order”), requiring PWSA to address the following items: (a) installation of ultraviolet
10 (UV) disinfection at the Membrane Filtration Plant (“MFP”) as a condition to reinstate
11 operation of Highland No. 1 Reservoir; (b) replace the cover and liner of the Lanpher
12 Reservoir; (c) address reliability deficiencies at the Bruecken Pump Station; (d) install
13 pressure sensors in the distribution system; and (e) establish a schedule for other capital
14 improvements to the system.

15 PWSA has completed all required actions to address the stipulated items in the
16 Safe Drinking Water Order. The MFP improvements project was completed in June
17 2020, having received the Public Water Supply Operating Permit on June 17, 2020. The
18 MFP was restored to full operation on September 14, 2020. The Lanpher Reservoir cover
19 and liner replacement were completed in June 2019, receiving the Public Water Supply
20 Operating Permit on June 19, 2019. The Bruecken Pump Station Standby Power
21 Generators were installed and commissioned on April 21, 2020. The installation of the
22 24 continuous recording pressure monitors, located throughout the PWSA water
23 distribution system (System) was completed on July 8, 2018. These 24 monitors were
24 located in coordination with the DEP in 10 of PWSA’s total 17 System pressure zones.

1 Finally, the full detailed listing of Capital Improvement Projects (CIP) was provided to
 2 PA-DEP on January 23, 2018, with a presentation on the CIP conducted for PA-DEP and
 3 EPA staff on January 23, 2018 in Harrisburg PA. All requirements under the Safe
 4 Drinking Water Order were completed on or before June 17, 2020.

5 Additionally, to comply with the Commission’s regulations at 52 Pa. Code
 6 §65.6(b), the PWSA completed the installation of an additional 37 pressure monitors on
 7 January 21, 2021, ensuring that there is at least one or more continuous recording
 8 pressure monitors in each separate pressure zone throughout the PWSA Distribution
 9 System. A total of 61 continuous recording pressure monitors is now operational in
 10 PWSA’s system.

11 On November 17, 2017, DEP issued a Consent Order and Agreement (“Lead
 12 Consent Order”) containing a series of mandates related to lead service line replacement.
 13 PWSA has fulfilled all the requirements of the Lead Consent Order to date.

14 On September 6, 2019, DEP issued a Consent Order and Agreement (“2019
 15 COA”). The 2019 COA, which is attached as Exhibit BK-1, fully resolved a DEP
 16 investigation and avoided litigation.

17 **Q. WHAT ARE PWSA’S SPECIFIC OBLIGATIONS UNDER THE 2019 COA?**

18 A. Under the 2019 COA, PWSA is required to construct a clearwell bypass system to enable
 19 the Authority to remove the existing single cell clearwell from service and replace it with
 20 a new multi-celled clearwell.¹ As a result of the existing single-cell clearwell basin
 21 condition and design, a clearwell bypass system is essential to ensure uninterrupted water
 22 supply service should the existing clearwell should prematurely fail.

¹ 2019 COA Ordering ¶ 3.a.-b.

PWSA is also required by the 2019 COA to: (i) rehabilitate or replace Rising Main #3 (from the Bruecken Pump Station) to PWSA’s Highland No. 2 Reservoir;² (ii) rehabilitate or replace Rising Main #4 (from the Bruecken Pump Station) to PWSA’s Highland No. 2 Reservoir;³ (iii) construct a new redundant rising main from the Aspinwall Pump Station to the Lanpher Reservoir to replace the existing 100 year old transmission main which has suffered 3 major failures in the past 5 years;⁴ (iv) replace the cover and liner of the Highland No. 2 Reservoir to comply with existing regulatory standards, and facilitate the clearwell bypass system construction;⁵ and (v) replace or rehabilitate the existing Aspinwall and Bruecken pump stations.⁶

Q. IN 2021, YOU TESTIFIED AS TO THE STATUS OF EACH OF THESE PROJECTS. PLEASE PROVIDE UPDATES.

A. At the outset, I note that construction on the following two projects has been completed: (i) Rising Main #3 Rehabilitation Project (November 18, 2022); and (ii) Highland No. 2 Reservoir Improvements (Liner and Cover Replacement) Project (December 30, 2022). The status of each project is shown below.

On May 13, 2020, DEP issued a COVID Extension Letter, a copy of which is attached as Exhibit BK-2, which provided 90-day extensions of the deadlines for submitting Construction Permit Applications for the following projects:

- Provision 3.c.i: Rising Main #3 Rehabilitation Project

² 2019 COA Ordering ¶ 3.c.-d.

³ 2019 COA Ordering ¶ 3.e.-f.

⁴ 2019 COA Ordering ¶ 3.g.-h.

⁵ 2019 COA Ordering ¶ 3.i.-j.

⁶ 2019 COA Ordering ¶ 3.k.

1 ○ Was due "on or before September 1, 2020", but with the 90-day extension,
 2 the revised date was "11/30/20". PWSA submitted the application by the
 3 revised deadline, on November 30, 2020.

4 • Provision 3.g: Aspinwall Pump Station to Lanpher Reservoir Rising Main Project:

5 ○ Was due "on or before December 30, 2020", but with the 90-day extension,
 6 the revised date was "3/31/21". PWSA submitted the application by the
 7 revised deadline, on March 29, 2021.

8 • Provision 3.k.ii: Aspinwall and Bruecken Pump Station Improvements Projects:

9 ○ Was due "on or before January 1, 2021", but with the 90-day extension, the
 10 revised date was "4/1/21".⁷

11 • Provision 3.q: Washout Disconnection:

12 ○ Was due "on or before June 1, 2020", but with the 90-day extension, the
 13 revised date was "8/31/20". PWSA met this deadline by submitting the
 14 application on August 31, 2020.

15 On May 7, 2021, DEP issued the first Amendment of the 2019 COA

16 ("Amendment #1"), a copy of which is attached as Exhibit BK-3, which provided
 17 extensions for submitting Construction Permit Applications for the following projects:

18 • Provision 3.a: Clearwell and Related Projects:

19 ○ Specifically, for the Clearwell Bypass System, the original due date for
 20 submission of a "complete and technically sufficient application for
 21 construction permit" was "on or before January 1, 2023". Amendment #1
 22 revised the due date for the application for the construction permit to be "No

⁷ Please see below for an updated status due to DEP amendment of the 2019 COA.

1 later than September 30, 2021", which PWSA achieved, submitting the
2 Application on September 30, 2021.

- 3 • Provision 3.k.ii: Aspinwall and Bruecken Pump Station Improvements Projects:
 - 4 ○ The submission of a “complete and technically sufficient application for
5 construction permit” was originally due “on or before January 1, 2021” for
6 both Aspinwall and Bruecken Pump Station Improvements. The May 13,
7 2020 authorized 90-day COVID extension revised the due date to be "on or
8 before April 1, 2021". Amendment #1 further revised the due date to be “No
9 later than September 30, 2021", which PWSA achieved, submitting the
10 Application on September 30, 2021 for both Aspinwall and Bruecken Pump
11 Station Improvements Projects.

12 Amendment #1 also modified the Stipulated Civil Penalties provision of the 2019 COA,
13 as follows:

- 14 • Provision 4: Stipulated Civil Penalties:
 - 15 ○ Amendment #1 of the 2019 COA modified the Stipulated Civil Penalties for
16 failure “to meet the corrective action deadline of September 30, 2021, as
17 specified in Paragraphs 3a. and 3.k.”, providing that if PWSA were to miss a
18 deadline, it “shall pay a one-time civil penalty in the amount of Twenty
19 Thousand Dollars (\$20,000)”, as well as providing as follows: “In addition
20 to the one-time payment, PWSA shall pay a civil penalty in the amount of
21 One Thousand Dollars (\$1,000) per day for each violation until the
22 requirements specified in Paragraphs 3a. and 3.k., above, are fulfilled.” This

1 revised the original 2019 COA requirement for PWSA to “pay a civil penalty
2 in the amount of One Hundred Dollars (\$100.00) per day for each violation”.

3 On August 4, 2022, DEP issued a Second Amendment of the 2019 COA
4 (“Amendment #2”), a copy of which is attached as Exhibit BK-4, which provided
5 extensions of the submission of Construction Completion Forms for the following
6 projects:

7 • Provision 3.d: Rising Main #3 Rehabilitation Project:

- 8 ○ The original 2019 COA required that the PWSA “shall complete the
9 authorized work” and submit a “signed “Certificate of
10 Construction/Modification Completion” form” "within one (1) year of the
11 Department’s issuance of a construction permit authorizing the rehabilitation
12 or replacement of Rising Main #3”. As the Construction Permit was issued
13 on March 10, 2021, the Original COA required that the “Certificate of
14 Construction/Modification Completion” form be submitted by March 10,
15 2022. Amendment #2 changed the requirement from a stated duration to a
16 specific date, stating the due date was “no later than December 31, 2022.”
17 PWSA achieved the construction deadline by completing the project on
18 November 18, 2022.

19 • Provision 3.j: Highland No. 2 Reservoir Improvements (Liner and Cover
20 Replacement) Project:

- 21 ○ The original deadline for submitting a “signed “Certificate of
22 Construction/Modification Completion” form” was changed from a stated
23 duration of "within one (1) year of the Department’s issuance of a

1 construction permit authorizing the rehabilitation or replacement”, to a
 2 specific date, “no later than December 31, 2022“. For reference, as the
 3 Construction Permit was issued on January 8, 2021, the original 2019 COA
 4 would have required that the “Certificate of Construction/Modification
 5 Completion” form be submitted by January 8, 2022. PWSA achieved the
 6 construction deadline by completing the project on December 30, 2022.

7 Amendment #2 also modified the Stipulated Civil Penalties provision of the 2019 COA,
 8 as follows:

- 9 • Provision 4.b: Stipulated Civil Penalties:
 - 10 ○ Amendment #2 of the 2019 COA modified the Stipulated Civil Penalties for
 11 failure “to meet the corrective action deadline of December 31, 2022, as
 12 specified in Paragraphs 3.d. and 3.j.”, again providing that if PWSA were to
 13 miss a deadline, it “shall pay a one-time civil penalty in the amount of
 14 Twenty Thousand Dollars (\$20,000)” for this failure, as well as providing as
 15 follows: “In addition to the one-time payment, PWSA shall pay a civil
 16 penalty in the amount of One Thousand Dollars (\$1,000) per day for each
 17 violation until the requirements specified in Paragraphs 3d. and 3.j., above,
 18 are fulfilled.” This revised the original 2019 COA requirement for PWSA to
 19 “pay a civil penalty in the amount of One Hundred Dollars (\$100.00) per day
 20 for each violation”.

21 To date (as of May 8, 2023), PWSA has met each of the deadlines stipulated in the 2019
 22 COA, as amended in the two subsequent amendments.

1 **Q. DOES THE 2019 COA ALSO ADDRESS CROSS-CONNECTIONS?**

2 A. Yes. PWSA was required by the 2019 COA to investigate the locations where valves,
 3 blow-offs, or other such appurtenances that connect to the distribution system are found
 4 within chambers, pits or manholes connected directly or indirectly to any storm drain or
 5 sanitary sewer (commonly referred to by PWSA as “washouts”), which it has done.
 6 Further, in September 2020, PWSA submitted to DEP a report detailing the findings
 7 including the number and locations of all such cross-connections within PWSA’s system.
 8 Finally, PWSA submitted a plan and proposed schedule on November 30, 2020 for
 9 eliminating any and all cross-connections and to take the necessary steps to eliminate
 10 them as soon as is practicable.⁸

11 **Q. WHAT ARE THE CONSEQUENCES THAT PWSA WILL FACE IF IT DOES**
 12 **NOT COMPLY WITH THE 2019 COA?**

13 A. As noted above, under Amendment #1 and Amendment #2 of the 2019 COA, if PWSA
 14 does not comply in a timely manner with any term or provision of the COA, it will be
 15 required to pay a one-time civil penalty in the amount of \$20,000, in addition to a civil
 16 penalty in the amount of \$1,000 per day for each violation. This contrasts with the
 17 amount of \$100.00 per day for each violation that was in the original COA. PWSA is
 18 also subject to the imposition of additional penalties.⁹ As Mr. Barca explains, if PWSA
 19 is not permitted to raise its rates as proposed in this proceeding, it will be unable to fulfill
 20 these obligations. The result is that PWSA would be subject to the payment of these
 21 penalties. Since PWSA does not have investors, this burden would be the responsibility

⁸ 2019 COA Ordering ¶ 3.q.-t.

⁹ 2019 COA Ordering ¶ 4; Amendment #1 to 2019 COA and Amendment #2 to 2019 COA

1 of its ratepayers, which would further exacerbate the PWSA’s ability to implement the
 2 required project improvements.

3 **Q. PLEASE DESCRIBE THE CONSTRUCTION PROJECTS THAT PWSA MUST**
 4 **UNDERTAKE PURSUANT TO THE 2019 COA.**

5 A. PWSA has assigned the following names to the projects that are required by the 2019
 6 COA:

- 7 • Aspinwall WTP Clearwell Bypass (Emergency Response)
- 8 • Rising Main 3 – Rehabilitation AND/OR
 - 9 ○ Rising Main 3 – Replacement
- 10 • Highland No. 2 Reservoir Improvements (Liner and Cover Replacement)
- 11 • Rising Main 4 – Rehabilitation AND/OR
 - 12 ○ Rising Main 4 – Replacement
- 13 • Aspinwall WTP High Service Pumping OR
 - 14 ○ Aspinwall Pump Station Improvements
 - 15 ○ Bruecken Pump Station Improvements
- 16 • Aspinwall Pump Station to Lanpher Reservoir Rising Main
- 17 • Aspinwall WTP Clearwell Improvements (Replacement)

18
 19 These projects are shown in the table below:

Description	PWSA Project Name	PWSA Project Number	DEP Construction Permit Submittal	DEP COA Requirement: Construction Complete
PROJECTS SPECIFICALLY STATED IN COA				
Aspinwall WTP Clearwell Bypass (Emergency Response)	Clearwell Emergency Response Project	2017-323-100-0	Revised due date 9/30/2021 (was 1/1/2023) - Completed (submitted 9/30/2021) – Awaiting permit	2 years after receipt of construction permit
Rising Main 3 – Rehabilitation	2019 Large Diameter Water Main Improvements (Rising Main 3 & 4)	2019-325-103-0	Extended due date 11/30/2020 (was 9/1/2020) – Completed (submitted	Final amended due date was 12/31/2022, with an extension approved via 8/4/2022 COA Amendment).

Description	PWSA Project Name	PWSA Project Number	DEP Construction Permit Submittal	DEP COA Requirement: Construction Complete
			9/1/2020, early) - Permit received 3/10/2021	Completed 11/18/2022
Rising Main 3 – Replacement	2019 Large Diameter Water Main Improvements (Rising Main 3 & 4)	2019-325-103-0	Due 3/1/2021 – Completed (submitted 9/1/2020, early) - Permit received 3/10/2021	Final amended due date was 12/31/2022, with an extension approved via 8/4/2022 COA Amendment). Completed 11/18/2022
Highland No. 2 Reservoir Liner and Cover Replacement	Highland No. 2 Reservoir Liner and Cover Replacement	2019-323-102-0	Due 6/30/2020 (submitted 6/30/2020) – Permit received 1/8/2021	Final amended due date was 12/31/2022, with an extension approved via 8/4/2022 COA Amendment). Completed 12/30/2022
Rising Main 4 – Rehabilitation	2019 Large Diameter Water Main Improvements (Rising Main 3 & 4)	2019-325-103-0	Due 6/1/2021 - Completed (submitted 6/1/2021) – Permit received 1/14/2022	2 years after receipt of construction permit (currently due 1/14/2024)
Rising Main 4 – Replacement	2019 Large Diameter Water Main Improvements (Rising Main 3 & 4)	2019-325-103-0	Due 6/1/2021 - Completed (submitted 6/1/2021) – Permit received 1/14/2022	2 years after receipt of construction permit (currently due 1/14/2024)
Aspinwall Pump Station Improvements	Aspinwall Pump Station Improvements	2017-323-104-0	Extended date 9/1/2021 (was 1/1/2021, then 4/1/2023) - Completed (submitted 9/30/2021) – Awaiting permit)	2 years after receipt of construction permit

Description	PWSA Project Name	PWSA Project Number	DEP Construction Permit Submittal	DEP COA Requirement: Construction Complete
Bruecken Pump Station Improvements	Bruecken Pump Station Improvements	2017-323-106-0	Final extended date 9/1/2021 (was 1/1/2021, then 4/1/2023) - Completed (submitted 9/30/2021) – Awaiting permit	2 years after receipt of construction permit
Aspinwall Pump Station to Lanpher Reservoir Rising Main	Aspinwall Pump Station to Lanpher Reservoir Rising Main	2018-323-100-0	Extended due date 3/31/2021 (was 12/30/2020) - Completed (submitted 3/29/2021) – Awaiting permit	2 years after receipt of construction permit
Aspinwall WTP Clearwell Improvements (Replacement)	Clearwell Improvements	Unidentified	1/1/2024	2 years after receipt of construction permit
PROJECTS NECESSARY TO SUPPORT COA PROJECTS (Not Stated in COA)				
Aspinwall Water Treatment Plant Electrical and Backup Power Improvements	Aspinwall Water Treatment Plant Electrical and Backup Power Improvements	2017-322-100-0	N/A	N/A
Highland Reservoir Pump Station and Rising Main	Highland Reservoir Pump Station and Rising Main	2017-323-101-0	Submitted 3/5/2021 – Permit Received 7/8/2022	N/A

1

2 **Q. WHAT ARE THE TOTAL COSTS ASSOCIATED WITH THE CONSTRUCTION**
 3 **PROJECTS THAT ARE NECESSARY TO COMPLY WITH THE COA?**

4 A. PWSA’s total approved budget in the 2023-2027 CIP for the construction projects that
 5 are necessary to comply with the 2019 COA is approximately \$377 million. However,

1 the total budget for these projects, including what was completed to date and what will be
2 completed post-2027 is approximately \$450 million. As of April 2023, the cumulative
3 commitment for these projects is \$68.2 million with \$48.9 million paid to date. In
4 addition, even though it is not included in the 2019 COA, the Highland Reservoir Pump
5 Station and Rising Main and Lanpher Reservoir Booster Disinfection Projects must be
6 completed in order to replace the clearwell. The approved 2023-2027 CIP budget to
7 complete these projects are approximately \$60 million with approximately an additional
8 \$5 million spent prior to 2023. As design progress continues to refine the scope of the
9 projects, additional budget may be necessary.

10 **Q. DO YOU WISH TO HIGHLIGHT ANY OTHER CAPITAL PROJECTS TO**
11 **WHICH PWSA HAS COMMITTED?**

12 A. PWSA transitioned the Lead Service Line Replacement (“LSLR”) program to our
13 ongoing water main replacement program. The small diameter water main program is
14 being implemented to address the fragile condition and constant failures of these water
15 mains throughout the service areas. These pipes are prematurely failing due to
16 uncontrollable external pipeline corrosion. The corrosion related pipeline failures have
17 become acute in the past several years, which adds substantially to the PWSA operations
18 expenses. This approach allows PWSA to complete the replacement of the publicly
19 owned portions of the individual lead service lines (“LSLs”) concurrent with the
20 replacement of aging water distribution mains, improving the related costs and efficiency
21 for completion of the LSLRs and the resulting surface restoration activities. Additionally,
22 the private portion of identified LSLs are also replaced, where identified, during the
23 completion of the Small Diameter Water Main Replacement Project.

24

1 In 2022, with the availability of outside funding sources, the Authority
2 commenced additional LSLR projects. The first was funded by PENNVEST and focused
3 on removing lead service lines at day care facilities and locations with elevated levels of
4 lead in the drinking water. The 2022 Priority LSLR program was extremely successful
5 and all LSLR work was completed by late 2022. The 2022 Neighborhood LSLR program
6 was funded by American Recovery Plan Act funds, and construction of the \$17M
7 program commenced in April 2022. The Authority expects to complete this work
8 including service line identification and LSLR at over 1,800 properties in late 2023.

9 With funding being provided for LSLRs by the Infrastructure Investment and Jobs
10 Act, PWSA is planning to submit funding request to PENNVEST for continued
11 Neighborhood LSLR programs. A \$13.4M project was awarded to PWSA in January
12 2023 (slated to start construction in July 2023) and another application was submitted in
13 May 2023.

14 Another critical project is the annual Sewer Rehabilitation Project. This project
15 rehabilitates sewers (combined, sanitary and storm) through the trenchless installation of
16 airtight, watertight cured-in-place pipe lining on the inside of aging sewer pipes. This
17 approach affords PWSA with an approach that minimizes the impact to residents through
18 a more cost-effective way of extending the life of the sewer system than replacing it with
19 new pipe. This sewer lining program improves the reliability and service provided to our
20 customers. In response to the increasing rate of failure of sewer assets that are located
21 under or adjacent to structures (e.g., buildings, bridges, railroads, or major utilities) or
22 located on steep slopes (due to limited accessibility), PWSA has developed a Sewers

1 Under Structures Program for the proactive replacement, rehabilitation, or realignment
 2 and abandonment of this aging infrastructure.

3 **III. UPDATE REGARDING PRIOR RATE CASE SETTLEMENT ISSUES**

4 ***(D) Wastewater Laterals***

5 **Q. PLEASE DESCRIBE PWSA’S COMMITMENT IN THE 2020 RATE CASE**
 6 **REGARDING WASTEWATER LATERALS.**

7 A. In the 2020 rate case, PWSA agreed to meet with interested parties no later than March
 8 15, 2021 to discuss the Consultant’s report addressing feasibility of owning and/or
 9 maintaining wastewater laterals within public easements/rights-of-ways (“ROWS”).¹⁰
 10 PWSA met with interested parties on March 2, 2021 to discuss the report.

11 **Q. WHAT WAS THE PURPOSE OF THE REPORT?**

12 A. PWSA had contracted with the Consultant referenced in the Settlement to comply with
 13 the Stage 1 Compliance Plan Order. The Consultant’s responsibilities were to study and
 14 prepare a report that includes the legal, economic and operational feasibility of owning
 15 and/or maintaining wastewater laterals within public easements/ROWS. The concern
 16 sought to be addressed is the responsibility of customers who own laterals within public
 17 ROWs and easements to maintain them, rather than PWSA having this responsibility.

18 **Q. WHAT WERE THE CONSULTANT’S FINDINGS?**

19 A. After review of the legal, cost and logistical issues, the present structure whereby the
 20 customer owns and is responsible for operations and maintenance (“O&M”) and/or
 21 replacement of the entire private lateral is currently the most realistic approach for the
 22 PWSA for the near term. Based on the survey of other similarly situated wastewater
 23 conveyance utilities, maintaining the current status quo whereby the customer remains

¹⁰ 2020 Joint Petition for Partial Settlement, III.H.5.

1 responsible for the portion of the lateral he or she owns is not unique. From the research
 2 performed, about half (51.5 percent) of the utilities own/are responsible for the
 3 wastewater lateral from the connection at the sewer main up until an actual or assumed
 4 point (property line, easement, curb, assumed curb). In the other half (48.5 percent), the
 5 utility is responsible for no portion of the lateral. Also, PWSA’s current structure of
 6 private ownership of the wastewater laterals up to and including the connection of the
 7 lateral to the sewer main (even where it crosses the ROW) is rooted in City of Pittsburgh
 8 Ordinances and has been carried through in PWSA’s current Commission approved
 9 wastewater tariff.

10 **Q. DID PWSA PROPOSE ANY CHANGES IN ITS 2021 BASE RATE CASE**
 11 **REGARDING THE OWNERSHIP OF WASTEWATER LATERALS?**

12 A. No. Besides citing to the findings in the Consultant’s report, PWSA noted that it was is
 13 in the process of undertaking many other extremely important construction projects
 14 including its ambitious lead service line replacement program (now performed as part of
 15 the small diameter water main replacement program) and an equally ambitious
 16 infrastructure and system modernization upgrade as part of its transition to the
 17 Commission’s jurisdiction. Requiring PWSA to embark upon taking ownership of its
 18 approximately 110,000 wastewater laterals and/or replacing them all will require PWSA
 19 to divert a significant amount of staff resources and incur substantial expense.

20 In addition to these realities, PWSA referred to Act 120 of 2018 which amended
 21 the Public Utility Code regarding the accelerated replacement of customer-owned lead
 22 water service lines and damaged wastewater laterals. The Commission issued a Notice of
 23 Proposed Rulemaking Order on September 17, 2020 at Docket Number L-2020-301952
 24 which was published in the *Pennsylvania Bulletin* on April 3, 2021 at 5 Pa. B. 1802,

1 starting a 90-day comment period (“Act 120 Proposed Rulemaking”). The Notice of
2 Proposed Rulemaking proposed a framework that would enable the PWSA to replace
3 damaged customer-owned wastewater laterals (without requiring the PWSA to take over
4 ownership) when replacement would provide benefits to the rest of the wastewater
5 system. The specifics of this framework are subject to the Commission’s final
6 rulemaking order and a subsequent plan to be developed by PWSA and submitted to the
7 Commission for approval.

8 Upon consideration of all these factors, PWSA concluded that the most prudent
9 course at that time was to monitor the Commission’s Act 120 Proposed Rulemaking and
10 actively evaluate the development of a PWSA-specific Act 120 plan that would be
11 submitted to the Commission for approval. Ultimately, if PWSA were to embark upon a
12 plan to replace damaged customer-owned wastewater laterals in accordance with Act
13 120, the most cost-effective option for PWSA would be to use full lining as the go-to
14 repair option, but in practice, the type of repair selected will be based on an assessment of
15 the lateral in question.

16 **Q. DID PWSA MAKE A FURTHER COMMITMENT AS PART OF THE**
17 **SETTLEMENT OF THE 2021 RATE CASE?**

18 A. Yes. In the Settlement of the 2021 rate case, PWSA agreed to prepare and submit for
19 Commission approval a plan for repair and replacement of privately owned damaged
20 wastewater service laterals (“DWSL Plan”), which includes those located within the
21 public ROW, at PWSA’s expense.¹¹ Under the terms of the Settlement, the DWSL Plan
22 was to be consistent with PWSA’s comments filed in the Commission’s Act 120

¹¹ 2021 Joint Petition for Partial Settlement, III.E.6.

1 Proposed Rulemaking, and contain a cap of \$500,000 on the annual amount that PWSA
2 would expend on replacement of damaged sewer laterals, subject to the right of PWSA
3 and interested parties to request that the Commission revise the cap upward if additional
4 funding sources or other factors justify a revision. Further, PWSA agreed to request that
5 the DWSL Plan be grandfathered and not require revision upon final promulgation of the
6 Commission's Proposed Act 120 Rulemaking. To formulate a DSL Plan, PWSA was
7 obligated under the Settlement to convene a collaborative with interested parties within
8 60 days of the final filing of the Settlement. Finally, PWSA committed to file for
9 approval of the DWSL Plan with the Commission 90 days after entry of the
10 Commission's final order in the 2021 base rate proceeding.

11 **Q. PLEASE DESCRIBE PWSA'S COMPLIANCE WITH THIS COMMITMENT OF**
12 **THE 2021 SETTLEMENT.**

13 A. Consistent with the 2021 Settlement, which was filed with the Commission on September
14 14, 2021, PWSA convened a collaborative within 60 days on November 9, 2021. Since
15 the Commission's final order approving the Settlement was entered on November 18,
16 2021, PWSA's DWSL Plan was due on February 16, 2022. Given the need for additional
17 time to assemble the DWSL Plan, on January 13, 2022, PWSA requested an unopposed
18 30-day extension of time. By Secretarial Letter dated February 14, 2022, PWSA's
19 request was approved, making the DWSL Plan due on March 18, 2022. PWSA timely
20 filed a DWSL Petition and Plan, which complied with the terms of the 2021 Settlement.
21 Specifically, PWSA sought a \$500,000 budget, made proposals consistent with its
22 comments filed to the Act 120 Proposed Rulemaking and requested that the Plan be
23 grandfathered so that it would not have to be revised upon promulgation of final

1 regulations. With the filing on March 18, 2022, PWSA fulfilled its commitment under
 2 the Settlement relating to privately owned damaged sewer laterals.¹²

3 **Q. DID THE COMMISSION PROMULGATE FINAL REGULATIONS?**

4 A. Yes. Shortly before PWSA made its March 18, 2022 filings, the Commission issued a
 5 Final Rulemaking Order on March 14, 2022. The final regulations were approved by the
 6 Independent Regulatory Review Commission (“IRRC”) on May 19, 2022 and went into
 7 effect upon publication in the *Pennsylvania Bulletin* on July 23, 2022.

8 **Q. PLEASE DESCRIBE THE OVERALL APPROACH TAKEN BY THE**
 9 **COMMISSION IN THE FINAL REGULATIONS WITH RESPECT TO**
 10 **DAMAGED WASTEWATER SERVICE LATERALS.**

11 A. The approach taken by the Commission in the final regulations concerning the repair and
 12 replacement of DWSLs is that utilities should replace them only in limited situations
 13 where the costs will prudently benefit and improve system reliability, efficiency, and
 14 service quality in known problem areas. The regulations provide as follows:¹³

15 (b) An entity’s purpose for petitioning the Commission for
 16 approval of a DWSL program shall be linked to:

17 (1) Excessive I&I [Infiltration and Inflow] causing, or which is
 18 reasonably expected to cause within the next 5 years, a
 19 hydraulically overloaded condition, wastewater overflows or
 20 additional flow which is prudent for the entity to avoid.

21 (2) Design or construction conditions causing, or which are
 22 reasonably expected to cause within the next 5 years, wastewater
 23 overflows.

24 **Q. DID PWSA’S DWSL PROGRAM FOCUS ON EXCESSIVE I&I AND PROJECT**
 25 **AREAS AS CONTEMPLATED BY THE COMMISSION’S REGULATIONS?**

26 A. No. In its Comments filed to the Act 120 Proposed Rulemaking, PWSA had proposed
 27 the inclusion of a public health or safety hazard as an additional justification for a DWSL

¹² Docket Nos. P-2022-3031586 and R-2022-3031597.

¹³ 52 Pa. Code § 66.33.

1 Program, which the Commission declined to add. However, in response to the IRRC
 2 comments questioning how the proposed language protects public health and safety, the
 3 Final Rulemaking Order notes that an entity is not prohibited from petitioning the
 4 Commission to institute a DWSL Program that allows the entity to replace or repair
 5 service laterals that create a public health and/or safety hazard.

6 **Q. DID PWSA PETITION FOR A DWSL PROGRAM THAT WOULD ALLOW IT**
 7 **REPLACE OR REPAIR SERVICE LATERALS THAT CREATE A PUBLIC**
 8 **HEALTH AND/OR SAFETY HAZARD?**

9 A. Yes. Given the full private ownership of laterals on PWSA’s system, the Authority
 10 proposed that its voluntary DWSL Program focus on the repair and replacement of
 11 damaged laterals that are part of its combined, wastewater/stormwater system and the
 12 portion that are in the public ROW. DWSLs are often identified from sinkholes that form
 13 in the public right-of-way. While sinkholes pose a wide array of public health and safety
 14 harms and risks, they are not necessarily accompanied by or necessarily create I&I issues.
 15 Among the harms that are created by sinkholes include risks to the traveling public,
 16 damage to the bedding of other utility facilities, issues with maintenance and operation of
 17 the sewer main, and seepage into public areas posing a health hazard to local residents as
 18 well as the general public. In PWSA’s view, its proposed focus on the paved, public
 19 ROW where the damage is creating a public health or safety hazard was designed to
 20 produce system-wide benefits as envisioned by Act 120.

21 **Q. DID THE COMMISSION APPROVE PWSA’S DWSL PROGRAM?**

22 A. No. On December 29, 2022, the Commission entered an Order denying PWSA’s DWSL
 23 Petition, concluding that if PWSA desires to implement a DWSL program pursuant to
 24 Act 120, it may file a new petition that complies with Commission regulations.
 25 Alternatively, the Commission suggested that PWSA could petition the Commission

1 outside of the scope of Act 120 to institute a program that would allow it to replace or
 2 repair DWSLs that create a public health and/or safety hazard to individual customers
 3 without system-wide benefits and under a different cost recovery mechanism.¹⁴

4 **Q. IS PWSA FOLLOWING THE COMMISSION’S ALTERNATIVE SUGGESTION?**

5 A. Yes. Through a separate filing, PWSA plans to seek authority from the Commission that
 6 would allow for private property reimbursement and illegal connection removal.

7 Although PWSA is still developing a comprehensive proposal to file with the
 8 Commission, the Authority has included in this base rate filing the amount of \$250,000
 9 for this alternative program for each 2025 and 2026. It is not necessary for PWSA to
 10 request money for 2024 due to a \$500,000 grant from the City. PWSA plans to petition
 11 the Commission for authority to implement a Pilot Infiltration and Inflow Reduction
 12 Program and Damaged Wastewater Lateral Program for eligible low-income customers.
 13 The combined programs would include reimbursement to eligible customers for the
 14 disconnection of illegal surface storm water connections to PWSA’s Sanitary Sewers
 15 (e.g., downspout disconnection, foundation drain disconnection, yard drain
 16 disconnection, driveway drain disconnections, etc.) and lateral replacement and/or lateral
 17 rehabilitation of Damaged Wastewater Laterals located within the paved, public right-of-
 18 way. By disconnecting the illegal surface storm water connections or
 19 replacing/rehabilitating damaged laterals, PWSA could reduce operating costs, reduce
 20 capital program expenditures, and reduce the risks of overflows and basement backups.

14 December 29, 2022 Order at 3.

1 (E) Minimum Warranty

2 Q. PLEASE DESCRIBE PWSA’S OBLIGATION UNDER THE 2020 SETTLEMENT
3 REGARDING ITS MINIMUM WARRANTY.

4 A. PWSA agreed as part of the 2020 Settlement to revise its minimum warranty on
5 workmanship and material on lead service line replacements to comply with the industry-
6 wide standard that the Commission is expected to establish pursuant to Act 120 of
7 2018.¹⁵

8 Q. HAS THE COMMISSION ESTABLISHED THIS INDUSTRY-WIDE
9 STANDARD?

10 A. Yes. The Commission established an industry-wide standard, requiring an entity
11 performing damaged water service and wastewater sewer lines to provide a warranty term
12 of not less than two years.¹⁶ The warranty provisions must define the start date of the 2-
13 year term; ensure that the materials and workmanship of the line replacement and
14 restoration of services are covered; define the maximum coverage amounts under the
15 warranty; explain any liability an entity will have for damages not covered by the
16 warranty; and ensure that the entity has access to the property to correct any deficiencies.

17 Q. IS PWSA COMMITTED TO COMPLIANCE WITH THIS INDUSTRY-WIDE
18 STANDARD FOR THE MINIMUM WARRANTY ON WORKMANSHIP AND
19 MATERIAL LINE REPLACEMENTS?

20 A. Yes.

21 IV. CONCLUSION

22 Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

23 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

¹⁵ 2020 Joint Petition for Settlement, III.H.7. See *Implementation of Act 120 of 2018*, Docket No. M-2019-3013286 (Order entered November 1, 2019), at 4-5.

¹⁶ 52 Pa. Code §§ 65.58(e) and 66.38(e).

Exhibit BK-1

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

In The Matter Of:

Pittsburgh Water and Sewer Authority	:	Violations of the Pennsylvania Safe
Penn Liberty Plaza 1	:	Drinking Water Act and the Rules and
1200 Penn Avenue	:	Regulations Promulgated Pursuant Thereto
Pittsburgh, PA 15222	:	

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement is entered into this 10th day of SEPTEMBER 2019, by and between the Commonwealth of Pennsylvania, Department of Environmental Protection (“Department”) and the Pittsburgh Water and Sewer Authority (“PWSA”).

The Department has found and determined the following:

A. The Department is the agency with the duty and authority to administer and enforce the Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, *as amended*, 35 P.S. §§ 721.1-721.17 (“Safe Drinking Water Act”); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510–17 (“Administrative Code”); and the rules and regulations promulgated thereunder (“Regulations”).

B. PWSA is a municipal authority with a business address of Penn Liberty Plaza 1, 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222. PWSA is a “person,” a “supplier of water” and a “public water supplier,” as those terms are defined in Section 3 of the Safe Drinking Water Act, 35 P.S. § 721.3, and Section 1 of the Regulations, 25 Pa. Code § 109.1.

C. PWSA leases, operates and is the permittee of a “public water system” and, more specifically, a “community water system,” as those terms are defined in Section 3 of the Safe Drinking Water Act, 35 P. S. § 721.3, and Section 1 of the Regulations, 25 Pa. Code § 109.1.

PWSA's public water system consists of water sources, a clearwell and other storage facilities, treatment facilities and a distribution system (collectively, the "System"). PWSA provides drinking water through the System to approximately 520,000 people in the Pittsburgh, Pennsylvania area, including approximately 250,000 residential customers. PWSA operates the System pursuant to multiple public water supply permits issued by the Department and has been assigned Public Water System Identification Number 5020038. The City of Pittsburgh owns the System and leases it to PWSA.

D. Section 4(3) of the Regulations, 25 Pa. Code § 109.4(3), requires public water suppliers to provide and effectively operate and maintain public water system facilities. Section 4(4) of the Regulations, 25 Pa. Code § 109.4(4), requires public water suppliers to take whatever investigative or corrective action is necessary to assure that safe and potable water is continuously supplied to the users of the public water system.

E. PWSA uses a clearwell constructed in approximately 1908 for storage of filtered water prior to the introduction of the water into PWSA's distribution system. In 1998, PWSA contracted Marion Hill Associates to conduct an inspection of the clearwell. The 1998 clearwell inspection found that the structural stability of the clearwell was good overall, but identified several areas of concern including, but not limited to: excessive amounts of sediment that prohibited inspection of the bottom of the tank; debris; infiltrating tree roots; signs of erosion, deterioration and cracks in the concrete walls; leaks in the clearwell equalization chamber; and considerable amounts of rust on the gates for the clearwell and gatehouse, which could make them unmovable. The consultant concluded that the clearwell did not meet current design standards for public water supply finished water storage.

F. PWSA subsequently hired consultants HDR Engineering, Inc. and Malcom Pirnie, Inc. to provide separate but concurrent evaluations and recommendations regarding the clearwell. In November 2008, HDR Engineering, Inc. provided a report to PWSA titled “Pittsburgh Water Treatment Plant Clearwell Improvements, Phase 1- Study”. The purpose of the report was to identify available alternatives to address “PWSA’s desires to have a clearwell system with the operational flexibility of being able to remove approximately one half of the clearwell from service for cleaning and maintenance while the other half remains in service; and to have the ability to bypass the clearwell and send filtered water directly to the Bruecken Pump Station in emergency situations.” In December 2008, Malcom Pirnie, Inc. provided a report to PWSA titled “Clearwell Improvements Phase 1-Study”, which also addressed PWSA’s expressed need for operational flexibility with the clearwell. Both reports identified viable alternative options and provided cost estimates to PWSA to address the condition of the clearwell as well as the desired operational flexibility.

G. In March 2017, consultant Mott McDonald submitted another report to PWSA entitled “Alternative Evaluation-Clearwell Redundancy Project”, which identified additional viable options to remedy the inflexibility of the clearwell with cost estimates.

H. During a three-day inspection in late April 2017, the Department discovered that two access hatches on the clearwell were open and several other hatches were in disrepair, creating possible pathways of surface contamination. The Department required PWSA to take immediate action to secure the manholes on the clearwell with temporary covers. On May 1, 2017, the Department issued a Field Order citing PWSA for failing to effectively operate and maintain its public water facilities and failing to take investigative and corrective action necessary to ensure that safe and potable water is continuously supplied to the users of its system

by, among other things, not adequately responding to the 1998 Marion Hill Associates clearwell inspection report, in violation of 25 Pa. Code §§ 109.4(3) and 109.4(4). In the Field Order, the Department directed PWSA to increase its free chlorine residual, install additional protective and monitoring equipment on the clearwell, and conduct additional monitoring and testing of the clearwell.

I. The violations described in Paragraph H, above, constitute a public nuisance under Section 12 of the Safe Drinking Water Act, 35 P.S. § 721.12, and subject PWSA to a claim for civil penalties under Section 13(g) of the Safe Drinking Water Act, 35 P.S. § 721.13(g).

J. On October 25, 2017, the Department issued an Administrative Order to PWSA directing the Authority to undertake a number of actions including, among other things: to provide to the Department a detailed schedule for the completion of certain longer-term capital improvement projects identified by PWSA to the Department. Two of the identified capital improvement projects were the “Clearwell Emergency Response Project” and the “Washout Disconnection Program”.

K. Pursuant to Section 109.608 of the Regulations, 25 Pa. Code § 109.608, a public water system may not be designed or constructed in a manner which creates a cross-connection. A “cross-connection” is defined in 25 Pa. Code § 109.1 as “[a]n arrangement allowing either a direct or indirect connection through which backflow, including backsiphonage, can occur between the drinking water in a public water system and a system containing a source or potential source of contamination, or allowing treated water to be removed from any public water system, used for any purpose or routed through any device or pipes outside the public water system, and returned to the public water system. The term does not include connections to devices totally within the control of one or more public water systems and connections between

water mains.” A “washout”, as referred to in PWSA’s planned “Washout Disconnection Program”, is a connection between the public water system distribution components and the storm or sanitary sewerage systems utilized for flushing these lines and may indicate the presence of a cross-connection within the public water system. Cross-connections pose a potential threat to public health.

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by PWSA as follows:

1. Authority. This Consent Order and Agreement is an Order of the Department authorized and issued pursuant to Section 5 of the Safe Drinking Water Act, 35 P.S. § 721.5; and Section 1917-A of the Administrative Code, 71 P.S. § 510-17.

2. Findings.

a. PWSA agrees that the findings in Paragraphs A through K are true and correct and, in any matter or proceeding involving PWSA and the Department, PWSA shall not challenge the accuracy or validity of these findings.

b. The parties do not authorize any other persons to use the findings in this Consent Order and Agreement in any matter or proceeding.

3. Corrective Action. PWSA shall complete the following actions in accordance with the following schedule:

Clearwell and Related Projects

a. On or before January 1, 2023, PWSA shall submit to the Department a complete and technically sufficient application for a construction permit for a bypass system that

will enable PWSA to remove the clearwell from service and replace it. In the event the Department makes a written request to PWSA to supplement or modify the application, PWSA shall supplement or modify its application as requested by the Department within the time requested.

b. Within two (2) years of the Department's issuance of a construction permit authorizing construction of a clearwell bypass system, PWSA shall complete construction of the bypass system in accordance with the terms and conditions of the permit and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA's construction of the bypass system, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

c. To facilitate the clearwell bypass system, PWSA shall rehabilitate or replace Rising Main #3 to PWSA's Highland 2 Reservoir as follows:

(i) On or before September 1, 2020, PWSA shall submit to the Department a complete and technically sufficient application for a construction permit to rehabilitate Rising Main #3;

OR

(ii) On or before March 1, 2021, PWSA shall submit to the Department a complete and technically sufficient application for a construction permit to replace Rising Main #3.

In the event the Department makes a written request to PWSA to supplement or modify an application submitted pursuant to Paragraph 3.c.(i) or 3.c.(ii), above, PWSA shall supplement or modify its application as requested by the Department within the time requested.

d. Within one (1) year of the Department's issuance of a construction permit authorizing the rehabilitation or replacement of Rising Main #3, PWSA shall complete the authorized work in accordance with the terms and conditions of the permit and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA's rehabilitation or replacement of Rising Main #3, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

e. On or before June 1, 2021, PWSA shall submit to the Department a complete and technically sufficient application for a construction permit to rehabilitate or replace Rising Main #4 to PWSA's Highland 2 Reservoir to facilitate the clearwell bypass system. In the event the Department makes a written request to PWSA to supplement or modify the application, PWSA shall supplement or modify its application as requested by the Department within the time requested.

f. Within two (2) years of the Department's issuance of a construction permit authorizing the rehabilitation or replacement of Rising Main #4, PWSA shall complete the authorized work in accordance with the terms and conditions of the permit and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA's rehabilitation

or replacement of Rising Main #4, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

g. On or before December 30, 2020, PWSA shall submit to the Department a complete and technically sufficient application for a construction permit for a new redundant rising main from the Aspinwall Pump Station to the Lanpher Reservoir to facilitate the clearwell bypass system. In the event the Department makes a written request to PWSA to supplement or modify the application, PWSA shall supplement or modify its application as requested by the Department within the time requested.

h. Within two (2) years of the Department's issuance of a construction permit authorizing the construction of a new redundant rising main from the Aspinwall Pump Station to the Lanpher Reservoir, PWSA shall complete construction of the rising main in accordance with the terms and conditions of the permit and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA's construction of the redundant rising main, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

i. On or before June 30, 2020, PWSA shall submit to the Department a complete and technically sufficient application for a construction permit to replace the cover and liner of the Highland 2 Reservoir to facilitate the clearwell bypass system. In the event the Department makes a written request to PWSA to supplement or modify the application, PWSA shall supplement or modify its application as requested by the Department within the time requested.

j. Within eighteen (18) months of the Department's issuance of a construction permit authorizing the replacement of the cover and liner of the Highland 2 Reservoir, PWSA shall replace the cover and liner in accordance with the terms and conditions of the permit and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA's replacement of the cover and/or liner, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

k. On or before January 1, 2021, to facilitate the clearwell bypass system, PWSA shall submit to the Department:

(i) A complete and technically sufficient application for a combined pump station to replace the existing Aspinwall and Breucken pump stations;

OR

(ii) Complete and technically sufficient applications for rehabilitation of the existing Aspinwall and Breucken pump stations.

In the event the Department makes a written request to PWSA to supplement or modify the application(s), PWSA shall supplement or modify its application(s) as requested by the Department within the time requested.

l. Within two (2) years of the Department's issuance of a construction permit authorizing PWSA to conduct a project under either Paragraph 3.k.(i) or 3.k.(ii), above, PWSA shall complete the authorized work in accordance with the terms and conditions of the permit and shall submit to the Department an original, signed "Certificate of

Construction/Modification Completion” form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA’s replacement or rehabilitation of the Aspinwall and Bruecken pump stations, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

m. On or before January 1, 2024, PWSA shall submit to the Department a complete and technically sufficient application for a construction permit to replace the clearwell. In the event the Department makes a written request to PWSA to supplement or modify the application, PWSA shall supplement or modify its application as requested by the Department within the time requested.

n. Within two (2) years of the Department’s issuance of a construction permit authorizing the replacement of the clearwell, PWSA shall complete the authorized work in accordance with the terms and conditions of the permit and shall submit to the Department an original, signed “Certificate of Construction/Modification Completion” form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA’s replacement of the clearwell, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

o. No later than thirty (30) days after the date of the Department’s issuance of an operation permit authorizing the operation of the new clearwell, PWSA shall begin operating the clearwell in accordance with the permit.

p. For as long as PWSA continues to operate the existing clearwell, PWSA shall continue to monitor turbidity, temperature, pH, log inactivation values and specific

conductance from the clearwell effluent, and NOAA precipitation values, as required by the Field Order issued by the Department on May 1, 2017. PWSA shall maintain the monitoring records on-site. PWSA shall notify the Department within one (1) hour if any turbidity reading from the clearwell effluent exceeds 1.0 NTU.

Cross-connections

q. On or before June 1, 2020, PWSA shall complete an investigation of the locations where valves, blow-offs, meters or other such appurtenances to the distribution system are found within chambers, pits or manholes connected directly or indirectly to any storm drain or sanitary sewer (commonly referred to by PWSA as “washouts”) and submit to the Department a report detailing the findings including the number and locations of all such cross-connections within PWSA’s System.

r. Within ninety (90) days of PWSA’s submission of the report required under Paragraph 3.q., above, PWSA shall submit to the Department a plan and proposed schedule to eliminate all of the identified cross-connections and a written request for a determination by the Department as to whether the requested modification to eliminate each cross-connection identified in the report constitutes a major or minor change.

s. For any modification the Department determines to require a permit, PWSA shall submit a complete and technically sufficient application to the Department for a construction permit within sixty (60) days of the date the Department’s written determination is issued to PWSA. In the event the Department makes a written request to PWSA to supplement or modify the application, PWSA shall supplement or modify its application as requested by the Department within the time requested.

t. In accordance with the plan and schedule required under Paragraph 3.r., above, as approved or as modified and approved by the Department, PWSA shall complete the elimination of all identified cross-connections and shall submit to the Department within ninety (90) days of completion a report confirming the elimination of all previously existing cross-connections with confirmatory photographs, dates and details of the corrective work performed.

4. Stipulated Civil Penalties.

a. In the event PWSA fails to comply in a timely manner with any term or provision of this Consent Order and Agreement, PWSA shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a civil penalty in the amount of One Hundred Dollars (\$100.00) per day for each violation.

b. Stipulated civil penalty payments shall be payable monthly on or before the fifteenth day of each succeeding month. The payment shall be made by corporate check or the like made payable to the "Commonwealth of Pennsylvania – Safe Drinking Water Fund" and sent to Renee Diehl, Program Manager, Safe Drinking Water Program, Department of Environmental Protection, 400 Waterfront Drive, Pittsburgh, PA 15222-4745.

c. Any payment under this paragraph shall neither waive PWSA's duty to meet its obligations under this Consent Order and Agreement nor preclude the Department from commencing an action to compel PWSA's compliance with the terms and conditions of this Consent Order and Agreement. The payment resolves only PWSA's liability for civil penalties arising from the violation of this Consent Order and Agreement for which the payment is made.

d. Stipulated civil penalties shall be due automatically and without notice.

5. Additional Remedies.

a. In the event PWSA fails to comply with any provision of this Consent Order and Agreement, the Department may, in addition to the remedies prescribed herein, pursue any remedy available for a violation of an order of the Department, including an action to enforce this Consent Order and Agreement.

b. The remedies provided by this paragraph and Paragraph 4 (Stipulated Civil Penalties) are cumulative and the exercise of one does not preclude the exercise of any other. The failure of the Department to pursue any remedy shall not be deemed to be a waiver of that remedy. The payment of a stipulated civil penalty, however, shall preclude any further assessment of civil penalties for the violation for which the stipulated penalty is paid.

6. Reservation of Rights. The Department reserves the right to require additional measures to achieve compliance with applicable law. PWSA reserves the right to challenge any action which the Department may take to require those measures.

7. Liability of PWSA. PWSA shall be liable for any violations of the Consent Order and Agreement, including those caused by, contributed to, or allowed by its officers, agents, employees, consultants or contractors. Except as provided in Paragraph 8.c., PWSA also shall be liable for any violation of this Consent Order and Agreement caused by, contributed to, or allowed by its successors and assigns.

8. Transfer of Site.

a. The duties and obligations under this Consent Order and Agreement shall not be modified, diminished, terminated or otherwise altered by the transfer of any legal or equitable interest in the PWSA public water system or any part thereof.

b. If PWSA intends to transfer any legal or equitable interest in the PWSA public water system which is affected by this Consent Order and Agreement, PWSA shall serve a copy of this Consent Order and Agreement upon the prospective transferee of the legal and equitable interest at least thirty (30) days prior to the contemplated transfer and shall simultaneously inform the Southwest Regional Office of the Department of such intent.

c. The Department in its sole discretion may agree to modify or terminate PWSA's duties and obligations under this Consent Order and Agreement upon transfer of the PWSA System or any part thereof. PWSA waives any right that it may have to challenge the Department's decision in this regard.

9. Correspondence with Department. All correspondence with the Department concerning this Consent Order and Agreement shall be addressed to:

Renee Diehl, Program Manager
Safe Drinking Water Program
Department of Environmental Protection
Southwest Regional Office
400 Waterfront Drive
Pittsburgh, Pennsylvania 15222-4745
Telephone: 412.442.4210 Facsimile: 412.442.4242

10. Correspondence with PWSA. All correspondence with PWSA concerning this Consent Order and Agreement shall be addressed to:

Robert Weimar, Executive Director
Pittsburgh Water and Sewer Authority
Penn Liberty Plaza 1
1200 Penn Avenue
Pittsburgh, PA 15222
Telephone: 412.255.2579

PWSA shall notify the Department whenever there is a change in the contact person's name, title, or address. Service of any notice or any legal process for any purpose under this Consent

Order and Agreement, including its enforcement, may be made by mailing a copy by first class mail to the above address.

11. Force Majeure.

a. In the event that PWSA is prevented from complying in a timely manner with any time limit imposed in this Consent Order and Agreement solely because of a strike, fire, flood, act of God, or other circumstance beyond PWSA's control and which PWSA, by the exercise of all reasonable diligence, is unable to prevent, then PWSA may petition the Department for an extension of time. An increase in the cost of performing the obligations set forth in this Consent Order and Agreement shall not constitute circumstances beyond PWSA's control. PWSA's economic inability to comply with any of the obligations of this Consent Order and Agreement shall not be grounds for any extension of time.

b. PWSA shall only be entitled to the benefits of this paragraph if PWSA notifies the Department within five (5) working days by telephone and within ten (10) working days in writing of the date it becomes aware or reasonably should have become aware of the event impeding performance. The written submission shall include all necessary documentation, as well as a notarized affidavit from an authorized individual specifying the reasons for the delay, the expected duration of the delay, and the efforts which have been made and are being made by PWSA to mitigate the effects of the event and to minimize the length of the delay. The initial written submission may be supplemented within ten (10) working days of its submission. PWSA's failure to comply with the requirements of this paragraph specifically and in a timely fashion shall render this paragraph null and of no effect as to the particular incident involved.

c. The Department will decide whether to grant all or part of the extension requested on the basis of all documentation submitted by PWSA and other information available

to the Department. In any subsequent litigation, PWSA shall have the burden of proving that the Department's refusal to grant the requested extension was an abuse of discretion based upon the information then available to it.

12. Severability. The paragraphs of this Consent Order and Agreement shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.

13. Entire Agreement. This Consent Order and Agreement shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

14. Attorney Fees. The parties shall bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this Consent Order and Agreement.

15. Modifications. No changes, additions, modifications, or amendments of this Consent Order and Agreement shall be effective unless they are set out in writing and signed by the parties hereto.

16. Titles. A title used at the beginning of any paragraph of this Consent Order and Agreement may be used to aid in the construction of that paragraph, but shall not be treated as controlling.

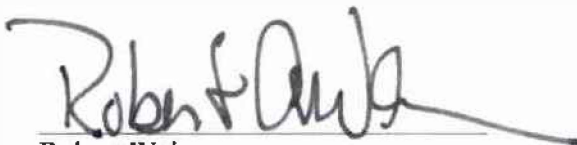
17. Decisions Under Consent Order. Any decision which the Department makes under the provisions of this Consent Order and Agreement, including a notice that stipulated civil penalties are due, is intended to be neither a final action under 25 Pa. Code § 1021.2, nor an

adjudication under 2 Pa. C.S. § 101. Any objection which PWSA may have to the decision will be preserved until the Department enforces this Consent Order and Agreement.

18. Resolution. Attached hereto as Appendix A is a resolution of the Board of PWSA authorizing its signatories below to enter into this Consent Order and Agreement on its behalf.

IN WITNESS WHEREOF, the parties hereto have caused this Consent Order and Agreement to be executed by their duly authorized representatives. The undersigned representatives of PWSA certify under penalty of law, as provided by 18 Pa. C.S. § 4904, that they are authorized to execute this Consent Order and Agreement on behalf of PWSA; that PWSA consents to the entry of this Consent Order and Agreement as a final ORDER of the Department; and that PWSA hereby knowingly waives its right to appeal this Consent Order and Agreement and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, Act of July 13, 1988, P.L. 530, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provisions of law. Signature by PWSA's attorney certifies only that the agreement has been signed after consulting with counsel.

FOR PITTSBURGH WATER AND SEWER AUTHORITY:



Robert Weimar
Executive Director
Pittsburgh Water and Sewer Authority



David Ries
Attorney for Pittsburgh Water and Sewer Authority

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:



Renee Diehl
Environmental Program Manager
Bureau of Safe Drinking Water



Gail Guenther
Assistant Counsel
Southwest Office of Chief Counsel

Exhibit BK-2

May 13, 2020

CERTIFIED MAIL NO.

Robert Weimar, Executive Director
Pittsburgh Water and Sewer Authority
1200 Penn Avenue
Pittsburgh, PA 15222

Re: Consent Order and Agreements dated November 17, 2017 and September 9, 2019
Extension Request
PWS ID No. 5020038
Allegheny County

Dear Mr. Weimar:

On April 8, 2020, the Department received a request from the Pittsburgh Water and Sewer Authority (PWSA), for an extension of time to complete the following tasks:

November 17, 2017 Consent Order and Agreement

Paragraph 3.c.iii - requiring all monies held aside for the Community Environmental Project to be spent within three years of the execution date of the COA, or by November 16, 2020.

September 6, 2019 Consent Order and Agreement

Paragraph 3.c.i - requiring PWSA must submit a construction permit application for the rehabilitation of Rising Main #3 on or before September 1, 2020.

Paragraph 3.g – requiring submission of a construction permit application for the Aspinwall Pump Station to Lanpher Reservoir Rising main on or before December 30, 2020.

Paragraph 3.k.ii – requiring submission of a construction permit application for the rehabilitation of the existing Aspinwall and Breucken pump stations on or before January 1, 2021.

Paragraph 3.q – requiring completion of investigation of the locations where valves, blow-offs, meters or other appurtenances are directly or indirectly connected to storm drains or sanitary sewers by June 1, 2020.

In response to this request, the Department will exercise its enforcement discretion to allow an **additional 90 days** for PWSA to comply with the provisions of the specific paragraphs listed above of DEP's November 17, 2017 Consent Order and Agreement and September 9, 2019 Consent Order and Agreement. All other requirements and deadlines of the November 17, 2017 Consent Order and Agreement and the September 9, 2019 Consent Order and Agreement remain unchanged.

Provided that PWSA complies with the new corrective action deadlines stated above, the Department will exercise its enforcement discretion to forego the collection of stipulated civil penalties otherwise due under the terms of the COAs. If, however, PWSA fails to satisfactorily complete the corrective action obligations required under the provisions listed above in accordance with the new deadlines, then the Department will assess civil penalties beginning from the new deadlines until such time as PWSA complies in full with these obligations under the November 17, 2017 Consent Order and Agreement and the September 9, 2019 Consent Order and Agreement.

Sincerely,

A handwritten signature in cursive script that reads "Renee L. Diehl". The signature is written in dark ink and is positioned above the printed name and title.

Renee L. Diehl
Environmental Group Manager
Safe Drinking Water Program

Exhibit BK-3

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

IN THE MATTER OF:

Pittsburgh Water and Sewer Authority	:	Violations of the Clean Streams Law,
Penn Liberty Plaza 1	:	Safe Drinking Water Act and Rules and
1200 Penn Avenue	:	Regulations Promulgated Pursuant Thereto
Pittsburgh PA 15222	:	

**FIRST AMENDMENT TO
SEPTEMBER 6, 2019 CONSENT ORDER AND AGREEMENT**

This first amendment to the September 6, 2019 Consent Order and Agreement (“First Amendment”) is entered into this 7th day of May, 2021, by and between the Commonwealth of Pennsylvania, Department of Environmental Protection (“Department”) and the Pittsburgh Water and Sewer Authority (“PWSA”).

The Department has found and determined the following:

A. The Department is the agency with the duty and authority to administer and enforce the Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, *as amended*, 35 P.S. §§ 721.1-721.17 (“Safe Drinking Water Act”); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 (“Administrative Code”); and the rules and regulations promulgated thereunder (“Regulations”).

B. PWSA is a municipal authority with a business address of Penn Liberty Plaza 1, 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222. PWSA is a “person,” a “supplier of water” and a “public water supplier,” as those terms are defined in Section 3 of the Safe Drinking Water Act, 35 P.S. § 721.3, and Section 109.1 of the Regulations, 25 Pa. Code § 109.1.

C. PWSA leases, operates and is the permittee of a “public water system” and, more specifically, a “community water system,” as those terms are defined in Section 3 of the Safe

Drinking Water Act, 35 P.S. § 721.3, and Section 109.1 of the Regulations, 25 Pa. Code § 109.1. PWSA's public water system consists of water sources, a clearwell and other storage facilities, treatment facilities, and a distribution system (collectively, the "System"). PWSA's System has been assigned Public Water System Identification Number 5020038.

D. On September 6, 2019, the Department and PWSA executed a Consent Order and Agreement ("2019 COA"), a copy of which is attached hereto as Appendix A.

E. Because of delays associated with the COVID-19 pandemic and changes in design and construction approaches, PWSA has requested to amend the 2019 COA for the purpose of: 1) extending the deadline for PWSA to submit applications for permits to construct two new pump stations; 2) shortening the deadline for PWSA to submit an application for a permit to construct a new clearwell bypass system; and 3) establishing a new stipulated civil penalty in the event PWSA fails to meet the new deadlines under this First Amendment.

F. Based on the foregoing reasons, the Department is willing to amend Paragraphs 3.a., 3.k. and 3.l. (Corrective Action) and Paragraph 4 (Stipulated Civil Penalties) of the 2019 COA as set forth below. To avoid confusion, the modified Corrective Action provisions herein are identified with the same numbers and letters as those of the provisions in the 2019 COA that they amend.

G. The parties intend that all other terms and provisions of the 2019 COA shall remain in full force and effect.

After full and complete negotiation of all matters set forth in this First Amendment, and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by PWSA as follows:

1. Authority. This First Amendment is an Order of the Department authorized and issued pursuant to Section 5 of the Safe Drinking Water Act, 35 P.S. § 721.5; and Section 1917-A of the Administrative Code, 71 P.S. § 510-17.

2. Findings.

a. PWSA agrees that the findings in Paragraphs A through G of this First Amendment are true and correct and, in any matter or proceeding involving PWSA and the Department, PWSA shall not challenge the accuracy or validity of these findings.

b. The parties do not authorize any other persons to use the findings in this First Amendment in any matter or proceeding.

3. Corrective Action. The following paragraphs and subparagraphs of the 2019 COA are amended to read as follows:

Clearwell and Related Projects

3.a. No later than September 30, 2021, PWSA shall submit to the Department a complete and technically sufficient application for a permit to construct a bypass system that will enable PWSA to remove the clearwell from service and replace it. In the event the Department makes a written request to PWSA to supplement or modify the application, PWSA shall supplement or modify its application as requested by the Department within fifteen (15) days or such other time as the Department requests.

3.k. No later than September 30, 2021, to facilitate the clearwell bypass system, PWSA shall submit to the Department a complete and technically sufficient application to rehabilitate the existing Aspinwall pump station and a complete and technically sufficient application to rehabilitate the existing Bruecken pump station. In the event the Department makes a written request to PWSA to supplement or modify either or both of the applications,

PWSA shall supplement or modify its application(s) as requested by the Department within fifteen (15) days or such other time as the Department requests.

3.l. Within two (2) years of the Department's issuance of each of the construction permits for the Aspinwall pump station and the Bruecken pump station referenced in Paragraph 3.k., above, PWSA shall complete the authorized work in accordance with the terms and conditions of each construction permit and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in PWSA's rehabilitation of either the Aspinwall or Bruecken pump stations, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

4. Stipulated Civil Penalties.

a. In the event PWSA fails to meet the corrective action deadline of September 30, 2021, as specified in Paragraphs 3a. and 3.k., above, PWSA shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a one-time civil penalty in the amount of Twenty Thousand Dollars (\$20,000). In addition to the one-time payment, PWSA shall pay a civil penalty in the amount of One Thousand Dollars (\$1,000) per day for each violation until the requirements specified in Paragraphs 3a. and 3.k., above, are fulfilled.

b. In the event PWSA fails to comply in a timely manner with any term or provision in Paragraphs 3.b. through 3.j. and Paragraphs 3.l. through 3.t., above, PWSA shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a civil penalty in the amount of One Hundred Dollars (\$100) per day for each violation.

c. Stipulated civil penalty payments shall be payable monthly on or before the fifteenth day of each succeeding month. The payment shall be made by corporate check or the like, made payable to the “Commonwealth of Pennsylvania - Safe Drinking Water Fund” and sent to:

Gail Guenther
Environmental Protection Compliance Specialist
Safe Drinking Water Program
PA DEP Southwest Regional Office
400 Waterfront Drive
Pittsburgh PA 15222

d. Any payment under this paragraph shall neither waive PWSA’s duty to meet its obligations under this Consent Order and Agreement, nor preclude the Department from commencing an action to compel PWSA’s compliance with the terms and conditions of this Consent Order and Agreement. The payment resolves only PWSA’s liability for civil penalties arising from the violation of this Consent Order and Agreement for which the payment is made.

e. The civil penalty settlement and stipulated civil penalties shall be due automatically and without notice.

5. Except for the amendment to Paragraphs 3.a., 3.k., 3.l. and Paragraph 4, expressly stated herein, the Findings and all other terms and conditions of the 2019 COA shall remain in full force and effect between the Parties.

6. Resolution. Attached hereto as Appendix B is a resolution of the Board of Directors of PWSA authorizing its signatory(ies) below to enter into this First Amendment on its behalf.

7. This First Amendment may be signed in counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument. Counterpart signatures may be transmitted electronically using portable document format (.pdf).

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have caused this First Amendment to the September 6, 2019 Consent Order and Agreement to be executed by their duly authorized representatives. PWSA certifies under penalty of law, as provided by 18 Pa. C.S. § 4904, that it is authorized to execute this First Amendment to the September 6, 2019 Consent Order and Agreement; that it consents to the entry of this First Amendment to the September 6, 2019 Consent Order and Agreement as a final ORDER of the Department; and it hereby knowingly waives its rights to appeal this First Amendment to the September 6, 2019 Consent Order and Agreement and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, Act of July 13, 1988, P.L. 530, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provisions of law. Signature by PWSA's attorney certifies only that the amendment has been signed after consulting with counsel.

**FOR PITTSBURGH WATER
AND SEWER AUTHORITY:**

**FOR THE COMMONWEALTH OF
PENNSYLVANIA, DEPARTMENT OF
ENVIRONMENTAL PROTECTION:**



William J. Pickering
Chief Executive Officer
Pittsburgh Water and Sewer Authority



Renee Diehl
Program Manager
Southwest Safe Drinking Water Program



David G. Ries, Esquire
Attorney for Pittsburgh Water and
Sewer Authority



Wendy Carson
Assistant Counsel

Exhibit BK-4

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

IN THE MATTER OF:

Pittsburgh Water and Sewer Authority	:	Violations of the Safe Drinking Water Act
Penn Liberty Plaza 1	:	and the Rules and Regulations Promulgated
1200 Penn Avenue	:	Pursuant Thereto
Pittsburgh, PA 15222	:	

**SECOND AMENDMENT TO
SEPTEMBER 6, 2019 CONSENT ORDER AND AGREEMENT**

This second amendment to the September 6, 2019 Consent Order and Agreement (Amendment 2) is entered into this 4th day of August, 2022, by and between the Commonwealth of Pennsylvania, Department of Environmental Protection (Department) and the Pittsburgh Water and Sewer Authority (PWSA).

The Department has found and determined the following:

A. The Department is the agency with the duty and authority to administer and enforce the Pennsylvania Safe Drinking Water Act, Act of May 1, 1984, P.L. 206, *as amended*, 35 P.S. §§ 721.1-721.17 (Safe Drinking Water Act); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 (Administrative Code); and the rules and regulations promulgated thereunder (Regulations).

B. PWSA is a municipal authority with a business address of Penn Liberty Plaza 1, 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222. PWSA is a “person”, a “supplier of water” and a “public water supplier”, as those terms are defined in Section 3 of the Safe Drinking Water Act, 35 P.S. § 721.3, and Section 109.1 of the Regulations, 25 Pa. Code § 109.1.

C. PWSA leases, operates and is the permittee of a “public water system” and, more specifically, a “community water system”, as those terms are defined in Section 3 of the Safe

Drinking Water Act, 35 P.S. § 721.3, and Section 109.1 of the Regulations, 25 Pa. Code § 109.1. PWSA's public water system consists of water sources, a clearwell, and other storage facilities, treatment facilities, and a distribution system (collectively, the "PWSA System"). PWSA's System has been assigned Public Water System Identification Number 5020038.

D. On September 6, 2019, the Department and PWSA executed a Consent Order and Agreement (2019 COA). On May 7, 2021, the Department and PWSA executed a First Amendment to the 2019 COA (First Amendment). A copy of the First Amendment, which appends a copy of the 2019 COA, is attached hereto as Appendix A.

E. Because of delays associated with supply chain issues as a result of the COVID-19 pandemic, PWSA has requested to amend the 2019 COA for the purpose of: 1) extending the deadline for PWSA to complete construction of a replacement for Rising Main #3 to PWSA's Highland 2 Reservoir; 2) extending the deadline for PWSA to complete construction of a new cover and liner for the Highland 2 Reservoir; and 3) establishing new stipulated civil penalties in the event PWSA fails to meet the new deadlines under this Amendment 2.

F. Based on the foregoing reasons, the Department is willing to amend Paragraphs 3.d. and 3.j. (in Corrective Action) and Paragraph 4 (Stipulated Civil Penalties) of the 2019 COA as set forth below. To avoid confusion, the modified Corrective Action provisions herein are identified with the same numbers and letters as those of the provisions in the 2019 COA that they amend. The parties intend that all other terms and provisions of the 2019 COA and the First Amendment shall remain in full force and effect.

After full and complete negotiation of all matters set forth in this Amendment 2, and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and

intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by PWSA as follows:

1. Authority. This Amendment 2 is an Order of the Department authorized and issued pursuant to Section 5 of the Safe Drinking Water Act, 35 P.S. § 721.5; and Section 1917-A of the Administrative Code of 1929, 71 P.S. § 510-17.

2. Findings.

a. PWSA agrees that the findings in Paragraphs A through F of this Amendment 2 are true and correct and, in any matter or proceeding involving PWSA and the Department, PWSA shall not challenge the accuracy or validity of these findings.

b. The parties do not authorize any other persons to use the findings in this Amendment 2 in any matter or proceeding.

3. Corrective Action. The following subparagraphs of Paragraph 3 of the 2019 COA are amended to read as follows:

Clearwell and Related Projects

3.d. No later than December 31, 2022, PWSA shall complete the work authorized for the reconstruction and rehabilitation of Rising Main #3 in accordance with the terms and conditions of Public Water Supply Permit No. 0220523MA and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in the reconstruction and rehabilitation of Rising Main #3, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

3.j. No later than December 31, 2022, PWSA shall complete the work authorized for the installation of a new liner and cover for the Highland 2 Reservoir in accordance with the terms and conditions of Public Water Supply Permit No. 0220522MA, which has an expiration date of December 31, 2022, and shall submit to the Department an original, signed "Certificate of Construction/Modification Completion" form (certification of construction) that meets the requirements of 25 Pa. Code § 109.504(a). In the event the Department notifies PWSA in writing of any deficiencies in the installation of the new liner and/or cover for the Highland 2 Reservoir, PWSA shall correct the deficiencies as requested by the Department within the time requested and submit a new certification of construction.

4. Stipulated Civil Penalties. Paragraph 4 of the 2019 COA and the First Amendment are superseded by the following:

a. In the event PWSA fails to meet the corrective action deadline of September 30, 2021, as specified in Paragraphs 3a. and 3.k., above, PWSA shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a one-time civil penalty in the amount of Twenty Thousand Dollars (\$20,000). In addition to the one-time payment, PWSA shall pay a civil penalty in the amount of One Thousand Dollars (\$1,000) per day for each violation until the requirements specified in Paragraphs 3a. and 3.k., above, are fulfilled.

b. In the event that PWSA fails to meet the corrective action deadline of December 31, 2022, as specified in Paragraphs 3.d. and 3.j., above, PWSA shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a one-time civil penalty in the amount of Twenty Thousand Dollars (\$20,000). In addition to the one-time payment, PWSA shall pay a civil penalty in the amount of One Thousand Dollars

(\$1,000) per day for each violation until the requirements specified in Paragraphs 3d. and 3.j., above, are fulfilled.

c. In the event PWSA fails to comply in a timely manner with any term or provision in Paragraphs 3.b., 3.c., 3.e. through 3.i. and Paragraphs 3.l. through 3.t., above, PWSA shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a civil penalty in the amount of One Hundred Dollars (\$100) per day for each violation.

d. Stipulated civil penalty payments shall be payable monthly on or before the fifteenth day of each succeeding month. The payment shall be made by corporate check or the like, made payable to the "Commonwealth of Pennsylvania - Safe Drinking Water Fund" and sent to:

Gail Guenther
Environmental Protection Compliance Specialist
Safe Drinking Water Program
PA DEP Southwest Regional Office
400 Waterfront Drive
Pittsburgh PA 15222

e. Any payment under this paragraph shall neither waive PWSA's duty to meet its obligations under the 2019 COA, as amended, nor preclude the Department from commencing an action to compel PWSA's compliance with the terms and conditions of the 2019 COA, as amended. The payment resolves only PWSA's liability for civil penalties arising from the violation of the 2019 COA, as amended, for which the payment is made.

f. The civil penalty settlement and stipulated civil penalties shall be due automatically and without notice.

5. Except for the amendments to Paragraphs 3.d. and 3.j. and Paragraph 4, expressly stated herein, the Findings and all other terms and conditions of the 2019 COA and First Amendment shall remain in full force and effect between the Parties.

6. Resolution. Attached hereto as Appendix B is a resolution of the Board of Directors of PWSA authorizing its signatory(ies) below to enter into this Amendment 2 on its behalf.

7. This Amendment 2 may be signed in counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument.

Counterpart signatures may be transmitted electronically using portable document format (.pdf).

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment 2 to be executed by their duly authorized representatives. PWSA certifies under penalty of law, as provided by 18 Pa. C.S. § 4904, that it is authorized to execute this Amendment 2; that it consents to the entry of this Amendment 2 as a final ORDER of the Department; and it hereby knowingly waives its rights to appeal this Amendment 2 and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, Act of July 13, 1988, P.L. 530, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provisions of law.

**FOR PITTSBURGH WATER
AND SEWER AUTHORITY:**

William J. Pickering

William J. Pickering
Chief Executive Officer
Pittsburgh Water and Sewer Authority

**FOR THE COMMONWEALTH OF
PENNSYLVANIA, DEPARTMENT OF
ENVIRONMENTAL PROTECTION:**

Renee Diehl

Renee Diehl
Program Manager
Southwest Safe Drinking Water Program

David G. Ries

David G. Ries, Esquire
Attorney for Pittsburgh Water and
Sewer Authority

Wendy Carson

Wendy Carson
Assistant Counsel

VERIFICATION

I, Barry King, hereby state that: (1) I am the Director of Engineering for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 05/03/2023 | 11:08 AM PDT _____

DocuSigned by:
Barry King
F87AE2CF53E04F0...

Barry King
Director of Engineering
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

TONY IGWE

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPIC:

STORMWATER

May 9, 2023

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TI-1	PWSA and City of Pittsburgh Stormwater Outfalls and Storm Sewershed Drainage Areas Overview Map (dated May 3, 2023)
TI-2	January 26, 2021 U.S. EPA Administrative Order on Consent

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Tony Igwe. I am the Senior Group Manager, Stormwater for The Pittsburgh
4 Water and Sewer Authority (“PWSA”), a position that I assumed in January 2021. I
5 previously held this position on an interim basis beginning in September 2020.

6 **Q. WHAT ARE YOUR JOB RESPONSIBILITIES IN THAT POSITION?**

7 A. My responsibilities include planning, design, implementation, and maintenance of
8 stormwater-related projects that reduce localized flooding and combined sewer overflows
9 while improving the water quality and health of streams and waterways.

10 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
11 **RELEVANT EXPERIENCE.**

12 A. I am a civil and environmental engineer with nearly three decades of experience helping
13 municipalities and authorities solve wet weather control issues. I hold a Bachelor of
14 Science Degree in Civil Engineering from Mississippi State University, and a Master’s
15 Degree and Ph.C. in Environmental Engineering from Wayne State University. I am also
16 a registered professional engineer in Pennsylvania and Michigan. Prior to joining PWSA,
17 I worked on projects that covered wastewater, combined sewer overflow, and stormwater
18 issues for cities such as Detroit, Michigan and Cleveland, Ohio. In 2002, I established
19 the Pittsburgh office of Wade Trim, a leading engineering firm. During my time at Wade
20 Trim, I worked with 3 Rivers Wet Weather, Inc., PWSA and the 83 municipalities and
21 municipal authorities in the Allegheny County Sanitary Authority (“ALCOSAN”) service
22 area to develop a regional flow monitoring plan and wet weather feasibility study reports.
23 I also supported PWSA as a consultant on the Four Mile Run Stormwater Improvement
24 Project.

1 A complete description of my background and experience is set forth in Appendix
2 A to this testimony.

3 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA**
4 **PUBLIC UTILITY COMMISSION (“PUC” OR “COMMISSION”)?**

5 A. Yes. I presented written Direct, Supplemental Direct, Rebuttal and Rejoinder testimony
6 in support of PWSA’s most recent rate case at Docket Numbers R-2021-3024773 (water),
7 R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater). I also presented
8 written Direct Testimony in support of PWSA’s Compliance Plan Stage 2 Stormwater
9 Proceeding at Docket Nos. M-2018-2640802 and M-2018-2640803. I have also
10 presented testified on behalf of PWSA in Commission formal complaint cases.

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

12 A. The purpose of my testimony is to support PWSA’s proposed stormwater rate increase.
13 Additionally, I describe the Authority’s stormwater conveyance facilities, the related
14 regulatory requirements and PWSA’s stormwater management program. I also discuss
15 the status of PWSA’s Stormwater Strategic Plan.

16 **Q. ARE OTHER WITNESSES PROVIDING TESTIMONY REGARDING THE**
17 **STORMWATER PROGRAM AND PROPOSED RATES?**

18 A. Yes. Mr. Readling’s testimony describes the development of PWSA’s proposed
19 stormwater charges and updates we are proposing to the stormwater credit program.
20 Additionally, Ms. Mechling discusses customer service-related aspects of the stormwater
21 rate and sponsors the proposed Stormwater Tariff Supplement No. 3 which is included
22 with her testimony as Exhibits JAM-15 (clean) and JAM-16 (red-lined). -

23 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

24 A. Yes. I am sponsoring the following exhibits:

- 1 • **Exh. TI-1:** Exhibit TI-1 is a map titled Stormwater Outfalls Overview providing an
2 overview of the PWSA and City of Pittsburgh storm sewershed drainage areas and
3 outfalls as of May 3, 2023.
- 4 • **Exh. TI-2:** Exhibit TI-2 is a copy of the January 26, 2021 U.S. EPA Administrative
5 Order on Consent with PWSA and the City of Pittsburgh.

6 **Q. HAS PWSA ALREADY RECEIVED COMMISSION APPROVAL FOR ITS**
7 **CURRENT STORMWATER RATES AND RATE STRUCTURE?**

8 A. Yes. In our last base rate proceeding PWSA submitted a full stormwater tariff with
9 proposed rates that was approved by the Commission and became effective in January
10 2022. Since 2022, we have been charging customers a stormwater rate. Previously,
11 PWSA used the fees generated from customer charges for sewer conveyance to fund
12 stormwater management. A sewer conveyance charge (based on a PWSA customer's
13 water usage) was not an equitable way to charge customers for stormwater management.
14 This is because the volume of stormwater that a property generates is a function of hard
15 surface (impervious area) on that property, not water usage. The most common measure
16 used by governments across the United States to charge for costs related to stormwater
17 services is based on impervious surface area. Therefore, PWSA developed a stormwater
18 rate to charge for stormwater management services more equitably to meet water quality
19 and regulatory requirements. While we continue to recover some of our stormwater costs
20 through the wastewater conveyance rates, we are doing so based on the principal of
21 gradualism and are continuing, as part of this case, to increase the allocation we are
22 recovering in the stormwater fee. Gradualism is discussed more fully by Mr. Smith, Mr.
23 Readling and Ms. Mechling.

24

1 **II. OVERVIEW OF STORMWATER ISSUES**

2 **Q. WHAT IS STORMWATER?**

3 A. Stormwater is rain or snowmelt that does not infiltrate into the ground. When
 4 precipitation falls on an impervious area, it runs off the property rather than being
 5 absorbed. Figure 1 below illustrates the stormwater cycle in a separate sanitary sewer
 6 system, where stormwater runoff is conveyed to a nearby water body, such as a stream or
 7 a river. Note that in a combined sewer system, stormwater is conveyed to a pipe that
 8 carries a combination of both sanitary sewer flow and stormwater.

9 Figure 1:

Stormwater Basics

The Stormwater Cycle

Stormwater isn't hard to spot and chances are, you have already been impacted by its effects. This simple example shows the stormwater cycle for a typical single family home.

How it Works

Rain Falls: water collects on an impervious/paved surfaces	1
Run Off Collects: run off collects pollutants along its way	2
Run Off Flows: water moves over impervious/paved surfaces	3
Run Off Grows: water your yard can't absorb combines into run off	4
Stormwater Drains: pollutant-heavy water now flows into storm drains	5
Streams and Rivers Impacted: pollutants enter water	6

10

11 Source: <https://www.conservationactioncenter.org/solution-center/stormwater/what-is-stormwater#>

12 **Q. IS STORMWATER A PROBLEM?**

13 A. Yes. When precipitation falls on undeveloped areas, it is primarily absorbed into the
 14 ground or slowly runs off into streams, rivers, or other water bodies. However, developed
 15 areas that are impervious, such as rooftops and paved areas, prevent water from being
 16 absorbed and create a faster rate of runoff. This development often causes localized
 17 flooding or other water quantity or quality issues. In addition, stormwater can carry

1 harmful pollutants (such as such as oil, dirt, chemicals, and lawn fertilizers) that
 2 adversely affect water quality. Stormwater can cause flooding, erode topsoil, and stream
 3 banks, and destroy habitats. PWSA’s service territory has densely developed areas with a
 4 lot of impervious surfaces.

5 **Q. WHO PRODUCES STORMWATER?**

6 A. All properties receive precipitation in the form of rain or snow. Accordingly, all
 7 properties produce stormwater runoff that must be managed. Even if a property has
 8 never flooded and there is no nearby stormwater infrastructure, the stormwater that flows
 9 off of a property must be managed so that it does not contribute to pollution and flooding
 10 downstream. This also applies to cases in which the majority of stormwater is managed
 11 onsite; property owners should contribute for services provided that are beyond their
 12 property lines, such as permit compliance, municipal separate storm sewer system (MS4)
 13 maintenance, and stormwater infrastructure improvements throughout the City of
 14 Pittsburgh. Stormwater management is a community-wide service and the costs should be
 15 funded by residents in a fair and equitable manner.

16 **Q. ARE THERE DIFFERENT REGULATORY CATEGORIES OF**
 17 **STORMWATER?**

18 A. Yes. Under the Clean Water Act, a permit is required for any discharge to waters such as
 19 rivers or streams. There are two types of permits that address stormwater discharges: (1)
 20 National Pollutant Discharge Elimination System (NPDES) permits that apply to
 21 discharges from a combined sewer system, including stormwater flow which is due to
 22 groundwater infiltration and stormwater inflow that mix with other wastewater in
 23 combined sewer pipes; and (2) NPDES permits for Municipal Separate Storm Sewer

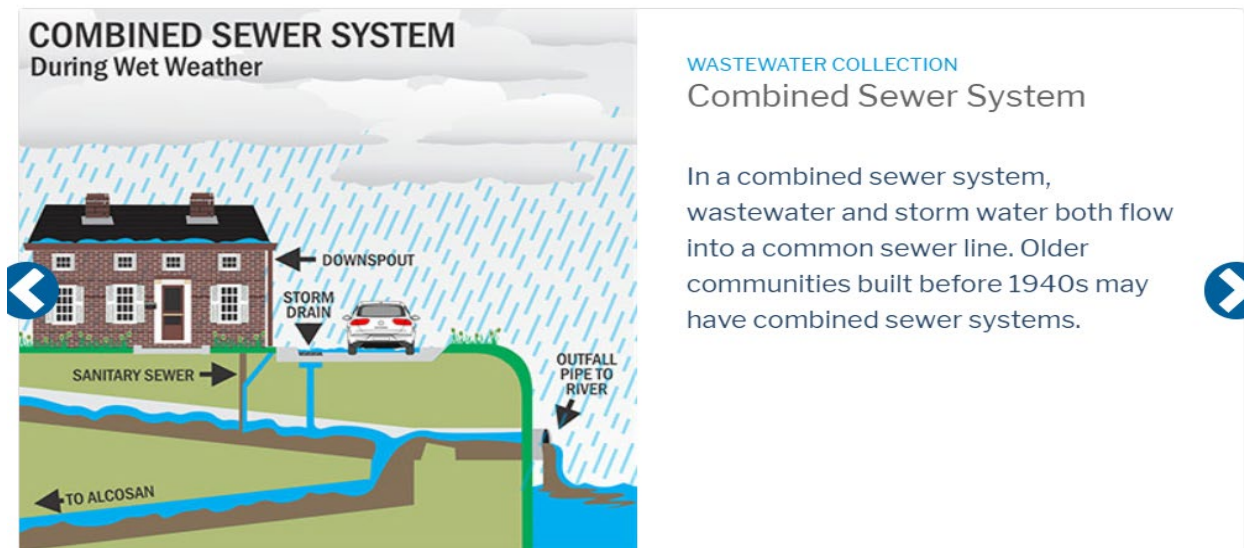
1 Systems (MS4), relating to stormwater that is collected, conveyed, and discharged to
 2 local waterbodies via stormwater-only pipes.

3 **Q. PLEASE PROVIDE AN OVERVIEW OF THE AUTHORITY’S STORMWATER**
 4 **AND/OR WASTEWATER INFRASTRUCTURE.**

5 A. PWSA’s overall wastewater conveyance system is composed of over 1,200 miles of
 6 sewer lines, 4 pump stations, and approximately 25,000 catch basins. PWSA has two
 7 types of wastewater conveyance systems – a combined system and separated sanitary and
 8 storm sewer systems. Stormwater is conveyed in different ways by each type of system.

9 First, approximately 75% of the PWSA system, or approximately 900 miles of
 10 sewer lines, is the combined sewer system. This is generally the older areas of the system
 11 where wastewater and stormwater are conveyed in the same pipe. During times of dry
 12 weather, all flow is conveyed to ALCOSAN for treatment. When it rains, the capacity of
 13 the system to convey flow can be limited, which causes localized flooding, basement
 14 sewer backups, and overflows to streams and rivers. Figure 2 below illustrates the
 15 operation of a combined sewer system.

16 Figure 2:



17
 18

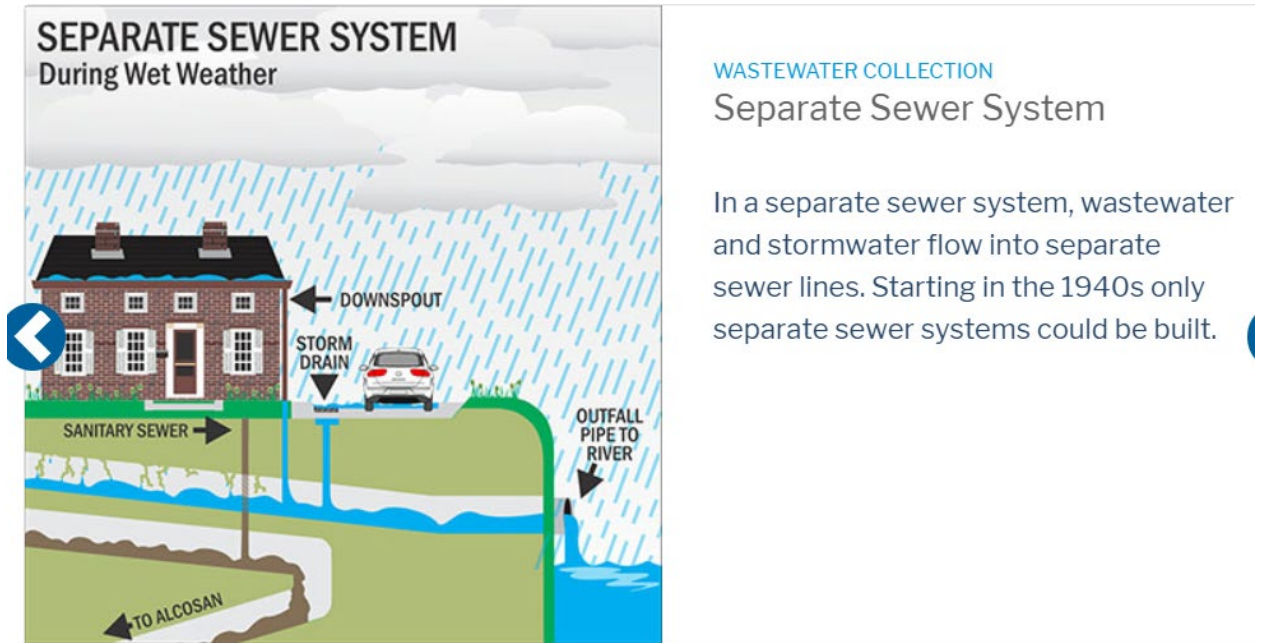
Source: <https://www.alcosan.org/what-we-do/wastewater-treatment>

1 Second, newer, or more recently redeveloped communities have separated
2 sanitary and storm sewer systems.¹ In a separated system, wastewater is conveyed to
3 ALCOSAN for treatment, and when it rains stormwater is discharged directly to a nearby
4 stream or river. The separate stormwater conveyance system (“MS4”)² is not connected
5 to either the combined wastewater system or the sanitary sewer system, and only carries
6 stormwater. A map providing an overview of stormwater outfalls in the City of
7 Pittsburgh, including those served by an MS4, is attached as Exhibit TI-1.
8 Approximately 25% of the PWSA system is separated. The separated system has
9 approximately 178 miles of sanitary sewer and 148 miles of stormwater pipes. Figure 3
10 below illustrates the operation of a separate sanitary sewer system.

¹ Due to uneven patterns and timelines of real estate development, some areas have been built as separated systems, but must connect to an older combined system downstream because they do not have direct access to ALCOSAN sanitary sewer lines (for sanitary flow) or a body of water (for stormwater flow), resulting in a patchwork of infrastructure types.

² “MS4” stands for Municipal Separate Storm Sewer System. *See* 25 Pa. Code § 92a.2. Municipalities and other entities that meet certain standards must obtain National Pollutant Discharge Elimination System (“NPDES”) permit coverage for discharges of storm water from their MS4s. *See, e.g.*, the Storm Water Management Act, 32 P.S. §§ 680.1, *et seq.* *See also* 40 CFR 122.26(b) (relating to definitions).

1 Figure 3:



2

3 Source: <https://www.alcosan.org/what-we-do/wastewater-treatment>

4 The combined sewer system and MS4 are each discussed in greater detail below.

5 **A. Combined Sewer System**

6 **Q. PLEASE BRIEFLY DESCRIBE PWSA’S COMBINED WASTEWATER**
7 **SYSTEM.**

8 A. The PWSA system, as was common industry practice at the time of installation, was
9 designed as a “combined system,” meaning that there is one pipe underground that
10 transports both wastewater and stormwater, all of which is then conveyed to treatment
11 facilities. Our first sewer lines were built as early as 1840 in present-day Shadyside and
12 Oakland. By 1908, more than 390 miles of underground sewer lines were in place,
13 establishing the start of the combined sewer system that is still used today. About 75%
14 (about 900 miles) of PWSA’s current wastewater conveyance system is the combined
15 system.

1 **Q. HOW DOES STORMWATER ENTER THE PWSA COMBINED WASTEWATER**
2 **SYSTEM?**

3 A. Principally, through storm grates or inlets located in the streets, then into the sump or
4 well below, called a catch basin. There are, however, other sources of inflow, such as
5 roof stormwater downspouts and area drains as required by existing Municipal Building
6 Codes, that were designed to feed this stormwater into the combined wastewater
7 conveyance system. Finally, groundwater can enter the piping system via aging or
8 defective infrastructure. This is termed “infiltration.”

9 **Q. HOW IS STORMWATER HANDLED BY THE COMBINED WASTEWATER**
10 **SYSTEM?**

11 A. PWSA sends the combined flow of wastewater and stormwater to ALCOSAN, the
12 regional wastewater treatment plant along the Ohio River. ALCOSAN treats wastewater
13 (together with any stormwater collected by combined systems) for 83 municipalities in
14 Allegheny County, including the City of Pittsburgh.

15 **Q. WHAT IS COMBINED SEWER OVERFLOW (CSO)?**

16 A. Normally, during dry periods or low intensity rainfalls, PWSA’s combined system sends
17 all wastewater and stormwater flow to the ALCOSAN treatment facility. However, if
18 there is a large rainfall event, the system can become overloaded beyond its capacity.
19 When this occurs, the system is designed to allow excess stormwater and untreated
20 sewage to be discharged into rivers and streams. This means that combined sewers can
21 cause water pollution problems when the volume of sewage and stormwater exceed the
22 capacity of the conveyance system.

1 **Q. HAVE COMBINED SEWER OVERFLOW EVENTS BEEN AN ISSUE IN THE**
2 **CITY OF PITTSBURGH?**

3 A. Yes, CSOs are a significant issue in City of Pittsburgh. Approximately 5.5 billion
4 gallons of untreated sewage overflows each year from the PWSA combined sewer system
5 into local streams and rivers.³ The frequency of CSO events is driven by weather,⁴ and
6 in recent years Pittsburgh has experienced increased amounts of total annual rainfall as
7 well as increased frequency of large rainfall events. As an illustration, 2018 was the
8 wettest year on record for Pittsburgh, with a total of 57.83 inches of rain. Similarly, 2019
9 was the third wettest year on record with a total of 52.46 inches of rain. By comparison,
10 the 30-year mean rainfall for Pittsburgh is about 39.5 inches of rain.⁵ See Figures 4 and 5
11 below to note that the trend of precipitation amounts and event frequency appears to be
12 increasing, which will result in more frequent CSO events and an even greater need to
13 adequately manage stormwater.

14

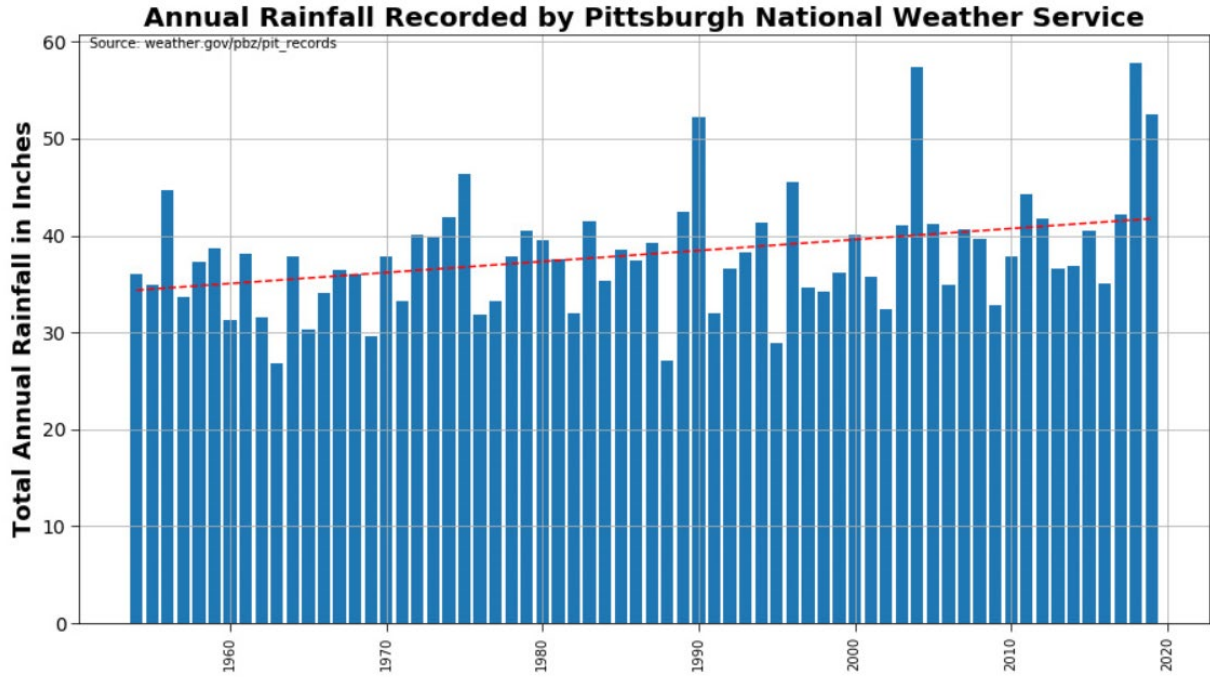
³ As per the PWSA SWMM Model, 2003 Typical Year.

⁴ See the ALCOSAN website for data on CSO Alerts issued by year since 1993:
<https://www.alcosan.org/our-plan/sewer-overflow-advisories>.

⁵ https://www.weather.gov/pbz/pit_records.

1

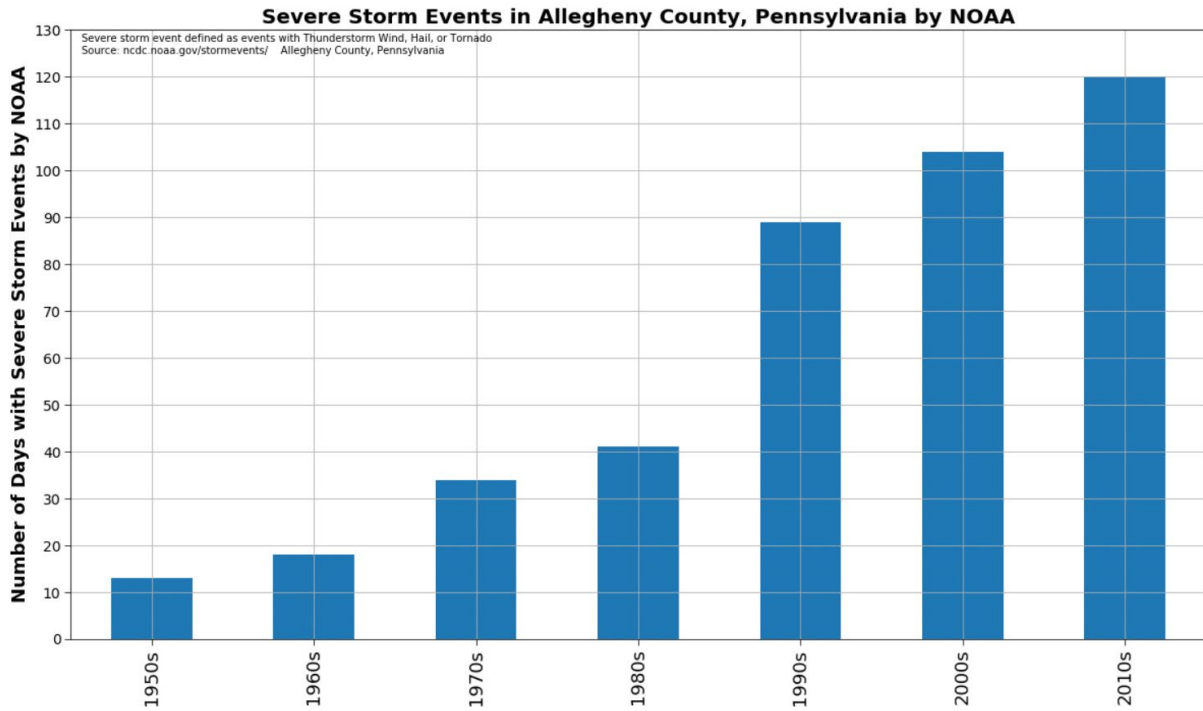
Figure 4:



2

3

Figure 5:



4

5

6

1 **Q. HOW ARE COMBINED SEWER OVERFLOWS BEING ADDRESSED?**

2 A. In 2004, the Pennsylvania Department of Environmental Protection (PA DEP) issued a
 3 Consent Order to the City of Pittsburgh and other municipalities in Allegheny County.⁶
 4 The order directed the parties to reduce the volume of CSOs and basement backups.

5 In 2013, PWSA prepared a *Wet Weather Feasibility Study*⁷ in accordance with the
 6 PA DEP Consent Order. In this document, PWSA discussed green infrastructure and
 7 integrated watershed management and indicated its intent to further analyze and evaluate
 8 how these methods could be utilized to address CSOs in Pittsburgh and the region. The
 9 study also described how stormwater infrastructure can help to address chronic surface
 10 flooding and sewage basement backups experienced across Pittsburgh.

11 In November 2016, PWSA completed the *Green First Plan*,⁸ which presented the
 12 results of these analyses and evaluations. PWSA’s *Green First Plan* identified the use of
 13 green infrastructure, stormwater source control, and stream removal as an alternate plan
 14 to the current ALCOSAN *Clean Water Plan* (CWP).⁹ It also indicated that using these
 15 alternate methods could lead to improved efficiencies for ALCOSAN’s planned
 16 wastewater treatment plant (WWTP) upgrades and operations of the existing collection
 17 system, as well as greater reduction of sediment levels in the existing deep tunnel
 18 interceptor sewers. PWSA’s *Green First Plan* estimated that it could reduce the region’s
 19 overflow volume by a comparable amount (6 billion gallons or more) to ALCOSAN’s

⁶ Available at:
<https://www.3riverswetweather.org/sites/default/files/Consent%20Order%20and%20Agreement%20final%202004.pdf>.

⁷ Available at: <https://www.pgh2o.com/your-water/stormwater>.

⁸ Available at: <https://www.pgh2o.com/your-water/stormwater>.

⁹ Available at: <https://www.alcosan.org/our-plan/plan-documents/clean-water-plan>.

1 WWTP, while also providing a higher level of protection against surface flooding and
 2 basement sewage backups.

3 PWSA also identified that the costs to provide this same level of protection
 4 against surface flooding and sewage basement backups were not included in
 5 ALCOSAN’s CWP, as ALCOSAN is only charged with addressing CSOs. ALCOSAN’s
 6 CWP does not address surface flooding, sewage basement backups, sanitary sewer
 7 overflows, PWSA’s MS4 permit requirements or PWSA only CSO outfalls. The
 8 resolution of PWSA only CSO outfalls and related water quality issues as well as sanitary
 9 sewer overflows are subject to further negotiation between PWSA and U.S.
 10 Environmental Protection Agency (EPA) Region 3. These negotiations started in earnest
 11 in January 2021. Negotiations are ongoing and are expected to result in a Consent
 12 Decree. The timing of when a Decree will be issued has not been determined.

13 **Q. ARE THERE SPECIFIC PROJECTS RELATED TO COMBINED SEWER**
 14 **OVERFLOWS THAT YOU WOULD LIKE TO HIGHLIGHT?**

15 A. Yes. In addition to the above work, PWSA also developed an Integrated Watershed
 16 Management (IWM) Plan report for the Saw Mill Run (SMR) watershed by working with
 17 the eleven other municipalities in the watershed, the Watersheds of South Pittsburgh
 18 organization, the U.S. Army Corps of Engineers, and PA DEP. The implementation of
 19 this integrated planning approach is in accordance with the provisions in the Water
 20 Infrastructure and Improvement Act (WIIA) (HR 7279), which was signed into law on
 21 January 14, 2019.

22 The SMR watershed is plagued with a range of in-stream water quality pollution
 23 problems, sewer overflows, chronic surface flooding, and basement backups. The IWM
 24 Plan identified that dry weather sources are the largest source of bacteria pollution, which

1 are most likely from failing sanitary and storm sewer infrastructure and illicit discharges,
2 which are left uncontrolled in any of the current regional wet weather plans. Also,
3 stormwater runoff was found to be the largest source of pollution in the watershed. In
4 addition, it was found that if CSOs were eliminated, without addressing the other
5 pollution sources, there would be no improvement in the number of days of water quality
6 standard compliance achieved.

7 PWSA has finalized the IWM implementation plan report which has identified a
8 combination of dry weather sources, stormwater runoff, and acid mine drainage control
9 projects recommended to be implemented over the next five to ten years to maximize in-
10 stream water quality improvement and reduce CSOs, surface flooding, and sewage
11 basement backups to meet PWSA's and the other 11 municipalities' regulatory
12 obligations. Implementation of the initial phases of the report cannot start until PWSA
13 and the 11 municipalities involved are able to work out a suitable framework for
14 implementation. This framework would include project cost sharing issues for planning,
15 design and eventual construction of any recommended project. Given the number of
16 municipalities involved, this framework will take some time to develop. This program is
17 ongoing. The Watersheds of South Pittsburgh asked for and were given permission by
18 PWSA to use the IWM as a starting point in continuing to convene the municipalities and
19 PWSA to work towards the implementation of some of the lower cost projects.

1 **B. Municipal Separate Storm Sewer System**

2 **Q. WHAT HAPPENS TO STORMWATER IN SEPARATED SANITARY SEWER**
 3 **AREAS?**

4 A. Stormwater in separated sanitary sewer areas is subject to management under local
 5 ordinances and/or an NPDES permit for municipal separate storm sewer systems
 6 (otherwise known as an MS4 Permit).

7 There are approximately 200 known stormwater discharge points (or outfalls) that
 8 are part of PWSA’s MS4 system. These are locations where stormwater exits a property,
 9 including pipes, ditches, swales, and other structures that transport stormwater. Each
 10 outfall location is given a unique identifier to differentiate them from other mapped
 11 outfall locations. Under the MS4 Permit, PWSA is required to monitor all known outfalls
 12 (subject to impaired waters monitoring requirements).

13 **Q. WHAT IS AN MS4 PERMIT?**

14 A. Municipalities and other entities (such as universities) that meet certain standards must
 15 obtain an NPDES permit for discharges of stormwater from their MS4s.

16 In Pennsylvania, the MS4 program is managed by PA DEP. The Clean Water Act
 17 requires cities serving a population of over 100,000 people to obtain an NPDES permit
 18 for their discharges. EPA has delegated oversight of the NPDES program in
 19 Pennsylvania to PA DEP. The Pennsylvania Clean Streams Law of 1937 also provides
 20 additional authority to PA DEP.

21 **Q. DOES PWSA HAVE AN MS4 PERMIT?**

22 A. Yes. PWSA and the City of Pittsburgh were issued an MS4 NPDES Permit in 2004 that
 23 was administratively extended through June 30, 2020. PA DEP issued a new MS4 Permit

1 to PWSA and the City effective as of July 1, 2020, with an expiration date of June 30,
 2 2025.

3 **Q. WHAT ARE SOME OF THE STORMWATER SERVICES AND ACTIVITIES**
 4 **THAT PWSA MUST PROVIDE UNDER THE MS4 PERMIT?**

5 A. PWSA’s obligations under the MS4 NPDES Permit include reducing the amount of
 6 sediment, nutrients, and other pollution from entering rivers, streams, creeks, waterways
 7 and water bodies that have significant direct and indirect impacts on water supply and
 8 water quality in the area. Some examples of “water quality” services include:

- 9 • GIS mapping;
- 10 • Public education and outreach; and
- 11 • Project design construction and management (e.g. projects in Pollutant Reduction
- 12 Plans and Total Maximum Daily Load Plans)

13
 14 Both PWSA and the City must implement Six Minimum Control Measures (MCMs) in
 15 order to comply with our MS4 NPDES Permit. These include:

- 16 • Public Education and Outreach
- 17 • Public Participation
- 18 • Illicit Discharge Detection and Elimination
- 19 • Pre-Construction Runoff Control
- 20 • Post-Construction Runoff Control
- 21 • Good Housekeeping

22
 23 **Q. ARE THERE ANY STORMWATER ORDINANCES WITHIN THE CITY?**

24 A. Yes. Within the City of Pittsburgh, all new development is required to separate their
 25 sanitary and stormwater flows on-site in a way that would be compatible with a separated
 26 system.¹⁰ However, those that are in a combined sewer area then convey those separated
 27 flows into an older combined system downstream because they do not have direct access

¹⁰ The City’s subdivision and land development ordinance addresses stormwater and drainage control. *See* Pittsburgh Code of Ordinances, Zoning Code, Title 13 (Stormwater Management) and Pittsburgh Code of Ordinances, Title 4 (public places), Article III (Sewers) at Chapter 433 (Illegal Surface Stormwater Connections).

1 to ALCOSAN sanitary sewer lines (for sanitary flow) or a body of water (for stormwater
 2 flow). New development (or redevelopment) is required to use structural and non-
 3 structural practices to manage stormwater.¹¹ Such structures and practices are
 4 implemented and based on “design” storms (the first one inch of runoff for privately
 5 funded projects, and the 95th percentile storm event for publically funded projects).¹² The
 6 City of Pittsburgh has also devised a “credit” program by which a property unable to
 7 perform on-site stormwater management will provide funding for offsite practices to
 8 address stormwater flood abatement.

9 The *Pennsylvania Stormwater Best Management Practices Manual* provides
 10 guidance, but otherwise no predetermined set of stormwater structures or practices is
 11 required, since the application of management structures or practices varies with each
 12 location.¹³ BMPs may be designed and implemented based on the design storm method,
 13 the simplified method, or criteria as allowed by regulation.¹⁴

¹¹ *Id.* The City’s Department of City Planning (“DCP”) reviews stormwater management plans for compliance with the Zoning and Building Codes. See PWSA PROCEDURE MANUAL FOR DEVELOPERS (2018) at 9-7, which is available at <http://www.pgh2o.com/developer-manual>. The City of Pittsburgh Department of Permits, Licenses, and Inspections (“PLI”) has the authority to inspect stormwater management structures provided by private development and to enforce any violations. *Id.*

¹² The City’s Ordinances require the onsite retention of the 2-year 24-hour storm volume. See Pittsburgh, Pennsylvania Code of Ordinances at § 1303.03(a)(1). See also Pittsburgh Code of Ordinances § 1303.01(k) — which incorporates, *inter alia*, Appendix 7A of Pennsylvania Department of Transportation’s DRAINAGE MANUAL, PennDOT Publication 584. That Publication is available at: <https://www.dot.state.pa.us/public/pubsforms/Publications/PUB%20584.pdf>.

¹³ See PWSA PROCEDURE MANUAL FOR DEVELOPERS (2018) at Section 9 (stormwater); Pennsylvania Department of Environmental Protection, STORM WATER BMP MANUAL (December 30, 2006), DEP Document No. 363-0300-002, at Forward; <http://www.pgh2o.com/developer-manual>.

¹⁴ See 25 Pa. Code Chapter 102; City Code 1303.03 Volume Controls.

1 **Q. HAS THE CITY OF PITTSBURGH RECENTLY UPDATED ITS**
 2 **STORMWATER CODE?**

3 A. Yes. Pursuant to EPA’s January 26, 2021 Administrative Order on Consent with PWSA
 4 and the City of Pittsburgh, PWSA and the City were required to submit an amended
 5 unified Stormwater Code to City Council by July 1, 2021, which became effective on
 6 March 31, 2022.¹⁵ This project included developing an implementable revised Code,
 7 supporting policy and process recommendations, and guidance materials that align with
 8 other City initiatives regarding green stormwater infrastructure, complete streets, and
 9 resiliency, as well as clarifying development requirements and improving efficiency of
 10 stormwater project review and approval processes. Improving ordinances, review
 11 processes, policies, and guidance material, has created a clearer, more user-friendly
 12 stormwater code.¹⁶

13 **Q. HOW DO PWSA AND THE CITY OF PITTSBURGH DETERMINE**
 14 **RESPONSIBILITY FOR STORMWATER-RELATED ACTIVITIES?**

15 A. PWSA and the City are taking several steps to further define their respective
 16 responsibilities for stormwater-related activities.

17 For activities related to compliance with the joint MS4 NPDES permit, PA DEP
 18 required PWSA and the City to define their roles and responsibilities to ensure
 19 compliance with the permit (which went into effect on July 1, 2020). PWSA and the City
 20 have an MS4 compliance agreement that primarily addresses responsibility for the six
 21 Minimum Control Measures included in the permit.

¹⁵ The January 26, 2021 Administrative Order on Consent is attached as Exhibit TI-2.

¹⁶ Additional information regarding the Stormwater Code Updates is available at:
<https://pittsburghpa.gov/dcp/stormwater-code-update>.

1 Additionally, as a result of the January 26, 2021 Administrative Order on Consent
2 (AOC) with EPA (and coordinated with PA DEP) on MS4 Permit requirements and
3 stormwater inspection and enforcement, the City of Pittsburgh and PWSA have
4 committed to a timeline for implementing a full stormwater inspection and enforcement
5 program that consisted of:

- 6 • submitting an updated stormwater code for approval to the Pittsburgh City
7 Council by July 2021;
- 8 • hiring additional inspectors and enforcement staff for 2022;
- 9 • putting management partnership procedures in place by the end of January 2022;
- 10 • achieving full compliance with the requirements by March 31, 2022; and
11 submitting quarterly progress reports to EPA.

12 More broadly, PWSA and the City developed a detailed draft agreement to
13 negotiate and resolve any issues outside of MS4 requirements. The focus of this
14 agreement is other stormwater management responsibilities of PWSA's Stormwater
15 Division and the required coordination and cost-sharing with the City. This includes the
16 planning, design, implementation, and maintenance of stormwater-related capital projects
17 that may reduce localized flooding and CSOs at the rivers while improving water quality
18 and the health of streams and waterways.

19 **C. Stormwater Management and Mitigation**

20 **Q. ON A SYSTEM-WIDE SCALE, WHAT CAN BE DONE TO REDUCE THE**
21 **AMOUNT OF STORMWATER ENTERING THE WASTEWATER SYSTEM?**

22 A. Broadly, there are a wide variety of steps that a community can take to reduce the amount
23 of stormwater runoff entering the wastewater system. Many of these are aimed at
24 reducing the amount of impervious area and improving the ability of precipitation to be

1 absorbed or held where it falls. Examples can include replacing impervious pavement
2 with pervious materials, stream removal projects, and large-scale green infrastructure
3 projects.

4 **Q. PLEASE HIGHLIGHT SOME OF THE AUTHORITY’S RECENT**
5 **STORMWATER MANAGEMENT AND MITIGATION PROJECTS.**

6 A. As of April 2023, PWSA has constructed (or partnered with) 26 stormwater projects in
7 the City of Pittsburgh. In addition, 9 projects are currently in various stages of planning
8 and design. Projects are strategically sited to collect stormwater in high priority sheds
9 where projects would have a significant impact on reducing combined sewer overflows,
10 as mandated by the U.S. EPA and PA DEP. These projects featured bioretention (rain
11 gardens and “bump outs” along roadways), underground retention tanks to hold back the
12 peak flows of stormwater during rainfall events, and many were partially funded by
13 ALCOSAN’s GROW (Green Revitalization of our Waterways) grant program.
14 ALCOSAN’s GROW program funds municipal green infrastructure projects in their
15 service area that they determine will provide cost-effective management of stormwater to
16 reduce sewer overflows. The total value of the grants awarded to PWSA to date is over
17 \$14 million. It should be noted that the GROW grants are reimbursement grants. As a
18 result, PWSA is required to budget for and spend the funds before it can be reimbursed
19 for these projects. PWSA has started post-construction monitoring of these facilities to
20 document effectiveness where possible.

21 **Q. WHAT CAN INDIVIDUAL PROPERTY OWNERS DO TO REDUCE**
22 **STORMWATER RUNOFF FROM THEIR PROPERTIES OR OTHERWISE**
23 **IMPROVE WATER QUALITY?**

24 A. Individual homeowners and other property owners also play an important role in reducing
25 stormwater runoff or improving water quality in other ways. Homeowners can do this by

1 reducing impervious areas (hard surfaces like roofs and paved areas) so that rain soaks
 2 into the ground; disconnecting downspouts so that the stormwater from their roof can
 3 infiltrate into the ground in areas away from structures; maintaining the lawn and
 4 landscaped areas to prevent erosion, planting native trees and plants which help infiltrate
 5 stormwater and increase evaporation and transpiration; or managing stormwater on-site
 6 with rain gardens, rain barrels, and similar practices. Other stormwater-mitigation
 7 practices at home include:

- 8 • Keeping drains, gutters, and downspouts clean and free of debris.
- 9 • Disposing of trash properly.
- 10 • Don't hand wash your car. Bring it to a carwash.
- 11 • Properly dispose of pet waste.
- 12 • Use fertilizer sparingly, and do not fertilize when rain is forecasted within 24
 13 hours.
- 14 • Stop oil or chemical leaks immediately.¹⁷

15 As I discuss below, PWSA's stormwater tariff includes incentives for property owners to
 16 install certain stormwater mitigation measures and earn credits to reduce their stormwater
 17 charges.

18 **Q. PLEASE DISCUSS STREET SWEEPING PRACTICES IN THE CITY OF**
 19 **PITTSBURGH AND HOW STREET SWEEPING RELATES TO STORMWATER**
 20 **MANAGEMENT.**

21 A. Street sweeping is done by the City of Pittsburgh using their equipment. Street sweeping,
 22 as a method of pollution prevention and general good housekeeping, is important because
 23 it helps to reduce the amount of pollution, sediment, and litter collected on municipally-

¹⁷ Refer to the Southwestern *Pennsylvania's Homeowner's Guide to Stormwater*. -
<http://www.accdpa.org/wp-content/uploads/2015/04/Homeowners-Stormwater-Guide.pdf>.

1 owned and maintained facilities (e.g. streets, parking lots, and vehicle maintenance areas)
2 from discharging into local waterways. The City of Pittsburgh is responsible for street
3 sweeping in accordance with the Cooperation Agreement. The City of Pittsburgh
4 complies with the current MS4 NPDES permit requirements and submits records monthly
5 to PWSA (such as weight of debris collected, miles swept in the MS4 area, or any other
6 information as required by the current permit cycle). PWSA includes this information in
7 the MS4 annual report and submits it to PA DEP in accordance with the MS4 NPDES
8 permit requirements.

9 **Q. WHO MAINTAINS THE STORMWATER CATCH BASINS IN THE CITY OF**
10 **PITTSBURGH?**

11 A. Stormwater runoff from roadways flows into storm grates or inlets, then into the sump or
12 well below called a catch basin. PWSA has taken responsibility for maintaining
13 approximately 25,000 stormwater catch basins and inlets.¹⁸ The catch basins and inlets
14 need to remove stormwater runoff from the streets as quickly as possible. For them to
15 function properly, they require regular maintenance to remove sediment, litter and other
16 debris as well as contaminants that get picked up along the way.

17 Catch basins are designed to handle flows from specific rainfall events (i.e., a
18 design storm). It is neither feasible nor cost effective to build catch basins (and combined
19 sewer systems) to handle the largest or heaviest rains. In doing so, they would never be
20 used to their full capacity if designed to manage storms with a frequency of 25, 100, or
21 200 years. Even with proper design and installation, catch basins may not be able to

¹⁸ On State roads, however, the Pennsylvania Department of Transportation (PENNDOT) is responsible for inlet maintenance.

1 handle all heavy drainage, runoff, or high intensity precipitation, but can manage our
2 most common sized storms.

3 The below-ground (or internal) cleaning of a catch basin requires the use of a
4 vacuum truck to suck up leaves, sediment and debris from the catch basin. After the basin
5 is vacuumed, other work needs to be done inside the basin to ensure that the subsurface
6 connections to the combined sewer lines or separate stormwater lines are clear before the
7 job is complete. This other work often includes spraying, flushing and/or “jetting” the
8 catch basin. “Jetting” means that high pressure water runs through the lines to remove
9 any accumulated material such as sediment, leaves, or trash. Right now, PWSA acts as an
10 agent of the City of Pittsburgh to perform maintenance of all publicly owned catch
11 basins.

12 **III. PWSA’S STORMWATER PLAN**

13 **Q. PLEASE DESCRIBE PWSA’S APPROACH TO STORMWATER ISSUES.**

14 A. PWSA’s *Green First Plan*¹⁹ outlines projects which will reduce pollution and minimize
15 flooding caused by stormwater. On a macro level, PWSA has sought to create a
16 comprehensive plan that provides a unified, long-term approach toward regulatory
17 compliance. As a matter of cost effectiveness, PWSA is seeking to address multiple
18 issues: poor water quality, CSOs and SSOs, illicit discharges, surface flooding, basement
19 flooding, older sewer systems, and regulatory requirements.

20 PWSA has developed a final draft Stormwater Strategic Plan that advances some
21 of the concepts contained in the Green First Plan. The Strategic Plan recognizes that
22 system integration and resiliency are an important part of future stormwater control

¹⁹ Available at: <https://www.pgh20.com/your-water/stormwater>.

1 planning for the service area. The Strategic Plan transitions PWSA from primarily
 2 combined sewer overflow control (as shown in the Green First Plan) to a more holistic
 3 approach to managing stormwater quality issues, beyond CSO control.

4 **Q. WHAT ARE THE SPECIFIC GOALS OF THE PROGRAM?**

5 A. There are several goals of PWSA’s stormwater program, including to:

- 6 1. Demonstrate that stormwater source management and stream removal projects
- 7 can reduce CSO volume as well as manage Stormwater quantity issues;
- 8 2. Develop and implement a stormwater asset management program;
- 9 3. Evaluate the system capacity and define a publicly accepted level of stormwater
- 10 management capacity to mitigate surface and basement sewage flooding;²⁰
- 11 4. Achieve regulatory compliance and implement pollution reduction projects as
- 12 required by the state and federal agencies;
- 13 5. Develop partnerships with government and philanthropic agencies to access
- 14 eligible funds for flood protection and water quality projects; and
- 15 6. Ensure an affordable stormwater utility fee structure.

17
 18 **Q. PLEASE DESCRIBE THE GREEN ASPECTS OF PWSA’S APPROACH TO**
 19 **STORMWATER CONTROL.**

20 A. Rain gardens, green roofs, tree plantings, and permeable pavements are examples of
 21 some practices that can be used to soak up the rain. Often called green infrastructure,
 22 these practices rely on soil, plants and natural processes such as infiltration, evaporation,
 23 and transpiration to mimic the natural water cycle and manage rain water, rather than
 24 sending it directly into a series of pipes to convey it for treatment at ALCOSAN’s Woods
 25 Run Wastewater Treatment Plant. Green infrastructure is a cost-effective and resilient
 26 approach to managing stormwater that can bring many additional social, economic,
 27 public health, and environmental benefits to communities.

²⁰ Note that sewerage backups into building basements is not permissible under the federal Clean Water Act and must be abated.

1 PWSA’s process has focused on analyzing the City of Pittsburgh’s top 30 surface
 2 watersheds by several criteria, including risk, opportunity, activity, and benefits. We then
 3 identified the priority projects. Consulting firms with international expertise are
 4 contracted by PWSA to identify the most cost-effective locations for stormwater
 5 infrastructure that will manage the first 1.5 inches of rainfall using the metric of \$250,000
 6 per impervious acre managed.²¹

7 In 2016 the City of Pittsburgh and PWSA finalized the Citywide Green First
 8 Plan,²² which provided an outlined for how Pittsburgh has used green infrastructure
 9 solutions to manage stormwater.

10 Implementing the plan has reduced local street flooding and sewer backups
 11 caused by large rainstorms, as well as reduced regional CSOs. These innovative
 12 practices also help the City of Pittsburgh and the region comply with the EPA’s sewer
 13 overflow mandates and improve the quality of local waterways.

14 **Q. PLEASE IDENTIFY PWSA’S CURRENT PRIORITY CAPITAL PROJECTS IN**
 15 **THE AREA OF STORMWATER MANAGEMENT.**

16 A. Much of the current work is designed to confirm the application of various project
 17 approaches to abate stormwater overflows or flooding. For example, in August 2020,
 18 PWSA completed construction on two new green infrastructure projects to help manage
 19 stormwater within Four Mile Run, which consists of building two engineered drainage
 20 channels in Schenley Park along Overlook Drive and next to the Bridle Trail. Without
 21 these improvements, stormwater is mostly unmanaged, flowing off the steep hillside from
 22 Overlook Drive to the Bridle Trail below and further downhill, where it causes the

²¹ This metric is based upon comparisons to the cost of piped solutions.

²² Available at <https://www.pgh2o.com/your-water/stormwater>.

1 combined sewer system to overflow into, and flood, downstream neighborhoods and
 2 properties. The channels will create a path where water can flow. These two “Early
 3 Action Projects” were part of the larger Four Mile Run Stormwater Project that has a
 4 total project cost of approximately \$28 million and encompasses Schenley Park and
 5 several City of Pittsburgh neighborhoods, including Greenfield, Hazelwood, Oakland,
 6 Squirrel Hill, and the Run.

7 As of April 2023, PWSA has constructed (or partnered with) twenty-six
 8 stormwater infrastructure projects in the City of Pittsburgh. In addition, nine projects are
 9 currently in various stages of planning and design.

10 **Q. WHAT ARE THE CAPITAL COSTS ASSOCIATED WITH THESE PROJECTS?**

11 A. PWSA made a significant investment in green infrastructure over the past several years to
 12 manage stormwater, reduce sewer overflows, and comply with regulatory requirements,
 13 as shown in Table 1:

14

Table 1 - PWSA Stormwater Capital Expenditures from 2017-2021²³	
<u>Year</u>	<u>Capital Expenditure</u>
2017	\$953,003 ²⁴
2018	\$3,156,175 ²⁵
2019	\$6,901,255 ²⁶
2020	\$15,791,622 ²⁷
2021	\$15,614,923 ²⁸

²³ Source, 2022-2026 CIP ([2022-2026 CIP - FINAL-compressed.pdf \(pgh2o.com\)](#) and the 2023-2027 CIP (2023-2027 Capital Improvement Plan Final Document.pdf (pgh2o.com))

²⁵ See, <https://www.pgh2o.com/sites/default/files/2021-09/2022-2026%20CIP%20-%20FINAL-compressed.pdf> at p. 4.

²⁵ Id.

²⁶ Id.

²⁷ Id.

²⁸ Id.

1 Going forward, PWSA’s Capital Improvement Plan²⁹ includes the capital requirements
 2 shown in Table 2:

Table 2 – PWSA Stormwater Capital Budget 2023 - 2027	
Year	Green Infrastructure + Other Stormwater Projects³⁰
2023	\$29,822,932
2024	\$34,827,423
2025	\$36,884,821
2026	\$33,038,424
2027	\$26,808,750
Total	\$161,382,350

3
 4 PWSA’s Capital Improvement Plan Budget allocates a significant amount of stormwater
 5 and green infrastructure monies as shown above. However, these allocated funds are only
 6 to meet the minimum requirements for regulatory compliance based on how much PWSA
 7 can currently afford within its sewer budget. These budgeted amounts were anticipated to
 8 change once the stormwater fee was established, which was implemented in 2022.

9 Beginning in 2023, PWSA is anticipating the phase-in of stormwater fee revenues, which
 10 will help fund stormwater infrastructure projects and partially offset the sewer fee
 11 revenues.³¹ The stormwater rate will allow PWSA to follow the Green First Plan of
 12 addressing 1,800 impervious acres over 20 years to reduce combined sewer overflows

²⁹ See, <https://www.pgh2o.com/sites/default/files/2022-10/2023-2027%20Capital%20Improvement%20Plan%20Final%20Document.pdf> at p. 9

³⁰ Other stormwater projects include catch basin replacements and stormwater asset renewal.

³¹ SW fees received in 2022 enabled PWSA to further refine and design the Green First Plan-related projects and to fund the stormwater-related activities and operations of PWSA.

1 and mitigate basement backups and localized flooding. The plan estimates the
 2 construction of these impervious acres at approximately \$250,000 per impervious acre
 3 (2016 dollars) not accounting for inflation, which is approximately \$450 million.

4 Currently, PWSA’s most pressing stormwater funding shortfalls include:

- 5 • Construction of solutions to stormwater flooding problem areas;
- 6 • Construction of CSO abatement projects to comply with EPA and PA DEP
 7 requirements;
- 8 • Projects to comply with MS4 requirements; and
- 9 • Expanded green infrastructure maintenance.

10
 11 **Q. ARE ALL COSTS RELATED TO PWSA’S STORMWATER OBLIGATIONS**
 12 **KNOWN AT THIS TIME?**

13 A. No, the total costs are currently unknown. On January 7, 2022 PWSA and the City of
 14 Pittsburgh executed a MS4 Compliance Agreement. A second part of this agreement is
 15 expected to address specific roles and responsibilities for managing stormwater within
 16 the city of Pittsburgh is yet to be completed, but is still being negotiated. This includes
 17 the responsibilities for MS4 permit compliance and the planning, design, construction,
 18 operation and maintenance of stormwater-related capital projects intended to reduce
 19 localized flooding and CSOs while improving the water quality of streams and
 20 waterways.

21 In addition, the plan is based upon a level of “stormwater service” to
 22 appropriately mitigate flooding within the City of Pittsburgh. The stormwater tariff and
 23 associated rates allows PWSA to charge customers more accurately for stormwater
 24 service based on the cost to serve their property and will improve PWSA’s ability to
 25 adequately fund important stormwater management activities.

1 **Q. HAS PWSA DEVELOPED A STRATEGIC STORMWATER PLAN?**

2 A. Yes. The plan also takes into consideration climate change issues that impact stormwater
3 and provide a strategic approach to developing a resilient stormwater management
4 program.

5 As part of the terms and conditions of the Joint Petition for Settlement Regarding
6 PWSA's January 20, 2022, Stage 2 Compliance Plan: Stormwater (Revised) the PUC
7 specifically noted public engagement for the Stormwater Strategic Plan to include public
8 comments and meetings, and a long-term engagement process in consultation with its
9 existing Stormwater Partners Group (consisting of the Pittsburgh Parks Conservancy,
10 Pittsburgh United, Grounded Strategies, Penn State Master Watershed Stewards, and
11 PWSA). PWSA has been working closely with the Stormwater Partners Group since the
12 beginning of 2023, and the group now also includes other partners such as representatives
13 from the City of Pittsburgh, Watersheds of South Pittsburgh, the Mon Water Project,
14 Pittsburgh United, and Clean Water Action. PWSA meets regularly with the Partners,
15 and they have been helpful in developing informational content for the "Stormwater
16 Conversations." These are six workshops that PWSA is hosting in April – June 2023 to
17 gather feedback from community members about the Stormwater Strategic Plan and how
18 stormwater impacts their communities.

19 The Stormwater Conversations are educational, engaging, inclusive (they include
20 childcare, dinner, and American Sign Language interpreters) and are being held in six
21 geographic areas of the City including the: West End, South, East End, Northside,
22 Hazelwood/Four Mile Run and Central Pittsburgh. Two stormwater workshops have
23 already taken place. One on April 13th in the West End and the second on April 18th in
24 Pittsburgh's southern neighborhoods. Those attending were engaged throughout the

1 workshops interacting with PWSA staff and the partner groups to learn more about
2 Pittsburgh's water and sewer infrastructure and understand the Stormwater Strategic
3 Plan. The facilitated table discussions about the six priority actions in the Plan have
4 sparked thoughtful comments and ideas. Many of the comments relate to equity in the
5 prioritization of future projects, insight on the communication tactics, and expectations
6 around a higher level of service.

7 About a hundred or so people have attended the first three workshops. The
8 audience has been diverse and for many, this is their first time interacting with PWSA.
9 Robocalls and doorhangers have been the most successful communication methods to
10 bring people out. We will continue using these methods throughout the remaining
11 workshops.

12 The Stormwater Partners have helped review and refine workshop content,
13 distribute flyers both door to door and electronically in their networks, and attend the
14 Stormwater Conversations to help facilitate discussions. PWSA has found their
15 participation to be extremely valuable. Finally, PWSA has an ongoing commitment to
16 public engagement and outreach and will provide a process for the community to provide
17 input into ongoing stormwater planning and implementation.

18 **IV. PROPOSED REVISED STORMWATER TARIFF**

19 **Q. IS PWSA CHANGING THE RATE DESIGN IN THE PROPOSED REVISED**
20 **STORMWATER TARIFF?**

21 A. No. The Commission has previously approved the PWSA Stormwater tariff based on a
22 rate design which is not being changed in this proceeding. Rather, the proposals we are
23 making in this case seek the Commission's approval to increase the rates and make two
24 new changes as described in the testimony of Mr. Readling. See PWSA Exhibits JAM-

1 15 (clean) and JAM-16 (red-lined) sponsored by Ms. Mechling for proposed Tariff
 2 Supplement No. 3.

3 **Q. PLEASE DESCRIBE HOW PWSA HAS STRUCTURED THE STORMWATER**
 4 **RATE FOR RESIDENTIAL CUSTOMERS.**

5 A. Single family residential customers are charged one of three flat rates (commonly
 6 referred to as tiers). A customer’s tier is based on the impervious surface area found on
 7 the residential lot. PWSA proposes the following increased monthly stormwater rates for
 8 each residential tier:

Table 3 - PWSA Proposed Monthly Stormwater Fees by Residential Tier			
Proposed Residential Stormwater Fee	Tier 1	Tier 2	Tier 3
2024	\$5.13	\$10.26	\$20.52
2025	\$6.07	\$12.14	\$24.28
2026	\$7.10	\$14.20	\$28.40

9 **Q. WHY DOES PWSA CONTINUE TO SUPPORT A THREE-TIERED FEE AS**
 10 **OPPOSED TO A SINGLE STORMWATER FEE FOR ALL RESIDENTIAL**
 11 **CUSTOMERS?**

12 A. PWSA has measured the impervious surface area found on each residential lot and found
 13 substantial variability in impervious area – from properties with less than 1,000 square
 14 feet of impervious area to properties with more than 4,000 square feet of impervious area.
 15 This large variability and the availability of the data on impervious area led us to
 16 conclude that the tiered approach was more equitable to the individual ratepayer. This
 17 approach also is more supportive of a credits program that could grant fee credits to
 18 residential ratepayers who undertake measures on their lots to reduce their stormwater
 19 demand. Mr. Readling’s testimony discusses development of the tiered stormwater fee in
 20 greater detail.

21 **Q. PLEASE DESCRIBE THE STORMWATER RATE FOR NON-RESIDENTIAL**
 22 **CUSTOMERS THAT PWSA CONTINUES TO SUPPORT IN THIS CASE.**

1 A. The impervious area found on a typical residential property in the service area is called
 2 the Equivalent Residential Unit of impervious area, or ERU. PWSA proposes to bill non-
 3 residential customers a charge based on the rate per ERU times the number of ERUs
 4 found on the property. PWSA proposed a per ERU rate of \$5.96 in 2022, and \$7.95 in
 5 2023. PWSA also proposed that one ERU is 1,650 square feet of impervious area.

6 **Q. WHY IS PWSA PROPOSING TO CONTINUE TO CALCULATE THE NON-
 7 RESIDENTIAL STORMWATER FEE IN THIS WAY?**

8 A. ERU-based rate structures that charge for impervious surfaces are by far the most
 9 common across the United States and balance fairness with simplicity. Impervious
 10 surface relates to runoff volume, peak runoff rate, and pollution. These factors most
 11 closely relate to demand in the service area. This is discussed in more detail in Mr.
 12 Readling’s testimony.

13 **Q. IS PWSA PROPOSING TO CONTINUE TO ALLOW CUSTOMERS TO EARN
 14 CREDITS TO REDUCE THEIR STORMWATER FEES?**

15 A. Yes. For non-residential customers, PWSA is proposing to maintain its credit program
 16 consisting of credits for customers who capture and detain runoff on-site, meeting or
 17 exceeding recent development standards in place in Pittsburgh. For residential
 18 customers, we are proposing a maintain a similar credit. The non-residential credit will be
 19 a percentage discount of up to 60% for meeting the 2019 City of Pittsburgh stormwater
 20 standards, and up to 45% for meeting the 2016 City of Pittsburgh stormwater standards.
 21 In both situations, only the portion of the property that meets the requirement is used to
 22 compute the credit. Non-residential customers can also earn a credit of between 75% and
 23 100% of their stormwater fees, for “regional efforts” – of “Enhanced Volume Control”
 24 for controlling at least 25% more runoff than what is required by the City of Pittsburgh
 25 2019 stormwater standards.

1 Single family residential properties can get at least a 50% credit by capturing and
2 slowly releasing the runoff from 3/4-inch of rain from the impervious surfaces on the
3 property. Residents in Tiers 2 and 3 can drop to the next lower tier if they sufficiently
4 reduce their impervious area to qualify for a lower tier.

5 A credit application must be made to get a credit, and applications are simple.

6 Finally, although not technically a credit, customers can also reduce their
7 stormwater fee by removing impervious area from their property.

8 **Q. DOES PWSA HAVE A PROCESS FOR CUSTOMERS TO APPEAL THEIR**
9 **IMPERVIOUS AREA DESIGNATION?**

10 A. Yes, PWSA has developed a process for customers to challenge their property's
11 impervious area calculation if they believe the calculation is incorrect or if the
12 impervious area on their property has changed. If the customer follows this process and
13 is still unsatisfied with their impervious area calculation, customers also have the
14 Commission's informal and formal complaint processes available to them.

15 **Q. DOES PWSA REASSESS IMPERVIOUS AREA ON A REGULAR BASIS?**

16 A. Yes, PWSA reviews and reassesses impervious area approximately every five (5) years.
17 We recognize that impervious area may change over time as a result of construction,
18 redevelopment, changing uses for a property, etc. A periodic reassessment is appropriate
19 to account for these changes over time and increase or decrease a customer's stormwater
20 fee or residential tier to reflect those changes.

21 **Q. HOW DOES PWSA EDUCATE CUSTOMERS ABOUT THE STORMWATER**
22 **TARIFF AND RATE?**

23 A. Since first implementing stormwater rates in 2022, PWSA has developed a robust
24 customer education process including a website, informational materials about the

1 stormwater rates and, as I discussed previously, our public facing efforts regarding the
2 Stormwater Strategic Plan. PWSA's stormwater information web site can be found at:
3 <https://www.pgh2o.com/your-water/stormwater>. Social media, ongoing media relations,
4 and presentations to community groups are an ongoing part of the communications
5 campaign. This approach is an essential way to reach the broader public and provides an
6 opportunity to share information about the ways the stormwater rate will support our
7 stormwater program.

8 PWSA also maintains a searchable database, called the Stormwater Fee Finder,
9 where customers can look up specific information about their property to understand how
10 the rate impacts their property. Anyone can access the PWSA Stormwater Fee Finder
11 from the internet at:

12 [https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29](https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29889a42125edc)
13 [889a42125edc](https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29889a42125edc)

14

1 **V. COMPLIANCE PLAN STAGE 2 STORMWATER**

2 **Q. DID PWSA FILE A COMPLIANCE PLAN STAGE 2 REGARDING**
 3 **STORMWATER ISSUES?**

4 A. Yes. Consistent with the Commission’s directive in its February 4, 2021 Order, PWSA
 5 filed its Compliance Plan Stage 2: Stormwater on April 9, 2021.³² PWSA filed an update
 6 to that plan on June 9, 2022.

7 **Q. HAS PWSA’S COMPLIANCE PLAN BEEN APPROVED BY THE**
 8 **COMMISSION?**

9 A. Yes, the Commission approved a settlement of the Compliance Plan Stage 2 Stormwater
 10 proceeding in an Order entered on July 19, 2022.³³

11 **Q. HAS PWSA COMPLETED ALL OF THE REQUIRED FILINGS AND SECURED**
 12 **ALL OF THE NECESSARY APPROVALS FROM THE PUC TO IMPLEMENT**
 13 **ITS STORMWATER TARIFF?**

14 A. Yes. The PUC has reviewed PWSA’s SW tariff several times and permitted it to go into
 15 effect each time. First, PWSA filed and was permitted to go forward with its initial
 16 Stormwater Tariff which became effective January 12, 2022. Second, PWSA filed and
 17 the PUC permitted PWSA to implement its Compliance Plan 2 tariff contained in Tariff
 18 Supplement No. 1 which became effective November 2, 2022. Supplement No. 2 of the
 19 Stormwater Tariff which is currently in effect implemented the directives from the
 20 Compliance Plan Stage 2 Customer Service issues. Finally, when PWSA filed a Second
 21 Revised Compliance Plan Stage 2 for Stormwater, after the settlement with the parties

³² *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 1*, Docket Nos. M-2018-2640802 (water) and M-2018-2640803 (wastewater), Opinion and Order entered February 4, 2021 (“*Stage 1 February 4, 2021 Order*”).

³³ See, Order in *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 3 (Stormwater)*, Docket Nos. M-2018 2640802 and M-2018-2640803, August 25, 2022.

1 discussed above, the PUC permitted PWSA's Second Revised Compliance Plan to go
2 into effect.

3 **VI. CONCLUSION**

4 **Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?**

5 A. Yes.

Appendix A

/// Anthony C. Igwe, PE

Senior Group Manager Stormwater, Pittsburgh Water & Sewer Authority



Tony Igwe, PE, has built his 30-year career around the development of engineering solutions to control wet weather pollution. He has extensive experience planning, designing, and evaluating numerous wet weather

combined sewer overflow (CSO), sanitary sewer overflow (SSO) control facilities and integrated planning projects. These activities include hydrologic/hydraulic evaluations including flow monitoring and modeling, evaluating, selecting, and implementing wet weather control alternatives, and pilot programs that include proof of concept for green stormwater infrastructure projects and enhanced high rate treatment facilities.

Tony's experience has included working with various municipal engineers within the ALCOSAN Service Area to implement projects that meet various consent orders for separate and combined sewer systems. Tony's role on these projects included developing the flow monitoring approaches, data review and calibration of H/H models as well as alternative evaluation assisting in the 30% design of the facility. The projects included coordination with various stakeholders and working with the PADEP.

Tony's experience also includes evaluating the effectiveness of control methods relative to performance and water quality and documenting lessons learned for more than \$600 million of constructed wet weather facilities as part of a National Wet Weather Demonstration Program in Michigan, that clarified the role of internal basin hydraulics in effective treatment. Results of these activities have been used in discussions with both regulatory and client communities in development and acceptance of affordable solutions.

Tony thoroughly understands the operational characteristics of watersheds, the interrelationships of subwatersheds and sewersheds and how they impact the entire watershed.

He has managed projects ranging in scope from hydraulic evaluations to in-system storage design to CSO Alternative Evaluations and a Long Term CSO Control Plan Update. He scrutinizes specific problems and considers how the solution will impact downstream areas and the entire watershed. He understands that many factors impact water quality in a watershed and that control efforts must be coordinated to gain an environmental benefit. He seeks solutions that are cost-effective for the client and environmentally effective for the watershed.

Tony has a keen understanding of regulatory requirements and how to address regulatory agency concerns during project development and can assist PWSA in other areas that require interface with regulatory agencies, if needed. Prior to joining Wade-Trim, he worked with the Michigan Department of Environmental Quality Surface Water Quality Division for five years where he helped set the technical direction for the State's wet weather control requirements. He has successfully used these insights to help clients target negotiations to address underlying regulatory concerns and develop cost-effective solutions.

ANTHONY IGWE, PE

EDUCATION

- » Ph.D., Environmental Engineering, Wayne State University
- » MS, Environmental Engineering, Wayne State University
- » BS, Civil Engineering, Mississippi State University
- » BS, Construction Technology, Eastern Michigan University

REGISTRATION

- » Professional Engineer: PA, MI

YEARS OF EXPERIENCE

- » Total years: 35

AREA OF EXPERTISE

- » Urban Wet Weather Controls

RELEVANT PRESENTATIONS

- » “NEORSD Approach to Clean Water Act Integrated Planning” with Devona Marshall, Andrea Remias, Imad Salim, and Joe Pavlick. WEF Collection Systems 2016
- » “Green Infrastructure Opportunities in Gray Wet Weather Plans” with Lawrence J. Lennon, Uzair Shamsi, John Schombert and John Maslanik. WEF Collection Systems, 2013
- » “Seasonal Precipitation Frequency and Distribution Analysis” with Imad Salim, Jerry Brown, James Sherrill, Tarun Sonkhya and Anass Jerrari. WEF Collection Systems, 2011

QUALIFICATIONS

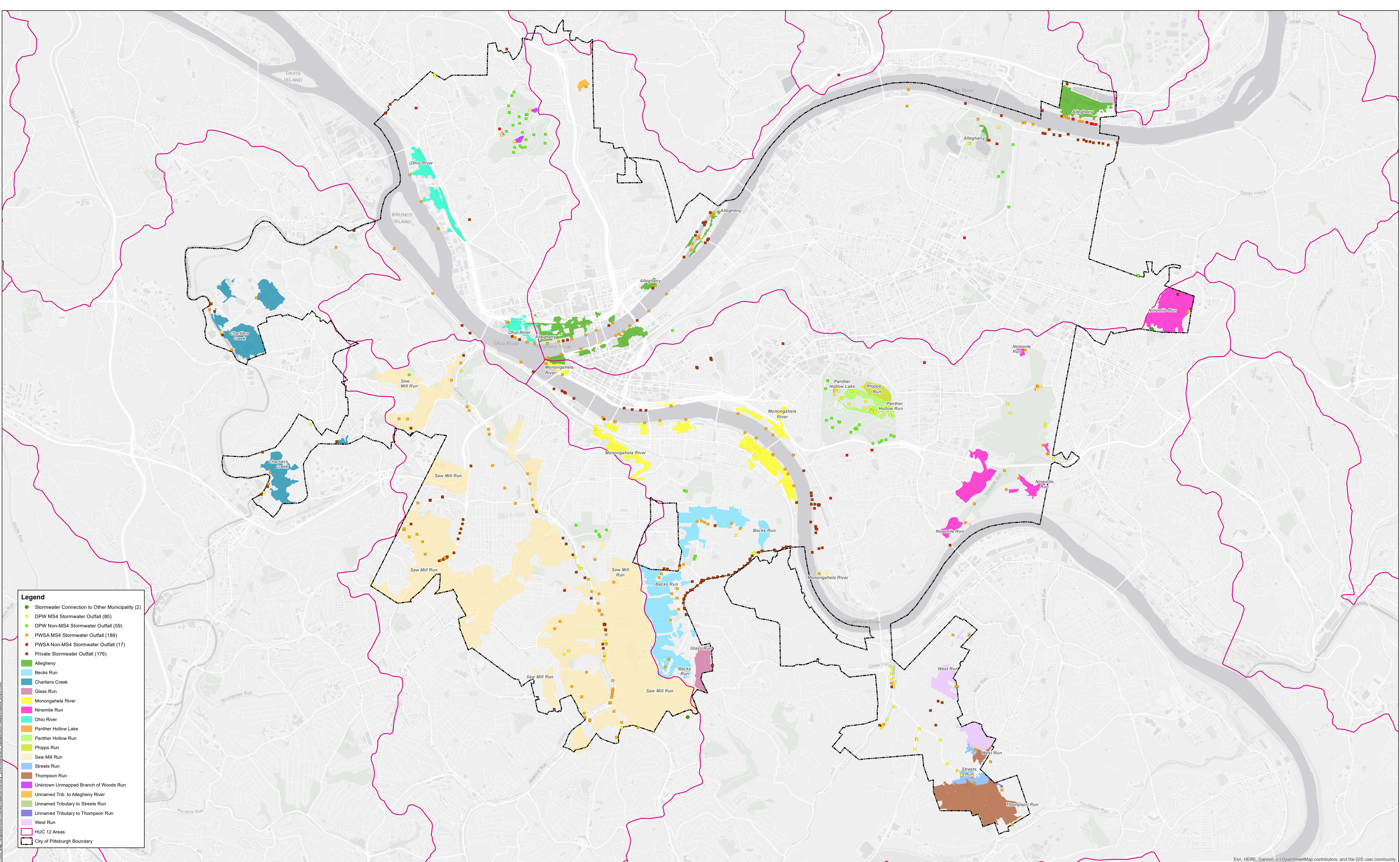
- » 35 years of experience developing engineering solutions to control wet weather pollution and improve treatment efficiency
- » Evaluated and applied innovative and new technologies in the treatment of CSO including the swirl concentrator, fine screening, conventional and high-rate disinfection, dechlorination, odor control, and flow control
- » Experienced in every aspect of CSO control from metering and modeling to alternative evaluation to facility design, implementation, and operational evaluation
- » Former state regulator with compliance experience

REPRESENTATIVE PROJECT EXPERIENCE

- Advanced Facilities Plan Integrated Planning, NEORS, Cleveland, OH. Regulatory and Water Quality Technical Lead for evaluation of District’s entire service area to identify and prioritize local community Clean Water Act (CWA) issues. Reviewed historical District and localized sewer SSES data studies, District and Cuyahoga County GIS data, CSO Phase II Water Quality Reports, CSO Phase II Dry Weather Overflow surveys, WQIS investigation reports, community record drawings, temporary flow and level monitoring data, TMDL reports, NOACA and Cuyahoga County septic systems survey data, community basement flooding records, District collection system models, Affordability CSO LTCP Negotiations, Cuyahoga County Sanitary Engineer data, Region V C-MOM Initiative, and targeted field inspection. This information was used to evaluate local community CWA issues including SSO, CSO, and stormwater discharge and their impacts on public health and water quality, estimate cost of improvements, and develop District-wide IP alternatives. Collaborated with Michigan Technological University to develop a 3D, linked hydrodynamic water quality model for Lake Erie and nine tributary stream models to evaluate environmental benefits of selected alternatives. Conducted integrated watershed planning to determine which project investments provide the highest impact on water quality throughout the service area.
- Green Stormwater Infrastructure (GSI) Opportunities Evaluation, Pittsburgh, PA. 3Rivers Wet Weather, Inc. Senior Engineer. Leading evaluation of green stormwater infrastructure (GSI) opportunities with 83 municipalities within the ALCOSAN service area that make up 3Rivers Wet Weather. The USEPA SUSTAIN model was used to identify potential areas based on criteria developed by the Project Team and vetted by major stakeholders. Projects were consolidated and optimized prior to cost and performance evaluation. A suite of cost-effective GSI projects identified can be used to augment or replace grey infrastructure.

- Program Management of Municipal Activities in Response to Administrative Consent Orders Regarding CSO and SSO Abatement, 3RWW, Pittsburgh, PA. Provided technical assistance to 83 municipalities within the ALCOSAN service district conducting consent order activities including manhole inspections, sewer line cleaning and CCTV, sewer system mapping, dye testing, hydraulic design capacity analysis, flow monitoring, and development of feasibility and O&M program plan reports.
- Great Lakes Water Authority (GLWA) Embedded Staff Related Projects, Detroit, MI. Worked directly with Water Resources Recovery Facility (WRRF) Staff in developing and implementing the Risk and Process Safety Management Program (RPSMP) SOW. The project was split into three phases. Tony led all three phases which were: Phase 1- Establish Current Condition through a Baseline Compliance Audit, Phase 2-Update/Revise RPSMP, Phase 3-Conduct a Compliance Audit utilizing the new RPSMP. This project required working in the GLWA WRRF three days a week to coordinate, plan and execute tasks while working with various GLWA staff engineers, chemists, and operators.
- City of Detroit Long Term CSO Control Plan, Detroit and Rouge Rivers, MI. Technical Project Manager to prepare update for Detroit's Long Term CSO Control Plan that includes results of completed demonstrative projects including three CSO basins, six in-system storage gates and a Rain Water Control Pilot Program. The plan update also addressed the status of projects under design or in construction including in-system storage improvements at 27 locations; three screening and disinfection facilities; a 7.5 mile, 22.5-foot diameter deep rock tunnel; a 30 MG CSO basin; and wastewater treatment plant improvements. Managed Rain Water Control Pilot Program in the City that demonstrated that up to 3 billion gallons of wet weather flow could be eliminated in the system through downspout disconnection, cisterns, restricted catch basin covers and tree plantings. Conducted in four neighborhoods, the pilot program measured the flow removal efficiency of the different control methods. Led Water Quality Work Group efforts that established CSO control facility alternatives to MDEQ's presumptive criteria sizing. Resulted in 66% reduction in the size of control facilities. Led Treatment Efficiency Work Group responsible for evaluating effectiveness of pilot/demonstration projects. The work group developed performance criteria and identified evaluation parameters for pilot/demonstration projects. Detroit's Long Term CSO Control Plan was recognized for its innovative approach with an Honorable Conceptor Award from the Michigan Chapter of the American Council of Engineering Companies.
- Wayne County CSO Basin Evaluation, MI. Project Manager for collection and analysis of CSO basin data to determine the efficiency and effectiveness of the three Wayne County CSO Basins (Dearborn Heights, Redford Township and Inkster). Results of this project were incorporated into the Rouge River National Wet Weather Demonstration Program database and were used to form the basis for future CSO control in Southeast Michigan. The Redford and Inkster Basins received state and national engineering excellence awards from the American Council of Engineering Companies, and the Dearborn Heights Basin received a state engineering excellence award.
- High Rate Treatment (HRT) Program Development, Metropolitan Sewer District of Greater Cincinnati (MSDGC), OH. Task Lead on the HRT Technology Alternative Analysis that evaluated the various HRT approaches and recommended which should be used by MSDGC as the WWIP moves forward over the next 20 years. Also, part of the MSDGC Wet Weather HRT Facility Base Design team that outlined the development of a treatment facility base template design used to evaluate various sites for being suitable for the next MSDGC HRT Demonstration Facility. The template included facility layouts as well as recommendations for each process component including headworks/screening, mixing, settling tanks, disinfection/dechlorination, solids handling, odor control, flow monitoring, sampling system, HVAC, power, I&C and ancillary systems for sizing purposes.

Exhibit TI-1



- Legend**
- Stormwater Connection to Other Municipality (2)
 - DPW MS4 Stormwater Outfall (80)
 - DPW Non-MS4 Stormwater Outfall (59)
 - PWSA MS4 Stormwater Outfall (189)
 - PWSA Non-MS4 Stormwater Outfall (17)
 - Private Stormwater Outfall (176)
 - Allegheny
 - Becks Run
 - Chartiers Creek
 - Glass Run
 - Monongahela River
 - Ninemile Run
 - Ohio River
 - Panther Hollow Lake
 - Panther Hollow Run
 - Phipps Run
 - Saw Mill Run
 - Streets Run
 - Thompson Run
 - Unknown Unmapped Branch of Woods Run
 - Unnamed Trib. to Allegheny River
 - Unnamed Tributary to Streets Run
 - Unnamed Tributary to Thompson Run
 - West Run
 - HUC 12 Areas
 - City of Pittsburgh Boundary

Exhibit TI-2

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III**

Philadelphia, Pennsylvania 19103-2029

In the Matter of:	:	
	:	
City of Pittsburgh	:	U.S. EPA Docket No. CWA-03-2021-0039DN
414 Grant Street	:	
Pittsburgh, Pennsylvania 15219	:	Proceeding under Section 309(a)
	:	of the Clean Water Act
AND	:	
	:	
Pittsburgh Water and Sewer Authority	:	ADMINISTRATIVE ORDER ON CONSENT
1200 Penn Avenue	:	
Pittsburgh, Pennsylvania 15222	:	
	:	
Respondents	:	
	:	

I. PRELIMINARY STATEMENT

1. The United States Environmental Protection Agency (“EPA”) has made the following findings of fact and issues this Administrative Order on Consent (“AOC”) pursuant to the authority vested in the Administrator of EPA under Section 309(a) of the Clean Water Act (“CWA” or “Act”), 33 U.S.C. § 1319(a). This authority has been delegated by the Administrator to the Regional Administrator of EPA Region III, and further delegated to the Director, Enforcement & Compliance Assurance Division, Region III.
2. Section 309(a) of the CWA, 33 U.S.C. § 1319(a), provides, *inter alia*, that whenever on the basis of any information available to him the Administrator finds that any person is in violation of any permit condition or limitation implementing certain sections of the CWA, in a permit issued under Section 402 of the CWA, 33 U.S.C. § 1342, he shall issue an order requiring such person to comply with such section or requirement.
3. The City of Pittsburgh (“City”) and the Pittsburgh Water and Sewer Authority (“PWSA”) (collectively, “Respondents”) have agreed to the issuance of this AOC.

II. STATUTORY AND REGULATORY BACKGROUND

4. Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the discharge of any pollutant (other than dredged or fill material) from a point source into waters of the United States except in compliance with a permit issued pursuant to the National Pollutant Discharge Elimination System (“NPDES”) program under Section 402 of the CWA, 33 U.S.C. § 1342.

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5. Section 402 of the CWA, 33 U.S.C. § 1342(a), provides that the Administrator of EPA, or a state upon approval by EPA, may issue permits under the NPDES program for the discharge of pollutants from point sources to waters of the United States. The discharges are subject to specific terms and conditions as prescribed in the permit.
6. Pursuant to Section 402(b) of the CWA, 33 U.S.C. § 1342(b), EPA authorized the Pennsylvania Department of the Environment Protection (“PADEP”) to issue NPDES permits in the Commonwealth of Pennsylvania.
7. Section 402(p) of the CWA, 33 U.S.C. § 1342(p), and 40 C.F.R. §§ 122.2 and 122.26 provide that, with some exceptions not relevant here, storm water discharges are “point sources” subject to NPDES permitting requirements under Section 402(a) of the CWA, 33 U.S.C. § 1342(a).
8. 40 C.F.R. § 122.2 states, in relevant part: “Discharge of a pollutant means: a) any addition of any ‘pollutant’ or combination of pollutants to waters of the United States from any point source. . . . This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. . . .”
9. “Storm water” (or “stormwater”) is defined as “storm water runoff, snow melt runoff and surface runoff and drainage.” 40 C.F.R. § 122.26(b)(13).
10. 40 C.F.R. § 122.26(b)(8)(i) defines the term “municipal separate storm sewer system” or “MS4” as including, *inter alia*, “a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): (i) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.”
11. 40 C.F.R. § 122.26(b)(16) defines the term “small municipal separate storm sewer system” as “all separate storm sewers that are: (i) Owned or operated by the United States, a State, city, town, borough . . . or other public body (created by or pursuant to State law) having jurisdiction over disposal of . . . storm water. . . .; [and] (ii) Not defined as ‘large’ or ‘medium’ municipal separate storm sewer systems.”

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12. 40 C.F.R. § 122.26(b)(17) defines the term “Small MS4” as “a small municipal separate storm sewer system.”
13. Small MS4s are regulated pursuant to Section 402(p) of the CWA, 33 U.S.C. § 1342(p) and the regulations promulgated thereunder.
14. Pursuant to 40 C.F.R. § 122.26(a)(9)(i), small MS4s require an NPDES permit if they are required to be regulated pursuant to 40 C.F.R. § 122.32.
15. 40 C.F.R. § 122.32(a)(1) states: “(a) Unless you qualify for a waiver under paragraph (c) of this section, you are regulated if you operate a small MS4, including but not limited to systems operated by federal, State, Tribal, and local governments, including State departments of transportation; and: (1) Your small MS4 is located in an urbanized area as determined by the latest Decennial Census by the Bureau of the Census. (If your small MS4 is not located entirely within an urbanized area, only the portion that is within the urbanized area is regulated). . . .”
16. 40 C.F.R. § 122.34(a) provides: “*General requirements.* For any permit issued to a regulated small MS4, the NPDES permitting authority must include permit terms and conditions to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. Terms and conditions that satisfy the requirements of this section must be expressed in clear, specific, and measurable terms. Such terms and conditions may include narrative, numeric, or other types of requirements (*e.g.*, implementation of specific tasks or best management practices (BMPs), BMP design requirements, performance requirements, adaptive management requirements, schedules for implementation and maintenance, and frequency of actions).”
17. Pursuant to its authority under the CWA and the NPDES program approval, PADEP issued to the Respondents NPDES Permit No. PAI136133, an Individual Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (“the 2004 Permit”). The effective date of the 2004 Permit was September 29, 2004, with an expiration date of March 9, 2008.
18. PADEP administratively extended the 2004 Permit until June 30, 2020.
19. Pursuant to its authority under the CWA and the NPDES program approval, the PADEP issued to Respondents NPDES Permit No. PAI136133, Individual Permit to Discharge Stormwater from Small Municipal Separate Storm Sewer Systems (“the 2020 Permit”). The effective date of the Permit was July 1, 2020 with an expiration date of June 30, 2025.
20. NPDES Permit No. PAI136133 authorizes discharges from a regulated small MS4, when in accordance with the conditions and terms of the Permit.

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21. The City and PWSA are “municipalities” within the meaning of Section 502(4) of the CWA, 33 U.S.C. § 1362(4).
22. Respondents are “persons” within the meaning of Section 502(5) of the CWA, 33 U.S.C. § 1362(5) and 40 C.F.R. § 122.2.
23. At all times relevant herein, upon information and belief, Respondents owned or operated a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that discharges to waters of the United States.
24. At all times relevant herein, upon information and belief, Respondents owned or operated a “municipal separate storm sewer system” or “MS4”, as that term is defined at 40 C.F.R. § 122.26(b)(8)(i), located in the City of Pittsburgh, Allegheny County, Pennsylvania.
25. At all times relevant to this AOC, the Respondents have discharged stormwater from the MS4 to the Monongahela River, Thompson Run, Chartiers Creek, Ohio River, Allegheny River, Glass Run, Streets Run, Sawmill Run, and Nine Mile Run.
26. The Monongahela River, Thompson Run, Chartiers Creek, Ohio River, Allegheny River, Glass Run, Streets Run, Sawmill Run, and Nine Mile Run are “water[s] of the United States” within the meaning of Section 502(7) of the CWA, 33 U.S.C. § 1362(7).
27. On December 6 and 7, 2016, representatives of EPA Region III and EPA contractors from Eastern Research Group, Inc. (jointly “the Inspection Team” or “the inspectors”) conducted an inspection of the MS4 (hereinafter, “the Inspection”) to assess compliance with the 2004 NPDES Permit No. PA1136133.
28. Following the Inspection, the Inspection Team prepared an inspection report, dated January 2017 (“the Inspection Report”), which included multiple observations regarding Respondents’ compliance with the requirements of the 2004 Permit. EPA sent a copy of the Inspection Report to the Respondents on February 27, 2017.
29. Respondents were presented with the opportunity to provide to EPA a response to the Inspection Report by March 20, 2017. EPA received no response from Respondents.
30. On May 19, 2017, EPA sent an Opportunity to Confer letter to the Respondents, communicating alleged violations of the CWA and the 2004 Permit observed during the Inspection.
31. EPA received the Respondents’ response to the Opportunity to Confer letter on June 5, 2017. This response indicated that the Respondents were developing and/or implementing new procedures to address the alleged violations communicated in the May 2017 Opportunity to Confer letter.

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32. On September 6, 2017, EPA sent to Respondents a follow-up letter to the Opportunity to Confer letter. In this letter, EPA requested documentation of the procedures referenced in Respondents' June 2017 response, to evaluate whether the new procedures had been implemented and whether these practices satisfied the Permit requirements. EPA also requested documentation related to Respondents' NPDES Permit renewal application that was due September 16, 2017.
33. EPA received Respondents' response to the follow up letter on October 2, 2017. This response provided documentation that indicated Respondents had addressed some, but not all, of the violations communicated in the May 2017 Opportunity to Confer letter.
34. On February 26, 2020, pursuant to its authority under Section 308 of the CWA, 33 U.S.C. § 1318, EPA issued an Information Requirement Letter to the Respondents. This Information Requirement Letter requested updates on eight components of the Respondents' MS4 program.
35. EPA received a partial response to the Information Requirement Letter from Respondents on April 2, 2020, and a complete response on May 2, 2020.
36. On June 30, 2020, EPA issued a Notice of Noncompliance to the Respondents for violations of the 2004 Permit that were previously identified as potential violations in the Opportunity to Confer letter. The Notice of Noncompliance requested, among other things, that the Respondents (1) submit to EPA within 45 days of receipt of the letter a plan and schedule for developing and implementing a program for conducting inspections and enforcement regarding construction erosion and sediment ("E&S") controls and post-construction BMPs and (2) develop and implement the program within 180 days of receipt of the letter.
37. On August 17, 2020, EPA received the Respondents' response to the Notice of Noncompliance. In the response, Respondents provided a schedule of activities to develop and implement a program for conducting inspections of construction E&S controls and post-construction BMPs. The schedule extended from February 7, 2020 through July 31, 2021. However, the schedule did not include implementation of an enforcement program.

III. PERMIT REQUIREMENTS

38. Part A. Stormwater Management Program, 2. Minimum Control Measures of the 2004 Permit requires, among other requirements, Permittees to (1) implement procedures for site inspection and enforcement of construction E&S control measures and (2) enforce a program that addresses post-construction runoff and ensures the long-term operations and maintenance of post-construction stormwater controls.

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39. Part A. Stormwater Management Program, 3. Use of the DEP Stormwater Management *Protocol* to Meet the Minimum Control Measure Requirements of the 2004 Permit states that “Permittees may elect to implement the *Protocol* to meet the 6 Minimum Control Measure requirements. The *Protocol* becomes a part of the Individual Permit coverage for those permittees who elect to do so.” In the Individual Permit application submitted by Respondents on September 5, 2003, the Respondents elected to use the DEP Stormwater Management *Protocol* (“the Protocol”) for all six minimum control measures. Therefore, implementation of the Protocol is part of the 2004 Permit requirements.
40. In the Construction Stormwater Management Minimum Control Measure section of the Protocol, Permittees are required, among other things, to “Enact, implement, and enforce a stormwater control ordinance using DEP model language.”
41. In the Post-Construction Stormwater Runoff Management Minimum Control Measure section of the Protocol, Permittees are required, among other things, to “Enact, implement, and enforce a stormwater control ordinance,” using DEP model language
42. Part C.I.B.4.c of the 2020 Permit requires, among other requirements, Permittees to “Enact, implement and enforce an ordinance or SOP to require the implementation and maintenance of E&S control BMPs, including sanctions for non-compliance, as applicable.”
43. Part C.I.B.5.a of the 2020 Permit requires, among other requirements, Permittees to “Enact, implement and enforce an ordinance or SOP to require post-construction stormwater management from new development and redevelopment projects, including sanctions for non-compliance.”
44. Part C.I.B.5.c of the 2020 Permit requires, among other requirements, Permittees to “Ensure adequate O&M of all post-construction stormwater management BMPs that have been installed at development or redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale.”
45. Title Thirteen: Stormwater Ordinance for the City of Pittsburgh, Pennsylvania Code of Ordinances (“Stormwater Ordinance”), Section §1304.07 states that “the City or its designated representative may conduct inspections during construction as it deems appropriate. If inspections performed by the City reveal deficiencies from the submitted and approved SWM site plan, the City may request corrective actions. Any corrective action shall be at the cost of the stormwater facility owner,” and “After receipt of the completion certification by the City, the City will conduct a final inspection, and may conduct inspections thereafter to ensure proper functioning and compliance with approved plans.”

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46. Section §1305.03 of the Stormwater Ordinance states, “The landowner or the owner's designee (including the City for dedicated and owned facilities) shall inspect [stormwater management] SWM BMPs, facilities and/or structures installed under this Ordinance according to the following frequencies, at a minimum, to ensure the BMPs, facilities and/or structures continue to function as intended: annually for the first five (5) years, once every three (3) years thereafter, and during or immediately after the cessation of a ten-year or greater storm. A written inspection report shall be created to document each inspection. The inspection report shall contain the date and time of the inspection, the individual(s) who completed the inspection, the location of the BMP, facility or structure inspected, observations on performance, and recommendations for improving performance, if applicable. Inspection reports shall be kept onsite and furnished to City/PWSA inspectors upon request.”

IV. FINDINGS OF FACT AND CONCLUSIONS OF LAW

Count I

Failure to Conduct Inspections and Enforcement of Construction E&S Control Measures and Post-Construction Stormwater Management BMPs

47. The information and allegations in the Paragraphs above are incorporated herein by reference.
48. At the time of the Inspection on December 6 and 7, 2016, representatives from the City of Pittsburgh stated that the City relied on Allegheny County Conservation District to conduct reviews of E&S control plans and E&S control inspections during active construction. This agreement was initially formalized under a Memorandum of Understanding (“MOU”). The MOU had expired prior to the time of Inspection.
49. At the time of Inspection on December 6 and 7, 2016, representatives from the City stated:
- a. There was no protocol established or entity identified to conduct regular inspections, or system in place to monitor privately-owned stormwater management BMPs following construction.
 - b. The City was not inspecting municipally-owned stormwater control facilities at least annually.
 - c. The City did not have a detailed schedule for inspection and maintenance of all stormwater facilities, and instead performed this work on an as-needed basis.
50. In their June 5, 2017 response to the Opportunity to Confer Letter, the Respondents stated:
- a. The City’s Department of Public Works budgeted for an Environmental Enforcement Inspector position within the City’s Department of Permits, Licenses, and Inspections.

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- b. The City was seeking a qualified individual for the position and expected to start operation and maintenance inspections as soon as possible.
 - c. PWSA conducts multiple inspections of its drainage facilities, but informal inspections of other municipally owned stormwater facilities are not documented.
 - d. The City planned to implement a formal stormwater facility documentation process for incorporation into the NPDES Permit renewal application due September 16, 2017.
51. In its September 6, 2017 follow-up letter to the Opportunity to Confer Letter, EPA requested verification that the Environmental Enforcement Inspector position within the City's Department of Permits, Licenses, and Inspections had been filled.
 52. In their October 2, 2017 response letter, Respondents stated that the Environmental Enforcement Inspector position was budgeted for in the 2017 budget but had not yet been filled by the City of Pittsburgh.
 53. In its Information Requirement Letter dated February 26, 2020, EPA requested documentation from Respondents to confirm that the Environmental Enforcement Inspector position has been filled.
 54. In their May 2, 2020 response to the Information Requirement Letter, Respondents stated:
 - a. They determined that the Environmental Enforcement Inspector position was not suited to be within the Departments of Permits, Licenses and Inspections because this Department could not enforce the plumbing code and stormwater permitting requirements. Therefore, the funding for the position was removed from the City of Pittsburgh's budget.
 - b. The legal authority to enforce stormwater management falls under Allegheny County Health Department Plumbing Code. Respondents stated that they were working with Allegheny County Health Department and Allegheny County Conservation District to define agency responsibilities in stormwater enforcement.
 55. On June 30, 2020, EPA issued a Notice of Noncompliance to the Respondents for their failure to conduct inspections and enforcement of construction E&S control measures and post-construction stormwater management BMPs.
 56. In their August 17, 2020 response to the Notice of Noncompliance, the Respondents stated that they were in the process of addressing the violations set forth in the Notice of Noncompliance, and provided a schedule of activities to develop and implement a program for conducting inspections of construction E&S controls and post-construction BMPs. The schedule extended from February 7, 2020 through July 31, 2021. However, the schedule did not include ultimate implementation of an enforcement program.

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57. Based upon the information described above, Respondents failed to implement the Stormwater Ordinance in accordance with the requirements of the Protocol of the 2004 Permit and Parts C.I.B.4.c and C.I.B.5.a of the 2020 Permit.
58. Based upon the information described above, Respondents failed to conduct inspections and enforcement of construction E&S controls and post-construction stormwater management BMPs in accordance with Part A. Stormwater Management Program, 2. Minimum Control Measures of the 2004 Permit and Parts C.I.B.4.c, C.I.B.5.a, and C.I.B.5.c of the 2020 Permit.
59. Respondents' failure to conduct inspections and enforcement of construction E&S controls and post-construction stormwater management BMPs in accordance Part A. Stormwater Management Program, 2. Minimum Control Measures of the 2004 Permit and Parts C.I.B.4.c, C.I.B.5.a, and C.I.B.5.c of the 2020 Permit constitutes a violation of the Permit and Sections 301 and 402 of the CWA, 33 U.S.C. §§ 1311 and 1342.

V. ORDER

AND NOW, Pursuant to Section 309(a) of the CWA, 33 U.S.C. § 1319(a), Respondents are hereby ORDERED to do the following:

60. Respondents shall develop and implement a program for conducting inspections and enforcement of (1) construction erosion and sediment controls and (2) post-construction BMPs, in accordance with the schedule attached to this AOC as Attachment A.
61. Respondents shall achieve the following milestones by the deadlines specified below:
 - a. Submission of amended unified Stormwater Code to City Council by July 1, 2021.
 - b. City administration submission of the budget request to City Council to increase capacity for inspections and enforcement by December 31, 2021.
 - c. Implementation of procedures with the capability to implement an inspection and enforcement program in accordance with Permit requirements by January 28, 2022. This may include implementation of MOUs with Allegheny County Conservation District, Allegheny County Health Department, and other agencies, as necessary, to ensure the Respondents retain oversight and responsibility of the programs.
 - d. Complete implementation of the inspection and enforcement program and staff in place for construction E&S controls and post-construction stormwater management BMPs by March 31, 2022.
62. Respondents shall submit quarterly progress reports to EPA for a period of two years after the effective date of this AOC. These reports shall be due on March 31, June 30, September 30, and December 31 each year. These reports shall be submitted in accordance with Paragraphs 68 and 69. These reports shall include, at a minimum:
 - a. Activities completed during the reporting period;
 - b. Dates by which the activities were completed;

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- c. Any barriers to the timely completion of activities encountered; and
- d. Activities currently in progress.

63. Any notice, submission, certification, data presentation, or other document submitted by Respondents to EPA pursuant to this AOC which discusses, describes, demonstrates, or supports any finding or makes any representation concerning Respondents' compliance or non-compliance with any requirements of this AOC shall be certified by either a principal executive officer or ranking elected official. The aforesaid certification shall provide the following statement above the signature of the responsible corporate officer signing the certification on behalf of Respondent:

I certify under penalty of law that this document and all attachments are true, accurate and complete. As to [the/those] identified portions of this [type of submission] for which I cannot personally verify [its/their] accuracy, I certify under penalty of law that this [type of submission] and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature: _____
 Name: _____
 Title: _____

64. Any notice, submission, certification, data presentation, or other document submitted by Respondents to EPA pursuant to this AOC shall be sent via-email transmission to the attention of:

Shane McAleer (3ED32)
 Environmental Engineer / Inspector
 NPDES Section, Water Branch
 Enforcement and Compliance Assurance Division
 U.S. Environmental Protection Agency
 1650 Arch Street
 Philadelphia, PA 19103-2029
 mcaleer.shane@epa.gov

and

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Natalie Katz (3RC40)
Sr. Asst. Regional Counsel
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029
katz.natalie@epa.gov

VI. GENERAL PROVISIONS

65. Issuance of this AOC is intended to address the violations described herein. EPA reserves the right to commence action against any person, including Respondent, in response to any condition which EPA determines may present an imminent and substantial endangerment to the public health, public welfare, or the environment. Further, EPA reserves any rights and remedies available to it under the CWA, 33 U.S.C. §§ 1251-1388, the regulations promulgated thereunder, and any other federal laws or regulations for which EPA has jurisdiction, to enforce the provisions of this AOC, following its effective date (as defined below).
66. This AOC does not constitute a waiver or modification of the terms or conditions of the Respondents' Permit. Compliance with the terms and conditions of this AOC does not relieve Respondents of their obligations to comply with any applicable federal, state, or local law, regulation or permit.
67. By signing this AOC, Respondents neither admit nor deny the specific factual allegations set forth in this AOC.
68. Respondents waive any and all remedies, claims for relief and otherwise available rights to judicial or administrative review that Respondents may have with respect to any issue of fact or law set forth in this AOC, including any right of judicial review pursuant to Chapter 7 of the Administrative Procedure Act, 5 U.S.C. §§ 701-706.
69. EPA reserves all existing inspection authority otherwise available to EPA pursuant to Section 308 of the CWA, 33 U.S.C. § 1318, or pursuant to any other statute or law.
70. The undersigned representative of each Respondent certifies that he or she is fully authorized by the party represented to enter into the terms and conditions of this AOC and to execute and legally bind the party.
71. The provisions of this AOC shall apply to and be binding upon each Respondent and its officers, directors, employees, contractors, agents, trustees, successors and assigns of that Respondent.
72. Each Respondent certifies that any information or representation it has supplied or made to EPA concerning this matter was, at the time of submission true, accurate, and complete

*AOC with City of Pittsburgh and PWSA**Docket No. CWA-03-2021-0039DN*

and that there has been no material change regarding the truthfulness, accuracy or completeness of such information or representation. EPA shall have the right to institute further actions to recover appropriate relief if EPA obtains evidence that any information provided and/or representations made by a Respondent to the EPA regarding matters relevant to this AOC are false or, in any material respect, inaccurate. This right shall be in addition to all other rights and causes of action that EPA may have, civil or criminal, under law or equity in such event. Each Respondent and its officers, directors and agents are aware that the submission of false or misleading information to the United States government may subject a person to separate civil and/or criminal liability.

73. Respondents may assert a business confidentiality claim covering part or all of the information which this AOC requires it to submit to EPA, but only to the extent and only in the manner described in Part 2 Subpart B of Title 40 of the C.F.R. The EPA will disclose information submitted under a confidentiality claim only as provided in Part 2 Subpart B of Title 40 of the C.F.R. If Respondents do not assert a confidentiality claim, EPA may make the submitted information available to the public without further notice to Respondent.

VI. EFFECTIVE DATE

This AOC is effective after receipt by Respondents of a fully executed document.

SO ORDERED:

U.S. ENVIRONMENTAL PROTECTION AGENCY

Date: 01/26/2021

By: **KAREN
MELVIN** Digitally signed by
KAREN MELVIN
Date: 2021.01.26
13:52:45 -05'00'

Karen Melvin
Director, Enforcement & Compliance Assurance
Division
U.S. EPA – Region III


AOC with City of Pittsburgh and PWSA

Docket No. CWA-03-2021-0039DN

AGREED TO:

For Respondent: CITY OF PITTSBURGH

Date: 1/20/2021

By: 

William Peduto
Mayor

AOC with City of Pittsburgh and PWSA

Docket No. CWA-03-2021-0039DN

AGREED TO:

For Respondent: PITTSBURGH WATER AND SEWER AUTHORITY

Date: 1/20/2021

By: William J. Pickering
William J. Pickering
Chief Executive Officer

ATTACHMENT A

Pittsburgh Water and Sewer Authority - Stormwater Code and Ordinance Review and Update

Project Schedule - Updated: 12/22/2020

Task Description	Start Date	End Date	Meeting Date
Task 1 Technical Analysis			
1.1 Kickoff and Discovery Meeting			2/7/2020
1.2 Evaluation of Policy and Regulation Changes	2/10/2020	2/26/2021	
<i>Internal AKRF Team - Policy Alternatives Exploration Workshop</i>			3/4/2020
<i>PWSA/City/AKRF Meeting to Discuss Policy Priorities</i>			7/31/2020
<i>Detailed Scoping of Additional Technical Analyses for Priority Policies</i>	8/3/2020	8/25/2020	
<i>Additional Technical Analyses for Priority Policies</i>	8/26/2020	2/26/2021	
1.3 Technical Analysis: BMP Applicability	3/2/2020	7/31/2020	
1.4 Technical Analysis: Variability in SWM Requirements	7/20/2020	12/4/2020	
1.5 Analysis and Recommendations Report	10/19/2020	2/26/2021	
1.6 Updated PWSA Developer Manual Chapters	2/1/2021	5/31/2021	
1.7 Design Manual	2/1/2021	5/31/2021	
Task 2 Creation of Unified Stormwater Code			
2.1 Kickoff and Discovery Meeting			2/7/2020
2.2 Review Existing Code and Identify Conflicts and Overlap	2/10/2020	4/24/2020	
2.3 Identify Plan Review Thresholds and Applicability Triggers	3/2/2020	7/31/2020	
2.4 Evaluate Opportunities for Enhanced Co-benefits/Resiliency	8/26/2020	12/4/2020	
2.5 Evaluate Opportunities for Integration into ROW Policy	8/26/2020	12/4/2020	
2.6 Review of Regulatory Compliance Goals and Enhancement Options	8/26/2020	12/4/2020	
2.7 Develop Updated Stormwater Management Code	2/1/2021	7/31/2021	
<i>Development of recommended code revisions for executive review</i>	2/1/2021	3/15/2021	
<i>Public notice of proposed amended code (21 days in advance of Planning Commission)</i>	4/27/2021	5/18/2021	
<i>Submission of amended code to Planning Commission</i>	4/27/2021	5/18/2021	
<i>Public notice of proposed amended code (21 days in advance of City Council public)</i>	7/9/2021	7/31/2021	
<i>Submission of amended code to City Council</i>	7/9/2021	7/31/2021	
2.8 Summary of and Recommendations for Resolving Potential Conflicts	8/1/2020	2/26/2021	
2.9 Analysis of Agency Roles and Agreements (see Task 3)			
Task 3 Process Improvement Recommendations			
3.1 Kickoff and Discovery Meeting			2/7/2020
3.2 Review Existing Procedures for Approvals, Plan Review and Enforcement	9/14/2020	11/27/2020	
3.3 Develop Recommendations for Streamlining Including Integration with New Software	11/30/2020	2/26/2021	
3.4 Integration with Other Related Programs	11/30/2020	2/26/2021	
3.5 Development of Tiered Review Processes	8/26/2020	12/4/2020	
3.6 Legal Analysis for Proposed Improvements	1/4/2021	2/12/2021	
3.7 Staffing Requirements for Review, Inspections, and Enforcement	8/26/2020	12/4/2020	
3.8 Costs and Pricing for Services	1/25/2021	7/31/2021	
Task 4 Internal Policy Updates			
4.1 Kickoff and Discovery Meeting			2/7/2020
4.2 Analysis of Alternative Compliance Options	8/26/2020	12/4/2020	
4.3 Review of Draft MOU	5/4/2020	7/17/2020	
4.4 Develop Recommendations for SWM Responsibilities	9/14/2020	12/4/2020	
4.5 Staffing and Budget Requirements by Department	1/25/2021	7/31/2021	
Task 5 Stakeholder Communication			
5.1 Kickoff and Discovery Meeting			2/7/2020
<i>Community Engagement Plan Development</i>	3/2/2020	6/15/2020	
5.2 Introduction Meetings			
<i>Agency Workgroup</i>			2/7/2020
<i>Stakeholder Workgroup</i>			7/8/2020
5.3 Focused Workshops			
<i>Stakeholder Focus Groups / Workshops</i>	7/8/2020	9/30/2020	
<i>Agency Staff Interviews</i>	3/2/2020	10/31/2020	
5.4 Key Stakeholder Meetings			
<i>Meeting 1</i>			7/8/2020
<i>Meeting 2</i>			12/17/2020
<i>Meeting 3</i>			3/31/2021
5.5 Agency Work Group Meetings			
<i>Meeting 1</i>			5/5/2020
<i>Meeting 2</i>			8/6/2020
<i>Meeting 3</i>			12/15/2020
<i>2021 Meetings - TBD</i>			
5.6 Information Sessions (2)	6/1/2021	7/31/2021	

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III**

Philadelphia, Pennsylvania 19103-2029

In the Matter of:	:	
	:	
City of Pittsburgh	:	U.S. EPA Docket No. CWA-03-2021-0039DN
414 Grant Street	:	
Pittsburgh, Pennsylvania 15219	:	Proceeding under Section 309(a)
	:	of the Clean Water Act
AND	:	
	:	
Pittsburgh Water and Sewer Authority	:	ADMINISTRATIVE ORDER ON CONSENT
1200 Penn Avenue	:	
Pittsburgh, Pennsylvania 15222	:	
	:	
Respondents	:	
	:	

CERTIFICATE OF SERVICE

I certify that the enclosed Administrative Order on Consent was sent to the following persons by UPS Overnight Mail, at the following addresses:

Yvonne Hilton, Esq. and John Miller, Esq.
City of Pittsburgh
414 Grant Street
Pittsburgh, Pennsylvania 15219
Email: yvonne.hilton@pittsburghpa.gov and
john.miller@pittsburghpa.gov

Debbie Lestitian, Esq.
Pittsburgh Water and Sewer Authority
1200 Penn Avenue
Pittsburgh, Pennsylvania 15222
Email: dlestitian@pgh2o.com

David G. Ries, Esq.
Clark Hill
One Oxford Centre
301 Grant St., 14th Floor
Pittsburgh, Pennsylvania 15219
Email: dries@clarkhill.com

I certify that the enclosed Administrative Order on Consent was delivered to the following person by electronic mail, at the following addresses.

Regional Hearing Clerk (3RC00)
U.S. Environmental Protection Agency, Region III
Email: R3_Hearing_Clerk@epa.gov

I have also arranged for the Regional Hearing Clerk to distribute the Administrative Order by electronic mail to the persons listed above.

Date: 1/20/2021

By: Glenn DeBattista
NAME:
TITLE:

VERIFICATION

I, Tony Igwe, hereby state that: (1) I am the Senior Group Manager, Stormwater for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated 05/03/2023 | 3:54 PM EDT

DocuSigned by:
Tony Igwe
404A1979E8BC410...

Tony Igwe
Senior Group Manager, Stormwater
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

JULIE A. MECHLING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Customer Service and Collections Updates

Rate Mitigation Efforts

Prior Settlement Commitments

Water, Wastewater, Storm Water Tariffs

May 9, 2023

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JAM-6	Continuous Consumption Report Standard Operation Procedures
JAM-7	Stormwater Monthly Customer Call Handling Data 2022
JAM-8	Stormwater Monthly Call Handling Data 2023 YTD 042123
JAM-9	Lien Process Standard Operating Procedure
JAM-10	Line Repair and Conservation Pilot Program Preproposal Meeting 040423
JAM-11	Proposed Water Tariff Supplement No. 12 (clean)
JAM-12	Proposed Water Tariff Supplement No. 12 (red-lined)
JAM-13	Proposed Wastewater Tariff Supplement No. 11 (clean)
JAM-14	Proposed Wastewater Tariff Supplement No. 11 (red-lined)
JAM-15	Proposed Storm Water Tariff Supplement No. 3 (clean)
JAM-16	Proposed Storm Water Tariff Supplement No. 3 (red-lined)

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND CURRENT POSITION WITH PWSA.**

3 A. My name is Julie A. Mechling. My position with The Pittsburgh Water and Sewer
4 Authority (“PWSA” or “Authority”) is Director of Customer Service.

5 **Q. HOW LONG HAVE YOU HELD THIS POSITION?**

6 A. Although my title changed in 2021, I have held this current position for over five years.
7 Previously, I was an employee of PWSA for 22 years. I left for a job opportunity in the
8 private sector from 2011 through 2017.

9 **Q. WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES?**

10 A. In my current position, I am responsible for oversight and management of the Customer
11 Service department; including the day to day operations of Advanced Metering
12 Infrastructure (AMI) and Billing, Collections, the Contact Center, Emergency Dispatch,
13 Lead Help, Permits, PUC Compliance (including our PGH2O Cares team), and Quality
14 Control. I am also the driving force for inter- and intra-departmental initiatives and
15 innovative partnerships with third party providers.

16 **Q. PLEASE SUMMARIZE YOUR BACKGROUND AND EXPERIENCE.**

17 A. I obtained a Bachelor of Arts degree at Duquesne University, and I have over 30 years of
18 utility billing experience. My initial role at PWSA was entry level while in college.
19 When I left employment in 2011, I was PWSA’s Customer Services Manager. In the
20 private sector, I processed electronic Earned Income Tax (“EIT”) employer filings. I
21 then designed, developed, launched, and managed monthly/quarterly sewage treatment,
22 stormwater, and refuse billing and collection for 24 municipalities with less than 10
23 employees.

1 **Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THIS COMMISSION?**

2 A. Yes, I have presented oral testimony in support of PWSA for a number of formal
 3 consumer complaint cases before the Commission. In addition, below is a list of the
 4 written testimony I have presented for other PWSA proceedings before the Commission:

- 5 • Written Direct and Rebuttal testimony in PWSA’s Initial Tariff and Rate Case at
 6 Docket Numbers R-2018-3002645 (water) and R-2018-3002647 (wastewater).
- 7 • Written Direct, Supplemental Direct and Rebuttal testimony in PWSA’s
 8 combined Compliance Plan Stage 1 and Long-Term Infrastructure Improvement
 9 Plan (“LTIIIP”) proceeding at Docket Numbers M-2018-2640802 (water), M-
 10 2018-2640803 (wastewater), P-2018-3005037 (water) and P-2018-3005039
 11 (wastewater).
- 12 • Written Direct, Supplemental Direct, Rebuttal and Rejoinder Testimony in
 13 support of PWSA’s second base rate proceeding at Docket Numbers R-2020-
 14 3017951 (water) and R-2020-3017970 (wastewater).
- 15 • Written Direct and Rejoinder Testimony in support of PWSA’s base rate
 16 proceeding at Docket Numbers R-2021-3024773 (water); R-2021-3024774
 17 (wastewater) and R-2021-3024779 (stormwater).
- 18 • Written Direct, Rebuttal, Surrebuttal and Rejoinder testimony in support of
 19 PWSA’s Compliance Plan Stage 2 – Customer Service issues at Docket Numbers
 20 M-2018-2640802 and M-2018-2640803.
- 21 • Written Direct and Surrebuttal testimony in support of PWSA’s Petition for Pilot
 22 Private Service Line Leak Repair and Expanded Conservation Program for
 23 Eligible Low Income Customers and Authorization to Track Costs As a
 24 Regulatory Asset for Future Base Rate Recovery at Docket No. P-2022-3030253.

25 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

26 A. The purpose of my testimony is to:

- 27 • To provide customer services and collections updates to include: (1) describing
 28 how PWSA is enhancing the customer experience; (2) status of Customer Service
 29 and Collections initiatives under the Compliance Plan, Stage 2 process; and, (3)
 30 detailing PWSA customer service accomplishments and results of customer
 31 surveys;
- 32 • Explore the impact of the rate request on future affordability including how
 33 various proposals are intended to mitigate impacts such as: (1) multiyear request;
 34 (2) removal of the minimum allowance and proposed new reconcilable charges;
 35 (3) new stormwater rate mitigation measures; (4) elimination of convenience fee
 36 pass throughs; and, (5) additional enhancements to low income customer
 37 assistance programs;

- Offer updates on prior settlements including (1) the complaint root cause analysis; (2) arrearage forgiveness; (3) low income customer assistance programs due to removal of minimum allowance; (4) stormwater and customer service; and, (5) Line Repair and Conservation (“LRC”) pilot program;
- Sponsor the proposed water, wastewater and stormwater Tariff revisions and proposal to display future rate changes in the tariffs.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. The exhibits I am proposing are set forth in the Table of Exhibits following the Table of Contents of this testimony.

II. CUSTOMER SERVICE AND COLLECTIONS UPDATES

A. Enhancing the Customer Experience

Q. HAS THE COMMISSION CONCLUDED ITS REVIEW OF PWSA’S COMPLIANCE PLAN WITH REGARD TO CUSTOMER SERVICE ISSUES?

A. Yes. I am pleased to report that PWSA received final Commission approval for the customer service issues of its Compliance Plan by Order entered July 14, 2022.¹ The *CP Stage 2 Customer Services Final Order* approved a full settlement that was reached among the parties of the proceeding and addressed nearly every aspect of PWSA’s customer service and collections processes and procedures. A Revised Compliance Plan – Stage 2 Customer Service with Collections Plan was filed on September 12, 2022. PWSA first filed Tariff Supplement Nos. 10 for both its Water and Wastewater Tariffs and Tariff Supplement No. 2 for its Stormwater Tariff on September 12, 2022 to comply with the requirements of the *CP Stage 2 Customer Services Final Order*. Per direction from Commission staff, PWSA subsequently refiled all the tariff supplements on

¹ *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 2* Docket Nos. M-2018-2640802 (water) and M-2018-2640803 (wastewater), Order entered July 14, 2022 (“*CP Stage 2 Customer Services Final Order*”), adopting as own action the Recommended Decision dated May 18, 2022 which recommended approval of the Joint Petition for Settlement dated March 14, 2022.

1 November 15, 2022 and, per Secretarial Letter dated January 11, 2023, all three were
2 permitted to go into effect on January 14, 2023.

3 **Q. REGARDING PWSA’S INTERNAL PROCESSES, WHAT ACTIONS**
4 **FOLLOWED APPROVAL OF THE FULL SETTLEMENT IN THE**
5 **COMPLIANCE PLAN STAGE 2 CUSTOMER SERVICES PROCEEDING?**

6 A. As I testified previously, the Commission’s *CP Stage 2 Customer Services Final Order*
7 addressed nearly every aspect of PWSA’s customer service and collections processes.
8 Thus, upon approval, a significant amount of internal work as well as discussions with
9 the parties about our proposals was undertaken to ensure compliance with our CP Stage 2
10 Customer Services settlement commitments. To that end, PWSA Customer Service
11 management staff met to review the Compliance Plan, Stage 2 settlement terms on
12 September 23, 2022. During that meeting, we walked through PWSA Exhibit JAM-1, a
13 spreadsheet of the settlement terms that I had compiled in advance. We validated the
14 “Owner” assigned to each requirement, and we looked back to the settlement document
15 to clarify the deliverables. I provided management staff with the deadline of November
16 14, 2022 to complete all revisions and return the updated documents to me. Once all
17 revised customer-facing notices and internal PWSA training documents were shared with
18 the parties via email in the Compliance Plan, Stage 2 proceeding, we held two
19 consecutive all-party meetings on January 18, 2023 and January 31, 2023. These
20 meetings were instrumental in shaping revisions to the documents to meet each parties’
21 interests and to resolve their concerns. Following those two meetings, further review and
22 communication occurred via emails exchanged among the parties. I delivered the
23 finalized customer-facing notices and internal PWSA training documents to the parties in
24 the Compliance Plan, Stage 2 via email on February 11, 2023. Over the next month, the
25 parties exchanged emails that helped to further fine-tune and shape these documents. I

1 received consent to all edits via email from some of the parties by the requested deadline
 2 of March 15, 2023, while others remained silent on the matter. I then met with Customer
 3 Service management personnel during the week of April 3, 2023, according to their
 4 respective sections and areas of responsibility, to introduce them to the finalized
 5 materials and to plan the implementation of the customer-facing notices and internal
 6 PWSA training documents. Each of the management staff worked with me to 1) review
 7 the documents that fall under their section and area of responsibility, 2) determine on
 8 which customer-facing applications the revised documents must be updated, pgh2o.com,
 9 the [Customer Advantage portal](#), and in the [Customer Service department](#) page on
 10 SharePoint, 3) decide the staff who would be impacted and would require training, 4)
 11 plan that training with the Customer Service Training Coordinator who was present
 12 during these meetings, and 5) agree to meet the deadline to implement all revised
 13 documents by June 30, 2023.

14 ***1. Artificial Intelligence for Customer Email Handling***

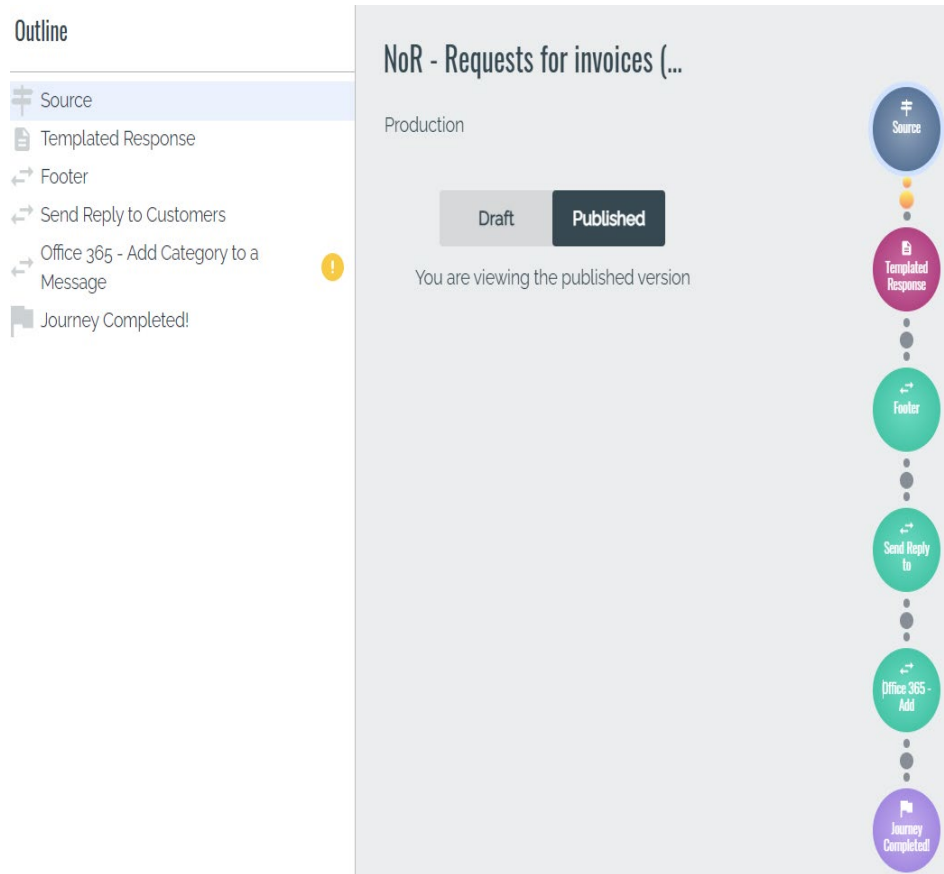
15 **Q. HOW HAS PWSA ENHANCED THE EXPERIENCE OF CUSTOMERS WHO**
 16 **EMAIL THEIR WATER/SEWER/STORMWATER INQUIRIES TO**
 17 **INFO@PGH2O.COM?**

18 **A.** In July 2022, PWSA partnered with Y Meadows, whose mission is to meet the ever more
 19 demanding needs of customers through trainable Artificial Intelligence (AI) by serving
 20 customers faster and removing the burden of repetitive, time-consuming tasks from
 21 employees. Y Meadows’ software employs Natural Language Processing (NLP). NLP is
 22 a discipline of machine learning that trains computers to read and interpret information so
 23 that they can respond as easily as humans do. Through NLP automation, the focus shifts
 24 from identifying keywords to breaking the email content down to determine the
 25 customer’s intent. In 2022, PWSA Customer Service responded to 25,120 customer

1 emails. This is a primary job duty for one full time employee, a Corporate Accounts
 2 Specialist, in the Collections section of Customer Service with a Collections Analyst and
 3 Collections management personnel trained as back-up’s. This job duty consists of; 1)
 4 reading a customer’s email inquiry, 2) responding to certain inquiries through (a)
 5 querying the Customer Information System (CIS) to validate the customer and obtain the
 6 requested data and/or (b) making the requested update to the customer’s account in the
 7 CIS, 3) formulating a response email to the customer, which may include providing data
 8 attachments, and 4) forwarding all other customer email inquiries for processing to
 9 various group email addresses that are assigned to sections of Customer Service. In
 10 working with Y Meadows, PWSA was encouraged to achieve the highest percentage of
 11 efficiency by identifying those customer inquiries that are most repetitive in nature.
 12 Collections personnel gathered dozens of examples of frequently received customer email
 13 inquiry types. These inquiry types are listed in the following table:

14	Application for Service - Tenants	Letters of Authorization
	Backflow	Lien Satisfaction
15	Change of Address	Management Agreement
	Customer Advantage Portal	Payment Research
16	Data Protection Release	Refund Application
	Dispatch	Requests for Invoices
17	Email Attachment to Customer	

18 I then drafted initial email responses tailored to each inquiry type that became templates
 19 for the machine learning tool to send to the customer through automation. Y Meadows
 20 built what they refer to as “journeys” to visually display the steps their tool must take to
 21 respond to a customer’s email inquiry. The below diagram is one such journey.



1

2

Working together, PWSA and Y Meadows tested the efficacy of the newly trained model and established that it was accurately interpreting a customer's request, issuing the appropriate initial templated response, and forwarding the email to the responsible internal group for processing.

3

4

5

6

In its first nine months of use, the Y Meadows AI tool saved PWSA 540 labor hours,

7

allowing the Corporate Accounts Specialist to learn and work the dunning process in the

8

CIS and to proactively reach out to corporate account holders with education and

9

assistance, including walking them through navigation of the Customer Advantage portal

10

1 that was built to enhance the customer experience. Here is the monthly report from Y
 2 Meadows, displaying a 48% handling rate of all PWSA customer email inquiries as of
 3 April 30, 2023:



Monthly Report – April 2023	
Names of intents	Number of messages April (March)
Email Attachment to Customer	290 (338)
Tenant Owner Form	282 (233)
Customer Advantage Portal	68 (53)
Payment Research	67 (79)
Requests for invoices	34 (31)
Management Agreements	33 (29)
Dispatch	24 (18)
Refund Application	16 (25)
Letters of authorization	14 (5)
Data protection & Account history	7 (13)
Change of address	3 (new)
Lien satisfaction	2 (9)
Back flow	1 (3)
Total number of messages processed by Y Meadows	841 (836)
Percentage of messages processed by Y Meadows	48 % (44%)

4

5 **2. Call Back Request Feature**

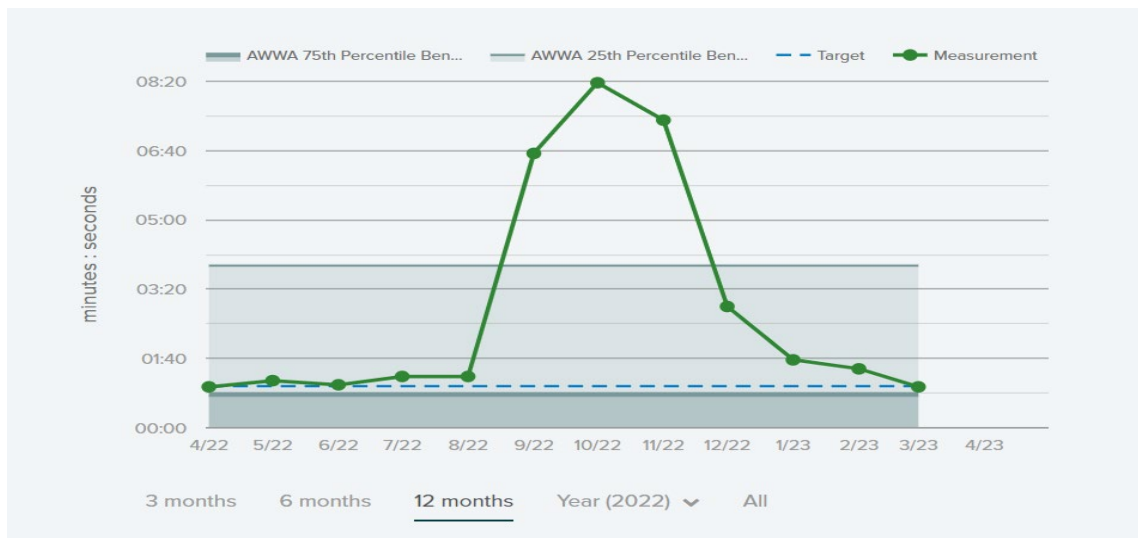
6 **Q. HOW DID PWSA ADDRESS ITS EXCEEDANCES OF CONTACT CENTER**
 7 **METRICS FOLLOWING THE IMPLEMENTATION OF SAP?**

8 A. On August 8, 2022, PWSA’s implementation of the enterprise resource system SAP and
 9 its accompanying Customer Advantage portal went live. Following the launch, customer
 10 call volumes grew in part due to the need for customers who were enrolled in the former
 11 payment portal to log in to the new portal and in part due to the learning curve of PWSA
 12 staff leading to longer call handling time.

13 In 2022, PWSA personnel handled 31,104 more customer calls than in 2021. Supporting
 14 data can be found within PWSA’s Compliance Plan Quarterly Update Reports created

1 and filed with the Commission as a result of its Compliance Plan, Stage 1.² As a result,
 2 the Contact Center exceeded the target goals of 1 minute average speed of answer and
 3 3% abandonment rate from August 2022 through February 2023. The following graphs
 4 plot the significant rise in average speed of answer and abandonment rates in September
 5 through December 2022. As you also see, Customer Service returned to the delivery of
 6 its customer call response goals, actually exceeding those goals, in March 2023.

7 **Average Speed of Answer**



8

² *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 1*, Docket Nos. M-2018-2640802 (water) and M-2018-2640803 (wastewater), Opinion and Order entered March 26, 2020. (“*March 2020 Stage 1 Order*”). Consistent with Partial Settlement, starting on October 31, 2019 and continuing every January 30, April 30, July 30, and October 31 through 2025, PWSA files Quarterly Compliance Plan Progress reports with the Commission. The most recent report was filed on April 27 and call center metrics and customer service monthly reports are provided in Appendix E. See <https://www.puc.pa.gov/pcdocs/1783031.pdf>

1 **Call Handling Rate**



2

3 To mitigate a customer’s wait time, and as another measure to enhance the overall

4 customer experience, PWSA instituted the call back request feature as of March 1, 2023.

5 For customers reaching the queues without a voicemail option – General, Collections,

6 Billing and Stormwater – customers are now presented with the option to retain their

7 place in the queue and receive a call back from a Customer Service Representative. This

8 new, outgoing messaging was recorded in PWSA’s preferred voice talent to match to all

9 other greetings and on hold messaging in the queue. PWSA’s Contact Center hours are 8

10 AM to 6 PM, Monday through Friday. Call backs are presented at 2 minutes of wait

11 time, and every two minutes thereafter if not chosen, through 4 PM. This ensures that all

12 call back requests are processed before the close of business at 6 PM. Customer Service

13 management presented training to all staff who answer queue calls and would potentially

14 be presented with a call back request. The following is a report on the call back success

15 rate in the first six full weeks of its use, indicating that 177 of 187 call back requests were

1 successfully handled by PWSA staff. The remaining 10 call back requests could not be
 2 completed due to an inability to connect with the customer (busy signal, no answer).

Callback Queue Group Performance by Queue

1 - All Queues

3/1/2023 - 4/14/2023

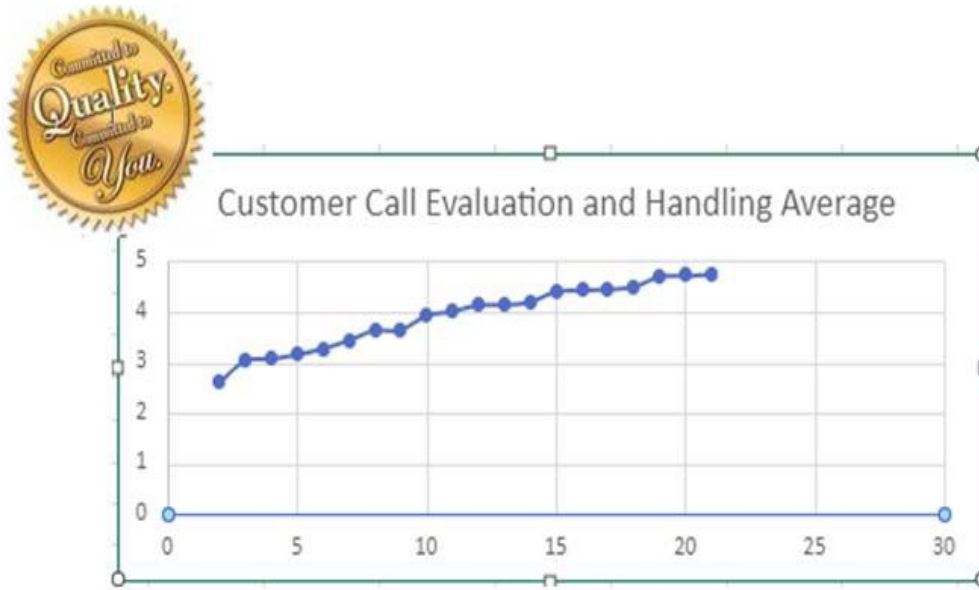
Queue ID	ACD Queue	New callbacks	Callbacks handled	Average handling time (hh:mm:ss)	Max retries exceeded	Answer %
P005	AMI	0	0	00:00:00	0	0.0%
P006	AMI 8920	0	0	00:00:00	0	0.0%
P003	BILLING AND METERING	15	15	00:01:25	0	94.1%
P002	COLLECTIONS	19	18	00:01:41	1	80.0%
P004	DISPATCH	0	0	00:00:00	0	0.0%
P001	GENERAL	149	140	00:01:49	9	86.8%
P008	PERMITS	0	0	00:00:00	0	0.0%
P009	STORMWATER	4	4	00:00:31	0	70.0%
Totals		187	177	00:01:44	10	85.8%

3. Call Quality Campaign

Q. HOW DOES PWSA MEASURE THE SUCCESS OF ITS CUSTOMER SERVICE REPRESENTATIVES AND THEIR TELEPHONE INTERACTIONS WITH CUSTOMERS?

A. Since January 2023, Customer Service management has embarked on a Call Quality Campaign. This is a departure by design from the focus in prior years on solely call handling quantity. Each month of this year, Customer Service management evaluates 2 calls per week for all Customer Service Representatives and Dispatchers. These call reviews are guided by an evaluation template in the Mitel telephony software, and they can be of live or recorded customer calls. The total calls handled for individual staff members in the Contact Center and Dispatch sections of Customer Service is then averaged with their 8 call evaluation scores at the end of each month. These averages are plotted on a graph, shared with the staff as a whole, and the top scorer receives a cash award sponsored by Customer Service management. The sharing of this award serves

1 two purposes; to ensure quality service for our customers and to offer an incentive to staff
 2 who perform one of the most stressful duties in customer service; meeting the increasing
 3 demands of the general public. Below is the most recent Call Quality Assurance Award
 4 graph for April 2023. Once the Senior Manager of Customer Service and the Senior
 5 Customer Service Coordinator return from extended leaves of absence, Customer Service
 6 management will have the resources to promote an average score of 3.5 and above for *all*
 7 Customer Service Representatives and Dispatchers.



8

9 **4. Standard Operating Procedures on SharePoint**

10 **Q. DID THE COMMISSION’S BUREAU OF AUDITS UNDERTAKE A**
 11 **COMPREHENSIVE REVIEW OF PWSA’S MANAGEMENT AND**
 12 **OPERATIONS RECENTLY?**

13 **A.** Yes. On April 29, 2021, the Commission’s Bureau of Audits undertook the first detailed
 14 review of PWSA’s management and operations since PWSA came under the jurisdiction
 15 of the Commission in 2018. The final Management and Operations Audit Report was

1 issued in March 2023 and was released on April 20, 2023, along with PWSA's 2023
2 Implementation Plan.³

3 **Q. AS PART OF THE AUDIT PROCESS, DID PWSA IDENTIFY ISSUES IT**
4 **COULD TAKE TO STRENGTHEN THE ACCURACY AND EFFICIENCY OF**
5 **ITS CUSTOMER SERVICE STAFF IN THE FACE OF TURNOVER AND**
6 **GROWTH?**

7 A. Yes. The Commission's Management and Operational Audit of PWSA enlightened
8 Customer Service management to just how few Standard Operating Procedures (SOP's)
9 were in use. In Q4 of 2022 and Q1 of 2023, managers and coordinators worked
10 diligently, amidst their existing daily duties of resolving customer inquiries and managing
11 staff, to create drafts of over 70 SOP's. Each draft was passed to me for editing. I edited
12 for consistency of construct and for the presence of complete and detailed content. Also
13 weighing in on editing of Field Operations-facing processes in the SpryMobile
14 application were Joseph Tewell, Deputy Director of Operations, and Lee Haller, Chief
15 Information and Performance Officer. I delivered the finalized versions to the Customer
16 Service Training Coordinator with instructions to create a repository of SOP's by posting
17 them to the Customer Service department page of PWSA's intranet site on SharePoint.
18 Below is a visual representation of these procedural documents. Within Q2 of 2023, staff
19 will be extensively coached to utilize these procedures, along with the revised customer-
20 facing notices and training materials developed during the Compliance Plan, Stage 2.

³ RE: Management and Operations Audit of the Pittsburgh Water & Sewer Authority, PaPUC Management and Operations Audit Issued March 2023 at Docket Nos. D-2021-3025584; D-2021-3025585; D-2022-3030308 released on April 20, 2023 along with PWSA 2023 Implementation Plan.

Customer Service Standard Operating Procedures by Section

- ▼ **AMI and Billing**

- ▲ **Contact Center**
 - Standard Operating Procedures
 - [Affidavit of Vacancy Process](#)
 - [Application for Service - Tenants Flow Chart](#)
 - [Call Back Request Feature](#)
 - [City Book Response Process](#)
 - [Claims for Damages](#)
 - [History Request Response Process](#)
 - [MiCollab SoftPhone Use](#)
 - [PWSA Lien Filing Search](#)
 - [Right to Know Request Response](#)

- ▼ **Collections**

- ▼ **Customer Service Training**

- ▼ **Dispatch**

- ▼ **Lead Help**

- ▼ **Permits**

- ▼ **PGH2O Cares**

- ▼ **PUC Compliance**

1

2

A. Collections

3

Q. WHAT IS THE STATUS OF THE COMMISSION’S COMPLIANCE PLAN, STAGE 2 WITH RESPECT TO COLLECTIONS AT PWSA?

4

5

A. In addition to the Collections Life Cycle that guides PWSA’s approach to collecting

6

delinquent charges, PWSA is working to add to its Collections toolkit. Following the

7

launch of SAP, Customer Service Collections management personnel have been working

8

for months with the billing system vendor to promote the automated features of the

9

dunning process in SAP. The automated Dunning Process in SAP is best described

10

within PWSA Exhibit JAM-2. One success that management realized was the issuance

1 of courtesy collections notices en masse, the first step in the collections process, issuing
2 22,913 since February 2023.

3 In April 2023, Senior Manager of Collections, Sharon Gottschalk and I began drafting a
4 Request for Proposals (RFP) for Debt Collection Services in order to solicit the services
5 of, potentially, more than one collection agency. Our target award timeframe is July
6 2023. Through the issuance of this RFP, PWSA will be seeking firms that are financially
7 and technically qualified to perform the scope of services as described. Also, responsive
8 firms must demonstrate that they will consistently provide the protections that are
9 afforded to customers with unpaid charges as required under 52 Pa. Code Chapter 56.
10 PWSA's goal in partnering with potentially more than one debt collector is to increase
11 PWSA's monthly collection rate by 10%. The scope includes debt collection services for
12 unpaid water, wastewater, and stormwater charges that are:

- 13 • Over \$1,000
- 14 • Past due for \geq 180 days
- 15 • Final bills past due \geq 30 days
- 16 • Active accounts where 1) a tenant payment is received, or 2) a curb stop is unable
17 to be located and/or operated
- 18 • Inactive accounts where 1) PWSA has ceased to provide service, or 2) a previous
19 customer has moved out.

20 Also in April 2023, Collections management has been retraining staff with the assistance
21 of PWSA's Public Affairs personnel on the issuance of outbound collection calls through
22 PWSA's existing vendor partner, Gannett Fleming, Inc., and their software product
23 Notify. Ms. Gottschalk and I developed a script of the 3-day notice language, and I
24 ordered it to be recorded by PWSA's preferred voice talent partner, Captive Audience.
25 When customers fail to pay in full or to make equitable payment arrangements in

1 response to courtesy and 10-day notices, PWSA Collections staff will be ready to renew
 2 their 3-day notice outbound collections calling campaign.

3 With the launch of SAP came the launch of the Customer Advantage portal. The portal
 4 has many customer self-service features; such as viewing and paying PWSA bills,
 5 viewing usage and setting usage alerts, and start/stop of services. The portal also
 6 facilitates the viewing of letters and notices issued to a customer because they are
 7 attached to a customer’s account in Document Advantage, which has been successful in
 8 its use by PWSA. Furthermore, the billing system vendor purports to allow PWSA to
 9 communicate with customers via email and SMS (text) messaging through
 10 Communication Advantage. Ms. Gottschalk, has opened a ticket with the vendor to
 11 pursue issuing collection notices via email and text message to those customers who are
 12 enrolled in eBilling or who have provided PWSA with their cellular telephone number.

13 **B. Customer Service Accomplishments and Customer Surveys**

14 **Q. DO YOU HAVE ANY METHOD OF EVALUATING THE EFFECTIVENESS OF**
 15 **THE SERVICE PROVIDED TO PWSA CUSTOMERS?**

16 **A.** Yes. Consistent with my testimony in PWSA’s three prior Rate Cases, PWSA remains
 17 committed to the goal of becoming a highly responsive and trusted public utility that is
 18 recognized for excellence and valued by the customers it serves. In support of that
 19 statement, I offer the following Customer Service accomplishments for the year of 2022:

<p>Advanced Metering Infrastructure (AMI)</p>	<ul style="list-style-type: none"> ✓ Processed 5,865 meter changes on customer accounts ✓ Achieved an actual read rate of 96.91% ✓ Encouraged 3,411 non-residential customers to install approved backflow devices ✓ Increased the number of non-residential customers reporting annual backflow test results in SpryBackflow to 11,962, an increase of 6,233 tests as compared to the prior year ✓ Realized the automatic population of service order data through the integration of SpryMobile with SAP
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Billing	<ul style="list-style-type: none"> ✓ Billed 115,283 water/wastewater/stormwater accounts monthly ✓ Garnered \$596K in ALCOSAN Reconciliation credits through a manual review of usage adjustments ✓ Laid the groundwork for quarterly ALCOSAN Reconciliation to be automated in SAP
Collections	<ul style="list-style-type: none"> ✓ Reached out to 3,329 delinquent customers via personal telephone calls to offer payment arrangements and the customer assistance programs ✓ Collected and posted \$1.6M in LIHWAP grants to customer accounts ✓ Issued 1,878 Notices of Intent to Lien and collected \$3.2M in aged debt ✓ Brought the Personal Contact at Termination contract in-house to reduce operating costs; trained Field Technicians to perform regulated procedure ✓ Continued to build and test the Dunning process in SAP
Contact Center	<ul style="list-style-type: none"> ✓ Hired and trained 14 Customer Service Representatives (CSR's) remotely ✓ Handled 163,121 customer calls in 2022, an increase of 31,104 calls as compared to the prior year ✓ Secured an average call abandonment rate of 6.7% and an average speed of answer of 2 minutes and 31 seconds ✓ Trained CSR's to navigate SAP and the Customer Advantage Portal
Emergency Dispatch	<ul style="list-style-type: none"> ✓ Hired and trained 1 Dispatcher remotely ✓ Handled 35,674 customer calls in 2022 ✓ Secured an average call abandonment rate of 3.0% and an average speed of answer of 22 seconds ✓ Responded to 1,333 interruptions of service ✓ Trained Dispatchers to enter service orders in SAP that automatically populate in SpryMobile via integration
Lead Help	<ul style="list-style-type: none"> ✓ Handled 15,176 customer calls and 8,566 emails to LeadHelp@pgh2o.com ✓ Facilitated 2,122 pre-construction meetings ✓ Secured 2,295 signed agreements from property owners, an increase of 951 agreements as compared to the prior year ✓ Processed 304 Private Lead Service Line Replacement Reimbursement applications ✓ Facilitated 938 Private Lead Service Line Replacements, an increase of 429 replacements as compared to the prior year ✓ Facilitated 1,032 Public Lead Service Line Replacements, an increase of 411 replacements as compared to the prior year ✓ Hired/promoted and trained 3 new Lead Program Customer Assistance

<p>Permits</p>	<ul style="list-style-type: none"> ✓ Responded to 7,424 dye testing certification requests in 10 days or less ✓ Collected \$3.6M in permit fees ✓ CityGrows became ClearForms with checks and credit cards accepted through the application; Development Permits were added; the application was integrated with SAP to automatically post permit fee payments
<p>PUC Compliance</p>	<ul style="list-style-type: none"> ✓ Promoted and trained a PUC Compliance Manager and a Compliance Analyst ✓ Responded to 1,252 dissatisfied customers (.01% of our customer base) via 901 Disputes, 301 Informal Complaints, and 50 Formal Complaints ✓ Identified and billed previously unbilled service charges totaling \$400K ✓ Completed a series of trainings by shadowing Field Operations staff performing their daily duties ✓ Hired/promoted and trained 2 PGH2O Cares Analysts and 1 Associate ✓ PGH2O Cares Team participated in 85 community events, 64 in-person and 21 virtual ✓ Made 6,270 outbound calls to promote our customer assistance programs, an increase of 4,201 calls from the prior year ✓ Increased Bill Discount Program enrollees to 6,059
<p>Quality Control</p>	<ul style="list-style-type: none"> ✓ Designed and created 18 additional service/work order types and 3 new task types in SpryMobile ✓ Trained 84 PWSA employees/contractors on SpryMobile navigation and proper service/work order completion ✓ Convened and conducted 3 SpryMobile Change Control Board meetings ✓ Successfully onboarded WTP assets and staff into SpryMobile, including 4 repairmen, 2 electricians, 2 plumbers and management personnel ✓ Tested SpryMobile integration with SAP, resolved data migration issues post-go-live, and continuously monitored outstanding notifications to troubleshoot vendor automation

1

2 **Q. CAN YOU PROVIDE FEEDBACK FROM CUSTOMERS ON THE SERVICES**
 3 **THAT PWSA PROVIDES?**

4 A. Yes. As shared in my testimony in PWSA’s most recent rate case, customers are asked
 5 following each telephone queue interaction with PWSA staff to take a brief, after call
 6 survey. When they accept, customers are asked to rate PWSA on the following:

Your call is now being routed to take a short survey on the quality of PWSA's service. Press 1 to continue, or press 2 to disconnect and end your call.	
1	On a scale of 1 to 5, with 5 being Extremely Satisfied and 1 being Extremely Dissatisfied, please rate your satisfaction with the Customer Service Representative who assisted you today.
2	On a scale of 1 to 5, with 5 being Extremely Satisfied and 1 being Extremely Dissatisfied, please rate your satisfaction with the resolution of your most recent inquiry to PWSA.
3	On a scale of 1 to 5, with 5 being Extremely Satisfied and 1 being Extremely Dissatisfied, please rate your overall satisfaction with PWSA's responsiveness to your questions concerning your water and/or wastewater services.
4	On a scale of 1 to 5, with 5 being Extremely Satisfied and 1 being Extremely Dissatisfied, please rate your overall satisfaction with the quality of the water and/or wastewater services provided to you by PWSA.
5	On a scale of 1 to 5, with 5 being Extremely Satisfied and 1 being Extremely Dissatisfied, please rate PWSA's overall performance as a water and wastewater utility.

1 The analysis of the after call customer survey responses in 2022 is included in PWSA
 2 Exhibit JAM-3. As the scores illustrate, PWSA’s quality and overall performance scores
 3 range from 4.25 to 4.67 out of 5.

4 **Q. HAS PWSA CONDUCTED A MORE COMPREHENSIVE SURVEY OF ITS**
 5 **CUSTOMER BASE?**

6 A. It has. PWSA Public Affairs and Customer Service personnel joined teams on a selection
 7 committee to receive proposals from, and to evaluate the offerings of, responsive firms
 8 who regularly conduct customer satisfaction surveys for utility and governmental entities.
 9 The selection committee chose Probolsky Research, a woman and Latina-owned, multi-
 10 lingual market and opinion research firm with three locations across the United States.
 11 Probolsky Research conducts market research in business, government, non-profit,
 12 election, and association practice areas. Factors in choosing Probolsky included:

- 13 • The firm and its leaders have proven experience in the government and utility
 14 spaces, both as market researchers and as former employees themselves.

- 1 • Their utility clients include The Gas Company, Southern California Edison, and
2 government utilities like the Arlington County, Virginia and East Bay Municipal
3 Utility District in California.
- 4 • Their client service philosophy allows unlimited meetings and presentation time,
5 which we appreciated given this was our first foray into conducting a customer
6 satisfaction survey.

7 **Q. CAN YOU DESCRIBE THE METHODOLOGY THAT PWSA UTILIZED TO**
8 **CONDUCT THE COMPREHENSIVE CUSTOMER SATISFACTION SURVEY?**

9 A. Yes. The purpose of the survey was to gauge overall customer satisfaction and
10 perceptions of PWSA, measure awareness of programs and services, and to understand
11 customers' preferred methods of communication. The survey was conducted from
12 August 8 through September 14, 2022, using a variety of methods to reach a
13 representative sample of PWSA customers. Probolsky employed a multi-modal approach
14 to reach customers, including outbound telephone calling via land lines and mobile
15 telephones, direct mail, text messaging, email, social media ads, and research panel
16 participant recruiting. Customers were able to respond to the survey in both English and
17 Spanish. In total, PWSA received 430 responses, which, according to Probolsky
18 Research, is a representative sample of its customers. A survey of this size yields a
19 margin of error of about +/-5% with a confidence level of 95%. PWSA received
20 responses from a broad sampling of the Pittsburgh community. The following
21 demographics stood out:

- 22 • The largest age group to respond were those between the ages of 18 - 29 (31%),
23 followed by those who were 50 - 64 (20%).
- 24 • More than one-third of the respondents reported an income of less than \$35,000
25 (35.3%).

- 1 • More than half of the respondents identified as renters.

2 **Q. WHAT WERE THE FINDINGS GLEANED FROM THIS COMPREHENSIVE**
 3 **CUSTOMER SATISFACTION SURVEY?**

4 A. The findings indicate that there is significant name recognition and awareness of PWSA
 5 and that a majority of respondents approve of the job that PWSA is doing. The following
 6 summarizes some of the key findings of the survey results:

7 **Key Findings on Customer Awareness and Approval**

- 8 • 85% have heard of PWSA (5% Unsure)
- 9 • 55% approve of the job PWSA is doing (31% Unsure)
- 10 • 58% rate the water and sewer services in their area as excellent or good (25%
 11 Fair, 6% Unsure)
- 12 • 84% agree the services PWSA provides are valuable (12% Unsure)

13 **Key Findings on Important Activities and Attributes**

- 14 • 93% say it's important to them that PWSA is transparent about drinking water
 15 quality (6% Unsure)
- 16 • 91% say it's important to them that PWSA protects public health (7% Unsure)
- 17 • 91% say it's important to them that PWSA plans for future improvements in the
 18 water system (7% Unsure)
- 19 • 90% say it's important to them that PWSA protects the environment (5.6%
 20 Unsure)
- 21 • 79% support PWSA using ratepayer dollars to invest funds to maintain, improve
 22 & modernize water infrastructure (13% Unsure)

23 **Key Findings on Customer Assistance Programs**

- 24 • 44% are not at all familiar with PWSA's Customer Assistance Programs (25.8%
 25 Somewhat familiar, 9.3% Very familiar)

- 1 • 7.4% are already enrolled
- 2 • 72% support using ratepayer dollars to enhance and expand these programs

3 **Key Findings on PWSA Employees**

- 4 • 86% agree that PWSA employees are important to public health and safety
- 5 • 60% trust that the agencies that provide water services have their family's best
- 6 interest at heart (23.5% Unsure)
- 7 • 47% trust that PWSA makes smart decisions about water and sewer services
- 8 (40.5% Unsure)

9 41% of respondents indicated that email is their preferred method of communication for
10 receiving information from PWSA and nearly 55% receive information about their
11 community from local television. KDKA is the most watched network and Facebook is
12 the most used social media platform. Additionally, water quality (51.2%) and water
13 safety (48.1%) are the two topics on which PWSA customers would like consistent
14 updates.

15 PWSA plans to conduct a customer satisfaction survey every two years to track changes
16 against these benchmark survey findings. With the strategic initiative to rebuild trust and
17 strengthen the relationship with our customers, these survey findings provide insight into
18 how we can continue to make progress on this important goal.

19 **III. MITIGATION EFFORTS REGARDING IMPACT OF PROPOSED RATE**
20 **INCREASE ON FUTURE AFFORDABILITY**

21 **Q. HAS PWSA TAKEN INTO CONSIDERATION THE IMPACT OF THE**
22 **PROPOSED RATE INCREASE ON FUTURE AFFORDABILITY?**

23 A. Yes. As noted in the testimony of Mr. Pickering, PWSA recognizes that the rate
24 increases it is seeking over the next three year period are significant but necessary to

1 address the negative impacts of rising inflation and to continue PWSA’s ability to address
2 decades of deferred infrastructure investment. Other witnesses, including Mr. Barca and
3 Mr. King describe these needs more fully. Here, I would like to be clear that PWSA has
4 also considered the impact of its proposed rate increase on future affordability and has
5 offered several proposals in an effort to mitigate these impacts as part of this rate request.
6 These mitigation measures include: (1) a request for a three year multiyear increase; (2)
7 a proposed two year transition period for the removal of the minimum allowance; (3)
8 introduction of two new charges, to include one to timely and accurately recover the
9 actual costs of our low income programs; (4) new stormwater rate mitigation measures;
10 (5) removal of the COVID-19 policy to recover the costs of third party payment
11 processing fees from all ratepayers; (6) additional enhancements for our low-income
12 customer assistance programs.
13

1 **A. Multivear Rate Request**

2 **Q. WHAT WILL BE THE BILL IMPACTS TO CUSTOMERS IF PWSA’S THREE**
 3 **YEAR RATE INCREASE IS APPROVED?**

4 A. The bill impacts to customers starting in 2024 through 2026 are displayed below.

Customer Type	Monthly Bill	2023	2024	2025	2026
Residential	5/8” Meter;	\$86.43	\$103.41	\$123.55	\$146.11
<i>Impact (%)</i>	3 Kgal;		19.6%	19.5%	18.3%
<i>Impact (\$)</i>	1 ERU		\$16.98	\$20.14	\$22.56
CAP Customer	5/8” Meter;	\$44.15	\$51.85	\$60.83	\$72.17
<i>Impact (%)</i>	3 Kgal;		17.5%	17.3%	18.7%
<i>Impact (\$)</i>	1 ERU		\$7.70	\$8.98	\$11.34
CAP - 50%FPL	5/8” Meter;	\$22.67	\$26.70	\$31.16	\$36.16
<i>Impact (%)</i>	3 Kgal;		17.7%	16.7%	16.1%
<i>Impact (\$)</i>	1 ERU		\$4.03	\$4.46	\$5.00
Commercial	1” Meter;	\$356.54	\$441.19	\$565.41	\$668.24
<i>Impact (%)</i>	13 Kgal;		23.7%	28.2%	18.2%
<i>Impact (\$)</i>	8 ERU		\$84.65	\$124.22	\$102.83
Industrial	4” Meter;	\$12,934.31	\$16,945.22	\$20,846.87	\$24,648.17
<i>Impact (%)</i>	680 Kgal;		31.0%	23.0%	18.2%
<i>Impact (\$)</i>	30 ERU		\$4,010.91	\$3,901.65	\$3,801.30
Health and Education	1” Meter;	\$1,474.16	\$1,844.81	\$2,371.36	\$2,804.42
<i>Impact (%)</i>	50 Kgal;		25.1%	28.5%	18.3%
<i>Impact (\$)</i>	32 ERU		\$370.65	\$526.55	\$433.06

5
 6 **Q. WHY DOES PWSA VIEW ITS MULTIYEAR RATE REQUEST AS A**
 7 **MITIGATION MEASURE FOR CUSTOMERS?**

8 A. A multiyear rate request provides more transparency for customers over the three-year
 9 period as to which increases will be implemented. In addition, preparing for and
 10 litigating rate cases involves a significant cost that is borne by our ratepayers as we are a
 11 cash flow municipal authority. If we are able to secure approval for our three-year rate

1 increase, we will be able to allocate the costs that would normally be allocated to the rate
 2 cases to our operations and capital projects. I would also note that the efforts of PWSA
 3 staff in preparing for and litigating rate cases are in addition to our regular operational
 4 duties. Without the added pressure of litigating a rate case for the next three years,
 5 PWSA staff can more fully concentrate our efforts on operating and improving our
 6 system for the benefit of our customers.

7 **B. Removal of the Minimum Allowance and Two New Reconcilable Charges**

8 **Q. PLEASE EXPLAIN PWSA’S CURRENT RATE STRUCTURE REGARDING**
 9 **THE MINIMUM ALLOWANCE.**

10 A. Currently, most residential customers are billed a minimum charge for up to 1,000
 11 gallons. For every full 1,000 gallons over the minimum, they are assessed a consumption
 12 charge. The use of a minimum allowance has been a feature of PWSA’s rate structure
 13 since coming under the jurisdiction of the Commission, and the Commission has
 14 continued to approve the rate structure through our most recent rate case.

15 **Q. HAS PWSA AGREED TO TRANSITION AWAY FROM THE USE OF THE**
 16 **MINIMUM ALLOWANCE?**

17 A. Yes. Since early on in our transition to Commission jurisdiction, various stakeholders
 18 have advocated that PWSA transition away from the use of the minimum allowance. In
 19 fact, this issue has been a discussion point of stakeholders since PWSA’s initial rate case⁴
 20 with a firm commitment in PWSA’s most recent rate case settlement to “provide a plan to

⁴ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2018-3002645 (water) and R-2018-3002647 (wastewater) Final Order entered February 27, 2019 (approving settlement term B.7 stating “PWSA agrees to propose the removal of the minimum usage allowances, provided that such removal does not result in an unreasonable increase for affected customers, in which case PWSA will explain the basis for that belief and its alternative proposal in the filing.”)

1 transition away from use of minimum usage allowance” with this filing.⁵ Mr. Smith
 2 explains more fully the proposal to transition away from the minimum allowance and the
 3 impacts that will flow to customers.

4 **Q. PLEASE EXPLAIN WHY PWSA IS PROPOSING TO MAKE THE TRANSITION**
 5 **IN YEAR TWO RATHER THAN UPON THE INITIAL RATE EFFECTIVE**
 6 **DATE?**

7 A. PWSA is proposing the transition in year two for two reasons. First, we are mindful of
 8 the rate impacts that will flow to customers as a result of the removal of the minimum
 9 allowance. Second, there will be developmental and operational work necessary to be
 10 able to implement the new rate structure. PWSA must prepare extensive requirements in
 11 support of the new rate structure; including but not limited to the impact to customer
 12 billing, device management, customer financials, front office (appearance to end user),
 13 daily xml file content for bill creation, bill redesign, and Customer Advantage portal
 14 impacts. These requirements will result in change requests made to PWSA’s billing
 15 system vendor *and* PWSA’s bill print and mail vendor who will each then determine a
 16 timetable for implementation based on their availability of developmental resources.
 17 Implementation for both vendors will encompass development work, quality assurance
 18 testing by the vendors, user testing by PWSA, go-live support, a rollback plan, and after-
 19 go-live hyper care. Without firm Commission approval of the proposal, it is not prudent
 20 to undertake the work and incur the associated expense that will be involved in updating
 21 our billing systems and educating customers about the rate structure change before the
 22 proposal is authorized.

⁵ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021.(adopting Settlement Section B.3.a)

1 **Q. IS PWSA PROPOSING A FURTHER WAY TO MITIGATE THE IMPACT OF**
2 **THE REMOVAL OF THE MINIMUM ALLOWANCE AND THE IMPACTS OF**
3 **ITS RATE INCREASE REQUEST IN THIS CASE?**

4 A. Yes. PWSA is seeking authority to implement two new reconcilable charges: (1) an
5 Infrastructure Improvement Charge (“IIC”); and, (2) a Customer Assistance Charge
6 (“CAC”). PWSA is also filing a Petition for approval of the CAC and both Mr. Barca
7 and Mr. Smith discuss the IIC and CAC in their testimony from a rate design perspective
8 as well as the costs to be removed from base rates and to be recovered through the two
9 charges. The purpose of my testimony is to explain the mechanics of the two charges as
10 also described in the water, wastewater and stormwater tariff supplements and to provide
11 further explanation of why these two new charges are a way to mitigate the impacts of the
12 removal of the minimum charge and the requested rate increases.

13 **Q. PLEASE EXPLAIN THE REASONS FOR PROPOSING THE IIC AND THE**
14 **CAC.**

15 A. As explained more fully by Mr. Barca and other PWSA witnesses, PWSA has significant
16 infrastructure projects which take advantage of favorable government-based funding and
17 loan programs which provide financing schedules and rates beneficial to PWSA’s
18 ratepayers compared to private market funding options. The IIC is being proposed to
19 timely recover principal and interest obligations due by PWSA for loans received from
20 the Pennsylvania Infrastructure Investment Authority (“PENNVEST”) and the federal
21 government loan program known as the Water Infrastructure Finance and Innovation Act
22 (“WIFIA”) between base rate case filings.

23 Regarding the CAC, PWSA has a dedicated team of employees focused on expanding
24 enrollment in its programs and is proposing, in this case, to expand eligibility for
25 enrollment while seeking approval for rates for three years thereby not anticipating the

1 filing of another rate case in that time period. While we have used our best judgment to
2 project the costs of these factors, it is likely that our cost projections will be different than
3 actual reality thus leading to potential under recovery of PWSA's customer assistance
4 program costs and operations. The CAC is a way to avoid such outcome and ensure that
5 ratepayers are asked to pay only the actual costs of the program. The CAC would also
6 apply to all classes of customers and adjust their bills by adding a charge or credit to
7 reflect increases or decreases, respectively, in PWSA's customer assistance program
8 costs. PWSA proposes to include the ability to adjust the CAC on a semi-annual basis
9 with a yearly reconciliation. Recovering the discounts provided to customers in PWSA's
10 Bill Discount Program, the operating costs of the PGH20 Cares Team, the costs of
11 PWSA's Hardship Grant funding, and arrearage forgiveness going forward in this manner
12 would more closely reflect the costs of these programs in appropriate time periods to be
13 recovered. Implementation of the CAC is a way to further minimize the need to file a
14 future rate case because PWSA will not be dependent on having sufficient revenue based
15 on cost projections in the prior rate case. In other words, the CAC supports PWSA's
16 proposal for a multi-year rate increase because it ensures that the actual costs of the
17 customer assistance programs are recovered without the need to file a rate case.

18 **Q. ARE YOU AWARE THAT THE COMMISSION RECENTLY REJECTED A**
19 **PROPOSAL BY AQUA PENNSYLVANIA, INC.?**

20 A. Yes, I have been advised by counsel about the Commission's decision in May 2022 to
21 reject the proposal of Aqua Pennsylvania to implement a universal service rider similar to
22 the riders in tariffs of its affiliated gas companies.⁶

⁶ *Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc.*, Final Order entered May 16, 2022 at Docket Nos. R-2021-3027385 and R-2021-3027286 at 302-320.

1 **Q. PLEASE EXPLAIN WHY PWSA HAS ELECTED TO PROPOSE THE CAC**
2 **NOTWITHSTANDING THIS DECISION?**

3 A. While support for our CAC request is further addressed in the petition we are filing
4 seeking its approval, I would like to note here that PWSA has a very robust customer
5 assistance program that has been supported and approved by the Commission since we
6 came under its jurisdiction in 2018. In fact, throughout that entire period, the customer
7 assistance programs have significantly evolved and grown largely as a result of the
8 various case settlements approved by the Commission. As such, we have significant
9 experience with our customer assistance programs and in order to continue to be able to
10 effectively grow the programs, it is important to ensure that the actual costs of the
11 program will be timely recovered. I would also note that our proposed CAC would apply
12 to all customer classes which is consistent with the way we currently recover these costs
13 in base rates. In addition, as more fully addressed in our petition, PWSA is a municipal
14 authority and, therefore, is reliant on ratepayer revenue to recover its costs. Thus, if the
15 projections of costs for the low income programs in base rates do not bear out, then
16 PWSA must allocate dollars from other projects to recover the shortfall. This is not a
17 sustainable path going forward and, at some point, may stymie the ability of PWSA to
18 continue to grow its low income customer assistance programs due to a concern over the
19 ability to fully recover the costs. Finally, as more fully developed in our petition, I am
20 informed by counsel that the legislature recognized the unique nature of PWSA and
21 specifically authorized the Commission to “suspend or waive the applicability of any

1 provision of this title to the authority.”⁷ For all these reasons, the implementation of the
 2 CAC for PWSA appears to be fully supportable and reasonable.

3 **Q. HOW ARE THE CAC AND IIC BENEFICIAL FROM A CUSTOMER’S**
 4 **PERSPECTIVE?**

5 A. From a customer perspective, these two new charges provide greater transparency of the
 6 costs they are recovering and, perhaps most importantly, their reconcilable nature means
 7 that customers will only pay the actual incurred costs. Importantly, whether these costs
 8 are recovered through a reconcilable charge or as part of base rates, PWSA is entitled to
 9 recover their costs. The advantage of a reconcilable charge is that PWSA does not need
 10 to rely on projections that are approved in a rate case that may or may not be accurate.
 11 Moreover, by recovering these costs through a reconcilable charge, PWSA ratepayers are
 12 not expected to incur the costs of rate case litigation to set the charges. Ultimately, the
 13 charges are a way to save ratepayers the costs of rate case litigation while ensuring that
 14 they pay no more or no less than the actual costs intended to be recovered by the charges.
 15 PWSA views this as a significant customer benefit from implementing its two new
 16 proposed charges.

17 **Q. DO YOU SEE AN ADDED BENEFIT OF THE CUSTOMER ASSISTANCE**
 18 **CHARGE?**

19 A. Yes. As I will discuss further below, PWSA is implementing a Line Repair and
 20 Conservation (“LRC”) pilot program but is not now in a position to decide the future of
 21 the program for timing reasons. By implementing the Customer Assistance Charge,
 22 PWSA will assure that ratepayer funding is available when PWSA is in a position to
 23 determine the future of the program. I would note that cost recovery for the LRC pilot

⁷ 66 Pa. C.S. § 3202(b).

1 program was a significant issue in getting initial approval and was only resolved by
 2 PWSA's agreement to not seek future base rate recovery for the costs of the LRC pilot
 3 program.⁸ Without the ability to seek future base rate recovery, and with no specific
 4 reconcilable charge available to recover the costs of the LRC pilot program, PWSA
 5 agreed to utilize ratepayer funding for other programs or projects to fund the Pilot. The
 6 implementation of a Customer Assistance Charge would avoid this situation in the future.
 7 While parties would certainly be free to question the proposed costs in any future filing,
 8 the availability of the charge to recover the costs would not be in dispute nor would
 9 PWSA be required to await a future rate case filing to seek cost recovery (if the parties
 10 would even agree to such a settlement term.) In this way, I view the implementation of a
 11 reconcilable Customer Assistance Charge as a positive incentive for PWSA to consider
 12 and propose future programs to benefit low income customers.

13 **Q. HOW DOES PWSA PLAN TO INFORM CUSTOMERS ABOUT THE AMOUNTS**
 14 **TO BE RECOVERED THROUGH THE NEW CHARGES?**

15 A. Because these are costs that customers pay whether they are included in our approved
 16 base rates or as part of the reconcilable charges we are proposing, PWSA is not proposing
 17 to separately identify the rates on customer bills. The costs to be included in the charges
 18 will be calculated consistent with the newly proposed tariff pages and added to the base
 19 rate charges for display on the customer's bill. While we understand that separately
 20 displaying each of these charges on the customer's bill may have some value for
 21 transparency, we are of the view that including the charges as part of the calculation of

⁸ *Petition of The Pittsburgh Water and Sewer Authority for Pilot Private Service Line Leak Repair and Expanded Conservation Program for Eligible Low Income Customers and Authorization to Track Costs As a Regulatory Asset for Future Base Rate Recovery*, Docket No. P-2022-3030253, Final Order adopting Recommended Decision entered March 2, 2023. (Approving Line Repair Settlement at 9, B.2.)

1 the “all-in” rate displayed on the bill is more consistent with the goal of satisfying the
 2 plain language standards that PWSA sought to achieve through the recent bill redesign
 3 effort.

4 **C. Stormwater Rate Mitigation Measures**

5 **Q. ARE THERE PROPOSALS INCLUDED WITH THIS RATE FILING**
 6 **SPECIFICALLY INTENDED TO MITIGATE THE IMPACTS OF INCREASED**
 7 **STORMWATER RATES?**

8 A. Yes. As described by Mr. Readling, we are proposing to update the credit program to
 9 permit qualifying lightly developed non-residential properties access to the 45% and 60%
 10 credits through passive management of stormwater through the property’s green space.
 11 We are also proposing to offer a one-time \$40 credit for installed rain barrels. In
 12 addition, while we are proposing to increase the current stormwater rates, we are still
 13 proposing a gradualism approach whereby some of the costs of the stormwater utility
 14 continue to be recovered through our wastewater conveyance rates. These proposals are
 15 reflected in Supplement No. 3 to the Storm Water Tariff which I am sponsoring.

16 **Q. HAVE YOU CONSIDERED THE RATE IMPACTS OF THE PROPOSED**
 17 **GRADUALISM ADJUSTMENT?**

18 A. Yes, consistent with our commitment in the last rate case settlement,⁹ we considered the
 19 rate impacts of not including a gradualism adjustment which would have resulted in
 20 stormwater rates increasing by 72% in the first year ultimately resulting in rate close to
 21 \$18 per ERU by the third year. In PWSA’s judgment this result was not reasonable at
 22 this time and would result in rates the highest by far of our local peers and among the
 23 highest of our regional peers. Also, stormwater only customers and low consumption /

⁹ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021.(adopting Settlement Section III.9.B at 10).

1 large impervious area customers would be unreasonably impacted by the complete
 2 removal of gradualism.

3 **D. Elimination Of Convenience Fee Pass Throughs To All Customers**

4 **Q. IS PWSA PROPOSING TO NO LONGER RECOVER THE COSTS OF THIRD-**
 5 **PARTY FEES FROM ALL RATEPAYERS?**

6 A. Yes. As explained more fully by Mr. Barca, PWSA proposes to require customers
 7 electing a bill payment option that includes a convenience fee to directly pay the costs of
 8 any assessed third-party fees.

9 **Q. WHEN DID PWSA FIRST BEGIN TO RECOVER THE COSTS OF THIRD**
 10 **PARTY FEES FROM ALL RATEPAYERS?**

11 A. PWSA agreed to eliminate merchant fees for residential customers to make Interactive
 12 Voice Response and on-line payments as part of its 2020 rate case settlement.¹⁰ At that
 13 time, PWSA concluded that the agreement was reasonable in light of the global COVID-
 14 19 pandemic. Prior to then, third party fees had always been paid by the customer
 15 electing a payment option in which they were assessed by merchant services and
 16 collected by the vendor.

17 **Q. WHY DO YOU VIEW A RETURN TO THE CUSTOMER FULLY PAYING ANY**
 18 **THIRD PARTY FEE ASSESSED AS A RATE MITIGATION EFFORT?**

19 A. As a cash flow municipal authority, PWSA’s agreement to change historical practices
 20 resulted in other ratepayers paying the cost. The cost impact of this is discussed more
 21 fully by Mr. Barca. By returning the payment responsibility solely to the customer
 22 electing the option, PWSA is mitigating the cost impact of this decision for other
 23 ratepayers. Given the relaxing of the COVID-19 pandemic and the overall rate request

¹⁰ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2020-3017951 (water) and R-2020-3017970 (wastewater) Final Order entered December 3, 2020 (approving Settlement Section III.G.2.).

1 here, as well as the build out of options available to our customers to make payments to
 2 us, the return to a requirement that customers incurring a third party fee fully pay that fee
 3 is a reasonable approach.

4 **E. Additional Enhancements To Low Income Customer Assistance Programs**

5 **Q. PLEASE DESCRIBE THE CURRENT PWSA LOW INCOME CUSTOMER**
 6 **ASSISTANCE PROGRAMS THAT ARE AVAILABLE.**

7 A. PWSA offers the following programs to provide financial assistance to qualifying low-
 8 income residential customers; (1) the Bill Discount Program, (2) the Hardship Grant
 9 Program, (3) Winter Moratorium, and (4) the Lead Service Line Replacement
 10 Reimbursement Program. Please see PWSA Exhibit JAM-4 for the flyer of current
 11 program offerings in both English and Spanish.

Bill Discount Program - assists customers with an annual income of $\leq 150\%$ of the Federal Poverty Level (FPL). This program applies to tenants when the tenant is the customer/account holder.

- Provides eligible customers with a 100% discount on the fixed monthly water and wastewater conveyance charges. This is a savings of approximately \$33.84 per month.
- Supplies an additional 50% discount on the volumetric charges, which are usage charges over the monthly minimum charges, for customers earning an annual income that is at or below 50% of the FPL.
- Delivers an 85% reduction on stormwater charges.
- Presents an Arrearage Forgiveness Program monthly \$30 credit to reduce past due balances. Customers must be enrolled in the Bill Discount Program, on an active payment plan, and make on-time payments to receive this benefit.
- All verified low-income customers will automatically be enrolled in the Winter Shut Off Moratorium.
- Enrollment is applicable for 2 years without recertification. Currently, 6,290 customers are enrolled in the Bill Discount Program.

Hardship Grant Program - promotes grants up to \$300 per year to be allocated to customers $\leq 150\%$ of the Federal Poverty Level.

- 342 grants were awarded to qualifying customers in 2022.

- Grants are now available to PWSA’s sewage-only customers to apply to past due wastewater charges.
- No sincere effort of payment is required to receive a grant.

Winter Moratorium - provides customers with an annual income of $\leq 300\%$ of FPL with protection from termination due to unpaid water/wastewater charges for the moratorium period of December 1st through March 31st.

- Customers are expected to pay their monthly current charges. Payment counseling and payment arrangements are offered by PWSA Customer Service.

Lead Service Line Replacement Reimbursement Program - assists eligible customers with the cost of replacing a private-side lead service line if a customer proactively hires a plumber to perform the replacement. This income-based reimbursement program is available to eligible customers who replaced their private-side lead service line on or after January 1, 2019. PWSA will verify your income to determine which level of reimbursement to apply.

- Current reimbursement levels:

People in Household	100% reimbursement of eligible costs	75% reimbursement of eligible costs		50% reimbursement of eligible costs		\$1,000 stipend
	Income Less than	Income Between		Income Between		Income Above
1	\$43,740	\$43,741	\$58,320	\$58,321	\$72,900	\$72,900
2	\$59,160	\$59,161	\$78,880	\$78,881	\$98,600	\$98,600
3	\$74,580	\$74,581	\$99,400	\$99,401	\$124,300	\$124,300
4	\$90,000	\$90,001	\$120,000	\$120,001	\$150,000	\$150,000
5	\$105,420	\$105,421	\$140,560	\$140,561	\$175,700	\$175,700
6	\$120,840	\$120,841	\$161,120	\$161,121	\$201,400	\$201,400
7	\$136,260	\$136,261	\$181,680	\$181,681	\$227,100	\$227,100
8	\$151,680	\$151,681	\$202,240	\$202,241	\$252,800	\$252,800
For each additional HH member add:	\$15,420	\$20,560		\$25,700		\$30,840

1

2 **Q. PLEASE DESCRIBE PWSA’S LOW INCOME ASSISTANCE ADVISORY**

3 **COMMITTEE (“LIAAC”).**

4 A. PWSA continues to gain more experience with these programs through its own

5 interactions with customers and through the feedback received as part of the Low Income

6 Assistance Advisory Committee (“LIAAC”). PWSA formed the LIAAC committee in

7 March 2019. Since that time, PWSA has facilitated eighteen meetings of the LIAAC. In

8 these meetings, PWSA shares PGH2O progress, program enrollment data, and

9 information about its low income customer program enhancements and facilitates

1 discussion to receive feedback and other ideas from committee members. These
2 meetings continue to be very valuable, and I am proud of what we have been able to
3 achieve collaboratively.

4 **Q. HOW DID PWSA EXPAND UPON ITS OUTREACH EFFORTS IN 2022?**

5 A. The PGH2O Cares team reached its target of 6,000 enrollees, an increase of 20% of the
6 low-income customers enrolled in its programs in 2021. Accomplishing this goal was in
7 part due to the expansion of the team. In the spring of 2022, PGH2O Cares management
8 successfully promoted one Customer Service Representative to the role of PGH2O Cares
9 Analyst, hired an external candidate for the role of PGH2O Cares Analyst, and hired one
10 PGH2O Cares Associate. For the majority of 2022, five employees comprised the
11 PGH2O Cares team. With the ability to reach greater numbers of needy customers, the
12 team made 4,201 *more* cold calls than in 2021 to educate and enroll eligible customers in
13 PWSA's assistance programs. PGH2O Cares was also present in 21 virtual group
14 meetings and appeared at 64 in-person community events, setting up their table of
15 materials and giveaways to interact with PWSA customers on a variety of topics. In early
16 2023, PGH2O Cares Coordinator, Sarah Viszneki and I held several virtual meetings and
17 telephone conversations with administrators of the Jewish Family and Community
18 Services (JFCS) of Pittsburgh. These planning sessions led to a schedule of office hours
19 where PGH2O Cares personnel are stationed at JFCS' Hazelwood and Squirrel Hill food
20 pantry sites to enroll confirmed low-income customers by appointment and walk-in's.
21 Small office space is allocated to Cares members at these locations so that they can make
22 outbound calls and perform data entry duties when there is no active customer interaction
23 at the food pantries.

1 **Q. IS PWSA PROPOSING FURTHER ENHANCEMENTS TO ITS EXISTING LOW**
2 **INCOME CUSTOMER ASSISTANCE PROGRAMS IN THIS PROCEEDING?**

3 A. Yes. We are proposing a number of enhancements as part of our rate increase request in
4 this proceeding.

5 ***1. Proposed Bill Discount Program Enhancements***

6 **Q. PLEASE DESCRIBE THE ENHANCEMENTS PWSA IS PROPOSING FOR ITS**
7 **BILL DISCOUNT PROGRAM.**

8 A. To promote an ever-increasing customer base enrolled in its programs, PWSA is
9 proposing to reach more potentially eligible customers by expanding the eligibility from
10 150% FPL to 200% FPL. Additionally, and to mitigate the impact of two new
11 reconcilable charges on its most vulnerable customers, PWSA proposes to offer a 50%
12 reduction to the IIC and a 100% reduction to the CAC.

13 **Q. ARE ADDITIONAL PROGRAM CHANGES PROPOSED TO COINCIDE WITH**
14 **PWSA'S CHANGES TO ITS RATE STRUCTURE?**

15 A. Yes; as I describe more fully below, and in consideration of the removal of the minimum
16 allowance, PWSA is proposing a fixed bill discount for qualifying low income customers
17 to offset the cost of the change in rate structure and to coincide with the implementation
18 of a new rate structure in 2025.

19 ***2. Proposed Hardship Grant Programs***

20 **Q. PLEASE DESCRIBE THE ENHANCEMENTS PWSA IS PROPOSING FOR ITS**
21 **HARDSHIP GRANT PROGRAM.**

22 A. To increase the impact of its Hardship Grant program, PWSA proposes to allocate
23 two, separate \$300 annual grants; one to be distributed to eligible water customers
24 and one to be distributed to eligible wastewater customers. PWSA also proposes to
25 fund these two hardship grants through rates.

1 **3. Future Enhancement to Low Income Programs Upon Removal of Minimum**
 2 **Allowance**

3 **Q. WHEN PWSA REMOVES THE MINIMUM ALLOWANCE FROM ITS RATE**
 4 **STRUCTURE, HOW IS PWSA PROPOSING TO ADDRESS THE IMPACTS TO**
 5 **QUALIFYING LOW INCOME CUSTOMERS?**

6 A. PWSA proposes that beginning in 2025, qualifying customers will receive a bill credit up
 7 to the following amounts:

	2025	2026
CAP Customers above 50% - 200% of FPL	\$17.00 per bill for water charges	\$20.00 per bill for water charges
	\$5.00 per bill for wastewater conveyance charges	\$6.00 per bill for wastewater conveyance charges
CAP Customers at or below 50% of FPL	\$10.00 per bill for water charges	\$12.00 per bill for water charges
	\$3.00 per bill for wastewater conveyance charges	\$4.00 per bill for wastewater conveyance charges

8 **Q. HOW DOES THIS PROPOSAL ASSIST ELIGIBLE CUSTOMERS?**

9 A. The bill credit will allow eligible customers to receive additional discounts to offset the
 10 transition to the new rate structure, which currently results in no payment from customers
 11 for their first 1,000 gallons of consumption per month.

12

1 **IV. PRIOR COMMISSION APPROVED SETTLEMENT COMMITMENTS**

2 **A. Last Rate Case**

3 ***1. Actioned Findings of the Complaint Root Cause Analysis***

4 **Q. PLEASE EXPLAIN HOW PWSA HAS SATISFIED ITS COMMITMENT IN ITS**
 5 **LAST RATE CASE TO “UNDERTAKE A ROOT CAUSE ANALYSIS OF**
 6 **INFORMAL AND FORMAL COMPLAINTS AND IDENTIFY AND ADOPT**
 7 **REFORMS TO REDUCE FORMAL COMPLAINTS, VERIFIED COMPLAINTS**
 8 **AND JUSTIFIED COMPLAINTS?”¹¹**

9 A. PWSA commissioned Raftelis Financial Consultants, Inc. (“Raftelis”) to perform the root
 10 cause analysis of Informal and Formal Complaints to the Commission by PWSA
 11 customers. Raftelis personnel reviewed the data recorded by the PWSA PUC
 12 Compliance team and interviewed various PWSA personnel from multiple departments.
 13 On February 25, 2022, Raftelis presented their preliminary findings to PWSA’s then
 14 Senior PUC Compliance Manager and its Director of Customer Service, who offered
 15 clarification and direction for the remainder of the investigatory period. Raftelis
 16 presented their final report in Q2 2022. PWSA has actioned many of the listed
 17 recommendations in this analysis. I will revisit each recommendation in the following
 18 narrative so as to describe the work that Customer Service has completed thus far in our
 19 initiative to reduce customer complaint volumes.

- 20 • **Recommendation 1: Provide detailed training to Customer Service**
 21 **Representatives on how to address common customer concerns and**
 22 **effectively resolve conflicts.**

23 Customer Service management initiated detailed training of Contact Center staff on how
 24 to address common customer concerns in part, and we completed the conflict resolution
 25 training with staff.

¹¹ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021 adopting Recommended Decision dated October 6, 2021 at p. 27 Section 9, E,8,c.

1 Brittany Schacht, Deputy Director of Customer Service, developed detailed call scripts
2 and call checklists for use by Customer Service Representatives when assisting customers
3 with higher than usual bills due to high consumption. I then reviewed these materials and
4 provided my edits. The five call checklists address; 1) if there has been no change in the
5 customer's historical water consumption, 2) if daily high consumption is still occurring,
6 3) if daily high consumption is no longer occurring, and 4) if the customer requests a
7 meter test. Rhonda Lea, Customer Service Training Coordinator, began to work with the
8 Contact Center and Team Lead Line staff in April 2023 to walk through the checklists
9 and call scripts so that those individuals could put these training materials to use in their
10 interactions with customers. Future scripts and checklists are planned to address other
11 common customer concerns.

12 I worked with PWSA Human Resources to craft de-escalation training for both the Field
13 Technicians performing personal contact at the time of termination and for the Contact
14 Center and Team Lead Line staff. Both training courses were assigned to staff through
15 PWSA's learning management system. The Contact Center and Team Lead Line
16 personnel completed their de-escalation training and accompanying quizzes within the
17 period of February 28, 2023 to March 30, 2023.

- 18 • **Recommendation 2: Provide specific training to Customer Service**
19 **Representatives on how to respond when customers request a meter test.**

20 Deputy Director of Customer Service, Brittany Schacht provisioned on-site training of
21 Customer Service Representatives (CSR's) at PWSA's Central Warehouse from March
22 21 – 24, 2023. The CSR's had the opportunity to view PWSA's multi-meter testing
23 bench and to hear Field Operations personnel explain meter mechanics and describe how
24 meter tests are performed and recorded. The CSR's were also able to either view a meter

1 test being performed live or view a recording of a live meter test. As an additional
2 training tool for both customers and Customer Service staff, Public Affairs created
3 website content specific to PWSA water meters: [Understanding Your Water Meter |](#)
4 [Pittsburgh Water & Sewer Authority \(pgh2o.com\)](#).

5 In July 2022, PWSA's PUC Compliance section of Customer Service initiated the
6 tracking of meter test failure rates. When a year of data has been collected, Customer
7 Service management will share the results with staff as an additional talking point to
8 attempt to dissuade customers from scheduling a meter pull and test appointment instead
9 of checking their property for leaks.

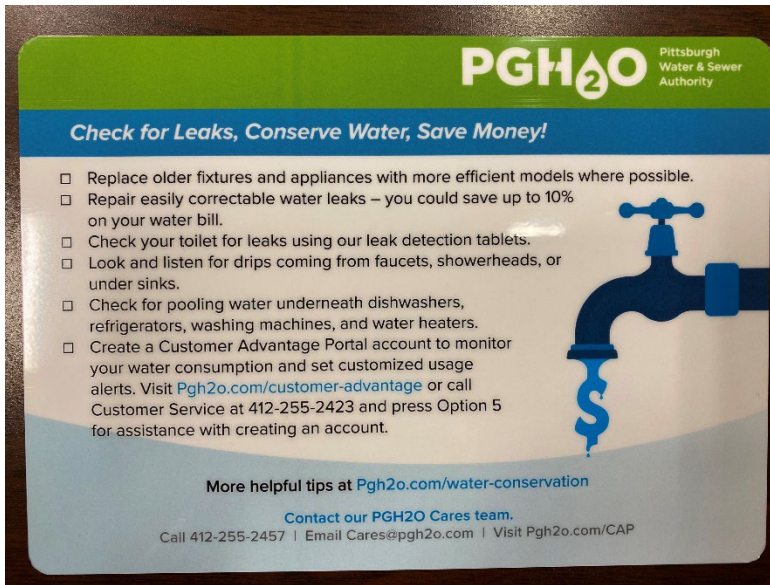
10 In compliance with PWSA's commitments in the Commission approved settlement of its
11 Stage 1 Compliance Plan, pertaining to water meters,¹² PWSA continues to work the
12 non-access process to upgrade aged and non-registering water meters with new meters
13 that read down to the tenth of a gallon. This granularity of meter readings promotes
14 improved leak detection and conservation. From January 2019 to December 2022,
15 PWSA successfully upgraded 28,677 meters.

- 16 • **Recommendation 3: Consider dispatching Plumbers to examine a property**
17 **for potential leaks before doing a meter test.**

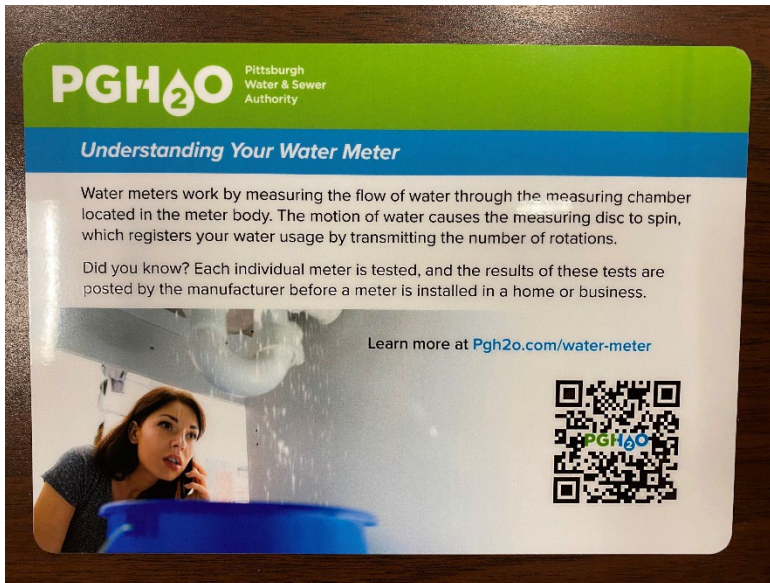
18 In August 2022, Quality Control Manager, Kenneth Thurston conducted water meter
19 installation and leak detection training of PWSA Plumbers at their Howard Street yard.
20 Customer Service and Field Operations management then joined together to develop a
21 leak detection tips card, both sides of which are pictured below. Once printed, laminated,

¹² *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 1*, Docket Nos. M-2018-2640802 (water) and M-2018-2640803 (wastewater), Opinion and Order entered March 26, 2020. See [Joint Petition for Partial Settlement](#), filed September 13, 2019 at 23-25 for specific settlement terms.

1 and delivered to the Howard Street yard, PWSA Plumbers began providing this tip card
2 and leak detection tablets to customers in January 2023.



3



4

5 To further reduce customer complaints to the PA PUC regarding high consumption,
6 Customer Service management coached Contact Center and Dispatch employees to
7 schedule service orders to educate customers on leak detection when they cannot
8 determine what is causing their high consumption, beginning in February 2023. Here are
9 the steps that they shared:

- 1 • Customer calls in response to a high bill due to increased consumption.
- 2 • Ask the customer to check the property for leaks, including performing a dye test
- 3 on their commode(s).
- 4 • The customer checks for leaks and does not find any, they refuse to check for
- 5 leaks on their own, or they refuse to call a private plumber.
- 6 • Schedule an MD RES or MD COM service order with the description "Please
- 7 educate customer on leak detection tips."
- 8 • A PWSA Plumber will visit the property, check for an indication of a leak at the
- 9 water meter, give the customer leak detection tablets, and leave a leak detection
- 10 tips card with the customer.

11 Since receiving training on this new process, PWSA plumbers have provided 72 leak
 12 detection tip cards and 133 leak detection tablets to customers experiencing higher than
 13 usual consumption in their properties. Please see PWSA Exhibit JAM-9 for additional
 14 tracking details garnered from the SpryMobile Work Order and Asset Management
 15 application.

- 16 • **Recommendation 4: Call customers with results of meter test.**

17 PWSA’s PUC Compliance section of Customer Service instituted the practice of calling
 18 customers to explain their meter test results in detail as of August 1, 2022. The PUC
 19 Compliance Analysts are the primary deliverers of this helpful information.

- 20 • **Recommendation 5: Train Customer Service and Field Operations staff on**
- 21 **other teams’ responsibilities.**

22 In response to Recommendation #2, the Customer Service Representatives observed
 23 Field Operations personnel in action at the Central Warehouse. Additionally, ride-along

1 opportunities are currently being scheduled for Dispatchers to observe water and sewer
2 asset work in the field during the 2023 construction season.

3 • **Recommendation 6: Increase pre-billing consumption screening with AMI**
4 **tools.**

5 As stated earlier in my testimony, the launch of SAP on August 8, 2022 included the
6 Customer Advantage portal. One success of the portal was the merging of the disparate
7 online billing and online usage tools that PWSA historically provided to customers.
8 Under one username and password, all customers can now view and pay their monthly
9 PWSA bills, PWSA water customers can see their daily usage and set usage alerts, and
10 all customers may start and stop service. The usage alerts currently available in the
11 Customer Advantage portal are the High Use and Unplanned Use Notifications. Still
12 being tested prior to enabling are leak alerts, including notifications of burst pipes and
13 continuous use. All alerts are currently issued via email, and a ticket is open with the
14 billing system vendor to utilize SMS, or text, messaging for usage alerts in the future.
15 Additionally, in July 2022, Advanced Metering and Infrastructure (AMI) and Billing
16 personnel in the Customer Service department created a Continuous Consumption Report
17 Standard Operating Procedure to document the process of identifying unexpected usage
18 and communicating same to customers so that they could engage in leak detection to
19 mitigate potential high consumption bills. This procedure can be found at PWSA Exhibit
20 JAM-6.

21

1 • **Recommendation 9: Enhance data tracking related to customer Disputes**
 2 **and Complaints.**

3 Effective August 1, 2022, PWSA’s PUC Compliance management personnel enhanced
 4 the data tracking of customer disputes and complaints in the following manner:

- 5 a. Expanded dispute categories;
- 6 b. Added billing system clarification case numbers to track disputes through to
 7 possible informal and/or formal complaints to the Commission;
- 8 c. Standardized meter test results; and
- 9 d. Updated Compliance tracking to include billing errors.

10 Still to be addressed under this recommendation are first call resolution and escalated call
 11 rates by CSR’s. Customer Service management is working with PWSA’s telephony
 12 system vendor to develop reporting mechanisms to track these rates.

13 Lastly, Customer Service management will continue to pursue changes in processes and
 14 to design and perform staff training related to the two remaining customer complaint root
 15 cause analysis recommendations.

16 ***2. Arrearage Forgiveness Program***

17 **Q. PLEASE DESCRIBE PWSA’S CURRENT ARREARAGE FORGIVENESS**
 18 **PROGRAM (“AFP”) AND THE COMMITMENTS REGARDING THE AFP**
 19 **AGREED TO BY PWSA AS PART OF ITS LAST RATE CASE SETTLEMENT.**

20 A. Eligible participants in our Bill Discount Program on an active payment plan receive a
 21 \$30 credit for each on-time payment (“AFP credit”). If eligible customers are not past
 22 due on their payment arrangement, PWSA automatically provides a \$30 AFP credit to
 23 their bill. PWSA first implemented the AFP effective January 14, 2021 consistent with

1 the Commission approved settlement of PWSA’s second base rate case.¹³ As part of the
 2 settlement of PWSA’s most recent base rate case, PWSA committed to the long-term
 3 continuation of the program, expanded the credit amount to the current \$30, agreed to
 4 work with its vendor as part of the implementation of its new customer information and
 5 billing system (“SAP”) to put into place the functional ability to accommodate a different
 6 structure for the AFP, and to undertake a cost-benefit analysis regarding the new
 7 structure.¹⁴

8 **Q. IS PWSA PROPOSING ANY CHANGES IN THIS FILING TO ITS EXISTING**
 9 **AFP?**

10 A. No. As explained more fully in the testimony of Mr. Barca, PWSA undertook a cost-
 11 benefit analysis of revising its structure consistent with the functionality requested as part
 12 of the last rate case settlement which would involve other PWSA ratepayers paying the
 13 full arrearage of a Bill Discount Program participant over a period of three years. This
 14 structure results in a higher cost to other ratepayers because it does not have a fixed cost
 15 component and requires other ratepayers to cover the full cost of the arrearage over three
 16 years without regard for the cost. As Mr. Barca explains, PWSA does not judge the
 17 potential costs of such a restructuring as in the best interests of all its ratepayers and is
 18 not recommending any changes to the current AFP.

19 **Q. NOTWITHSTANDING THAT PWSA IS NOT RECOMMENDING ANY**
 20 **CHANGES TO THE CURRENT AFP STRUCTURE, COULD THE CURRENT**

¹³ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2020-3017951 (water) and R-2020-3017970 (wastewater) Final Order entered December 3, 2020. See Joint Petition for Settlement dated September 20, 2020 at 11.

¹⁴ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021. See Joint Petition for Settlement dated September 7, 2021 at 20-21.

1 **SYSTEM ACCOMMODATE REVISIONS IN THE FUTURE CONSISTENT**
 2 **WITH THE LAST RATE CASE SETTLEMENT?**

3 A. Yes. I do want to be clear that while PWSA does not believe the costs of implementing a
 4 change to the AFP as suggested by the last rate case settlement are reasonable, we did
 5 ensure that the functionality was included in our current system to be able to
 6 accommodate the revised structure contemplated by the settlement if PWSA elects to
 7 implement it in the future.

8 **3. *Future Changes to Low Income Customer Assistance Programs Resulting***
 9 ***from Proposed Rate Structure Changes***

10 **Q. WHAT COMMITMENTS DID PWSA MAKE IN THE LAST RATE CASE**
 11 **SETTLEMENT REGARDING THE TRANSITION AWAY FROM THE**
 12 **CURRENT MINIMUM ALLOWANCE STRUCTURE AND LOW INCOME**
 13 **CUSTOMERS?**

14 A. As I testified previously, the desire of stakeholders for PWSA to transition away from its
 15 current minimum allowance structure has been a feature of nearly all our previous cases
 16 with PWSA making the commitment in the last rate case to “provide a plan” as part of
 17 this rate case.¹⁵ PWSA also agreed to consider and propose changes to its low income
 18 customer assistance program as part of its proposed plan to transition away from the
 19 minimum allowance. More specifically, the settlement sought to ensure that participants
 20 in PWSA’s Bill Discount Program would retain, at minimum, the same level of benefits
 21 currently offered notwithstanding the rate structure change. In support of its proposal,
 22 PWSA committed to provide:

- 23 • A comparison of the level of benefits pursuant to the current program structure
- 24 with the level of benefits anticipated under the new proposed structure

¹⁵ *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021.(adopting Settlement Section III.B.9 3 at 8).

- A comparison of the resulting water and wastewater cost in relation to income under the current and new proposed structure for a 2-person and 4-person household at 50% of the FPL, 100% of the FPL and 150% of the FPL

Q. HAS PWSA PERFORMED THIS ANALYSIS?

A. Yes. The table below shows the breakdown of the current program structure with no program changes for FY 25 and FY 26 (top chart) and the benefits with PWSA’s proposed program changes for FY 25 and 26 (bottom chart).

	FY 2023 FTY	FY 2024 FPFTY	FY 2025 Proposed	FY 2026 Proposed
<i>Benefits on Monthly Water, Wastewater, and Stormwater Bill</i>				
<u>Water BDP Reductions</u>				
Water Base Charge Discount	\$ 26.52	\$ 32.43	\$ 16.82	\$ 20.13
Reduction of DSIC*	\$ 1.33	\$ 2.43	\$ 1.26	\$ 1.51
	<u>\$ 27.85</u>	<u>\$ 34.86</u>	<u>\$ 18.08</u>	<u>\$ 21.64</u>
<u>Wastewater BDP Reductions</u>				
Wastewater Base Charge Discount	\$ 7.32	\$ 7.42	\$ 3.98	\$ 4.63
Reduction of DSIC*	\$ 0.37	\$ 0.56	\$ 0.30	\$ 0.35
	<u>\$ 7.69</u>	<u>\$ 7.98</u>	<u>\$ 4.28</u>	<u>\$ 4.98</u>
<u>Stormwater BDP Reductions</u>				
Stormwater Discount	\$ 6.76	\$ 8.72	\$ 10.32	\$ 12.07
	<u>\$ 6.76</u>	<u>\$ 8.72</u>	<u>\$ 10.32</u>	<u>\$ 12.07</u>
Current Program: Total BDP Reductions	\$ 42.29	\$ 51.56	\$ 32.68	\$ 38.69
<i>Benefits on Monthly Water, Wastewater, and Stormwater Bill</i>				
<u>Water BDP Reductions</u>				
Water Base Charge Discount	\$ 26.52	\$ 32.43	\$ 16.82	\$ 20.13
Water BDP Bill Credit	\$ -	\$ -	\$ 17.00	\$ 20.00
Discount on IIC	\$ -	\$ -	\$ 3.14	\$ 3.59
Discount on CAC	\$ -	\$ -	\$ 1.41	\$ 1.65
Reduction of DSIC*	\$ 1.33	\$ 2.43	\$ 2.88	\$ 3.40
	<u>\$ 27.85</u>	<u>\$ 34.86</u>	<u>\$ 41.24</u>	<u>\$ 48.77</u>
<u>Wastewater BDP Reductions</u>				
Wastewater Base Charge Discount	\$ 7.32	\$ 7.42	\$ 3.98	\$ 4.63
Wastewater BDP Bill Credit	\$ -	\$ -	\$ 5.00	\$ 6.00
Discount on IIC	\$ -	\$ -	\$ 0.56	\$ 0.57
Discount on CAC	\$ -	\$ -	\$ 0.51	\$ 0.60
Reduction of DSIC*	\$ 0.37	\$ 0.56	\$ 0.75	\$ 0.89
	<u>\$ 7.69</u>	<u>\$ 7.98</u>	<u>\$ 10.80</u>	<u>\$ 12.69</u>
<u>Stormwater BDP Reductions</u>				
Stormwater Discount	\$ 6.76	\$ 8.72	\$ 10.32	\$ 12.07
Discount on CAC	\$ -	\$ -	\$ 0.36	\$ 0.42
	<u>\$ 6.76</u>	<u>\$ 8.72</u>	<u>\$ 10.68</u>	<u>\$ 12.49</u>
Proposed Program: Total BDP Reductions	\$ 42.29	\$ 51.56	\$ 62.72	\$ 73.94

*DSIC cost is a percentage of total bill. If the total bill is reduced, the DSIC charge is reduced, providing additional benefit.

- 1 The Table below shows the comparison of the resulting water, wastewater, stormwater cost in
- 2 relation to income under the current and new proposed structure for households at 50% of the
- 3 FPL, 100% of the FPL and 150% of the FPL for 2-person, 4-person and 6-person households.

	FY 2023	FY 2024	FY 2025	FY 2026
	FTY	FPFTY	Proposed	Proposed
50% FPL Scenario				
Monthly Bill	\$ 22.67	\$ 26.70	\$ 31.16	\$ 36.16
Annual Bill*	\$ 272.07	\$ 320.34	\$ 373.88	\$ 433.91
Annual Income at 50%FPL**				
2-person Household	\$ 9,860.00	\$ 9,860.00	\$ 9,860.00	\$ 9,860.00
<i>Bill as % of Income</i>	2.8%	3.2%	3.8%	4.4%
4-person Household	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00	\$ 15,000.00
<i>Bill as % of Income</i>	1.8%	2.1%	2.5%	2.9%
6-person Household	\$ 20,140.00	\$ 20,140.00	\$ 20,140.00	\$ 20,140.00
<i>Bill as % of Income</i>	1.4%	1.6%	1.9%	2.2%
100% FPL Scenario				
Monthly Bill	\$ 44.15	\$ 51.85	\$ 60.83	\$ 72.17
Annual Bill	\$ 529.74	\$ 622.20	\$ 729.92	\$ 866.06
Annual Income at 100%FPL**				
2-person Household	\$ 19,720.00	\$ 19,720.00	\$ 19,720.00	\$ 19,720.00
<i>Bill as % of Income</i>	2.7%	3.2%	3.7%	4.4%
4-person Household	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00
<i>Bill as % of Income</i>	1.8%	2.1%	2.4%	2.9%
6-person Household	\$ 40,280.00	\$ 40,280.00	\$ 40,280.00	\$ 40,280.00
<i>Bill as % of Income</i>	1.3%	1.5%	1.8%	2.2%
150% FPL Scenario				
Monthly Bill	\$ 44.15	\$ 51.85	\$ 60.83	\$ 72.17
Annual Bill	\$ 529.74	\$ 622.20	\$ 729.92	\$ 866.06
Annual Income at 150%FPL**				
2-person Household	\$ 29,580.00	\$ 29,580.00	\$ 29,580.00	\$ 29,580.00
<i>Bill as % of Income</i>	1.8%	2.1%	2.5%	2.9%
4-person Household	\$ 45,000.00	\$ 45,000.00	\$ 45,000.00	\$ 45,000.00
<i>Bill as % of Income</i>	1.2%	1.4%	1.6%	1.9%
6-person Household	\$ 60,420.00	\$ 60,420.00	\$ 60,420.00	\$ 60,420.00
<i>Bill as % of Income</i>	0.9%	1.0%	1.2%	1.4%

*Customers at 50% FPL or below receive an additional volumetric discount on water and wastewater charges

** Assumes no change in income from 2023 through 2026

1 **Q. DID THESE RESULTS INFORM THE PROPOSED CHANGES TO THE BDP**
 2 **YOU DESCRIBED ABOVE FOR IMPLEMENTATION IN 2025 ALONG WITH**
 3 **THE RATE STRUCTURE CHANGE?**

4 A. Yes. As shown above, PWSA included the proposed changes to offset the rate structure
 5 change and removal of the minimum allowance in 2025. In fact, customers receive an
 6 increased benefit from the proposed program changes.

7 **4. Stormwater Customer Service Issues**

8 **Q. WHAT INFORMATION DID PWSA AGREE TO PROVIDE AS PART OF THE**
 9 **LAST RATE CASE SETTLEMENT IN THIS FILING?**

10 A. PWSA agreed to provide the following information regarding Stormwater:

- 11 • Call statistics regarding stormwater charges and bill impacts;
- 12 • Number of disputes regarding stormwater charges;
- 13 • Number of customers in arrears for stormwater by customer class; and,
- 14 • Collections activities by type for customers with overdue stormwater charges.

15 **Q. WHAT WAS THE IMPACT IN 2022 OF THE NEWLY IMPLEMENTED**
 16 **STORMWATER CHARGES ON CUSTOMER SERVICE, SPECIFICALLY THE**
 17 **CONTACT CENTER?**

18 A. In 2022, PWSA handled 3,202 customer calls pertaining to stormwater inquiries, which
 19 equates to hearing from 2.8% of its stormwater customer base. Detailed 2022 stormwater
 20 customer call handling data can be found within PWSA Exhibit JAM-4. This data
 21 illustrates that, in the first six months of stormwater charges appearing on customer's
 22 bills, the Customer Service Contact Center yielded an average customer call handling rate
 23 of 95.36%. From January through April 21, 2023, the Contact Center handled 468
 24 stormwater-related calls from customers while maintaining an average call handling rate
 25 for the stormwater queue of 94.4%. Detailed 2023 year-to-date stormwater customer call
 26 handling data can be found within PWSA Exhibit JAM-8.

1 **Q. HOW MANY DISPUTES OF STORMWATER CHARGES HAS PWSA**
 2 **HANDLED?**

3 A. PWSA handled 58 disputes filed by customers challenging the calculation of their
 4 stormwater charges in 2022. In the first three and a half months of 2023, PWSA
 5 processed 24 stormwater disputes.

6 **Q. WHAT IS THE STATUS OF THE COLLECTION OF STORMWATER**
 7 **CHARGES?**

8 A. To date, 23,994 customers carry a balance that includes unpaid stormwater charges. Of
 9 these accounts, 7,023 customers are on an active payment plan. Excluding those
 10 customers who are making monthly payments to reduce their arrearages, the number of
 11 customers with outstanding stormwater charges equates to 15% of PWSA’s stormwater
 12 customer base. Of this number, only 2,505 carry balances that are \geq \$100.00, which is
 13 PWSA’s lien threshold due to the fee assessed by the County of Allegheny for PWSA to
 14 file a lien. Please see the below table for the breakdown of these charges by customer
 15 class.

Customer Class	Number of Stormwater Accounts Past Due	Dollars Due
Residential	19,653	\$925,421.12
Commercial	2,700	\$805,206.21
Municipal	1,641	\$652,708.95
Totals	23,994	\$2,383,336.28

16
 17 The Collections section of Customer Service has employed the lien process as a means of
 18 attempting to reduce these stormwater arrearages. See the lien process standard operating
 19 procedure in PWSA Exhibit JAM-7. To date, PWSA Collections has issued notices of
 20 intent to lien to 395 residential customers and 376 commercial customers.

1 **B. Line Repair and Conservation “LRC” Pilot Program**

2 **Q. CAN YOU PROVIDE THE CURRENT STATUS OF THE LRC PILOT?**

3 A. Yes. The request for proposals in the LRC pilot was released to the public on March 30,
4 2023. It included this solicitation schedule:

Task	Date
Advertisement of RFP	03/30/23
Preproposal Meeting	04/04/23
Deadline for Questions	04/13/23
Proposals Due	04/27/23
Presentations	Week of May 15 th
Project Award	End of May 2023

5

6 **Q. WHAT WAS THE OUTCOME OF THE LRC PREPROPOSAL MEETING ON**
7 **APRIL 4, 2023?**

8 A. PWSA held the preproposal meeting and had prepared the slides found at PWSA Exhibit
9 JAM-10 to share with interested parties. Disappointingly, no potential bidders were in
10 attendance. PWSA was left with the impression that the firms who had previously
11 accessed the offering were apparently uninterested in bidding, as the preproposal meeting
12 was listed as mandatory.

13 **Q. WHICH STEPS DID PWSA TAKE TO FURTHER SOLICIT INTEREST IN THE**
14 **LRC RFP?**

15 A. Daniel T. Duffy, PE, Consultant to PWSA as LSLR Program Manager and Technical
16 Advisor for the LRC selection committee, provided a contact within the County of
17 Allegheny Plumbing Division who agreed to share the program offering with their
18 network. I emailed the Post Gazette advertisement of the LRC RFP to the plumbing
19 contact on April 4, 2023, and he confirmed receipt. On that same date, I also provided

1 the advertisement to Sarah Viszneki, PGH2O Cares Coordinator, who agreed to share the
 2 offering with her network of community based organizations. On April 24, 2023, I
 3 shared the lack of interested bidders in this RFP with the collaborative of low income
 4 advocates who are participating in meetings to identify data to be tracked throughout the
 5 Pilot. These advocates stated that they also would share the advertisement of this
 6 opportunity with their networks. I provided the advertisement to the advocates following
 7 that April meeting.

8 **Q. IS PWSA PROCUREMENT EXTENDING THE SOLICITATION SCHEDULE**
 9 **OF THE LRC RFP?**

10 A. Yes, the solicitation schedule has been extended to allow questions to be submitted
 11 through May 9, 2023 with proposals now due on May 23, 2023. Additionally, an
 12 informational preproposal meeting was offered by PWSA on May 2, 2023, and two
 13 interested bidders attended. The potential bidders were engaged throughout the
 14 presentation and asked thoughtful questions about the Pilot.

15 **Q. CAN YOU EXPAND UPON THE DEVELOPMENT OF DATA TRACKING IN**
 16 **ADVANCE OF THE LRC PILOT LAUNCH?**

17 A. Yes. In addition to working with PWSA Procurement to issue the RFP and designing the
 18 preproposal meeting slides, I have been gathering the data tracking requirements with a
 19 sub-group of members of the Low Income Assistance Advisory Committee. Our initial
 20 meeting was held on March 30, 2023, and our second meeting was held on April 24,
 21 2023. We have made good progress in our efforts to determine which data should be
 22 captured and analyzed throughout the program. I am currently organizing our working
 23 document and plan to issue that to the group for feedback and/or acceptance. Lastly, I
 24 have met with PWSA Legal to launch the formation of the agreement and other materials

1 that will be necessary to conduct work on customers' private plumbing with a July 2023
2 launch in mind.

3 **Q. WHAT COMMITMENTS DID PWSA MAKE AS PART OF THE LRC**
4 **SETTLEMENT PERTAINING TO THIS RATE CASE FILING?**

5 A. PWSA agreed to share an evaluation of the LRC pilot and to make a proposal for the
6 future of the program.¹⁶

7 **Q. IS PWSA ABLE TO DO THAT WITH THIS FILING?**

8 A. No; as I explained previously, we are still in the process of implementing the LRC pilot
9 and it will not likely be underway for a sufficient amount of time to perform the data
10 tracking necessary to make an evaluation in the course of this base rate proceeding.

11 **Q. HOW DOES PWSA PROPOSE TO ADDRESS THE FUTURE OF THE LRC?**

12 A. Since we are unable to propose the future for the LRC as part of this filing, and
13 recognizing that if the Commission approves our request here, PWSA would not
14 potentially be filing the next rate case until 2026, our recommendation is that we submit a
15 filing with the Commission once we have evaluated the Pilot LRC and propose our
16 recommendations for the future of the program in that filing. As I testified previously, if
17 our Customer Assistance Charge is approved as proposed, then the cost recovery
18 mechanism would be in place to fund any proposal to continue the LRC, and the parties
19 could focus on the evaluation of the Pilot and the best path forward.

¹⁶ *Petition of The Pittsburgh Water and Sewer Authority for Pilot Private Service Line Leak Repair and Expanded Conservation Program for Eligible Low Income Customers and Authorization to Track Costs As a Regulatory Asset for Future Base Rate Recovery*, Docket No. P-2022-3030253, Final Order adopting Recommended Decision entered March 2, 2023. (Adopting Settlement Section A.4.b)

1 **V. WATER, WASTEWATER AND STORMWATER TARIFF REVISIONS**

2 **Q. IS PWSA PROPOSING REVISIONS TO ITS WATER AND WASTEWATER**
 3 **TARIFFS AS PART OF THIS RATE CASE?**

4 A. Yes, A complete list of tariff modifications can be found in the List of Changes Made in
 5 each Tariff Supplement section as provided in Proposed Tariff Supplement No. 12 to
 6 PWSA Water Tariff – Pa P.U.C. No. 1 provided in Exhibits JAM-11 (clean) and JAM-12
 7 (red-lined), Proposed Tariff Supplement No. 11 to PWSA Wastewater Tariff – Pa P.U.C.
 8 No. 1 provided in Exhibits JAM-13 (clean) and JAM-14 (red-lined) and Proposed Tariff
 9 Supplement No. 3 to PWSA Stormwater Tariff – Pa P.U.C. No. 1 provided in Exhibits
 10 JAM-15 (clean) and JAM-16 (red-line). The proposed effective date of the tariff changes
 11 is July 8, 2023. In sum, the proposed changes include the new rates for the three year
 12 period, an increase in the cap for the DSIC rate, the two new reconcilable charges I
 13 discussed earlier, the IIC and CAC, and revisions to the Bill Discount Program. In
 14 addition, the Stormwater Tariff includes revised text regarding the Stormwater Credits
 15 program as detailed by Mr. Readling.

16 **A. Customer Notice Of Rate Filing To Existing And Future Customers**

17 **Q. HOW IS PWSA PROVIDING NOTICE OF THIS RATE FILING TO ITS**
 18 **EXISTING CUSTOMERS?**

19 A. PWSA will provide customers notices of this rate filing consistent with the Commission’s
 20 regulations. A copy of the Notice of Proposed Rate Changes that PWSA is providing to
 21 existing customers is included in Volume 1, Tab 2 of the Rate Filing Package. I would
 22 note, too, that this version of the customer notice includes the language as agreed to in
 23 PWSA’s last rate case settlement namely noting that the rates are exclusive of
 24 ALCOSAN and referring to wastewater conveyance rather than simply wastewater.

1 **B. Display of Multi-Year Rates**

2 **Q. HOW IS PWSA DISPLAYING THE PROPOSED RATE INCREASE FOR YEAR**
 3 **1, YEAR 2, AND YEAR 3?**

4 A. In its proposed tariff supplement, PWSA presents the rates for all three years noting that
 5 effective 2025 the minimum charge is removed and a new base charge becomes effective.
 6 Regarding the newly proposed IIC and CAC, the charge for 2024 is listed as \$0.00
 7 because the charges will not be in effect until 2025. As proposed, PWSA will submit
 8 supporting schedules for the rates to be implemented in 2025 and thereafter.

9 **Q. HOW DOES PWSA PROPOSE TO PROVIDE CUSTOMER NOTICE PRIOR TO**
 10 **THE IMPOSITION OF NEW RATES?**

11 A. Consistent with past practice, upon final approval from the Commission of PWSA’s
 12 tariffs, PWSA provides customers with notice through bill messaging, website content,
 13 and press release. Because years 2 and 3 rate changes would be part of an already
 14 approved Commission process, PWSA’s customer notice process would propose to notify
 15 customers of the three year phase in pursuant to bill notices when it implements the first
 16 year’s rates with a reminder notice in the same manner when it implements the second
 17 and third year’s rates. Regarding the IIC and CAC, PWSA proposes to make semi-
 18 annual filings with the Commission to support the rates and propose the level of the new
 19 charges consistent to be implemented in a tariff supplement.

20 **VI. CONCLUSION**

21 **Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?**

22 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

Exhibit JAM-1

2022 Compliance Plan Stage 2 Settlement Terms

Citation	Page	Owner	Description	Due Date - Delivery Method
III.A	10	Brittany Schacht	Adopt the regulatory definitions of Customer, Applicant, Occupant, Unauthorized Use of Utility Service, and Person.	11/14/22 - Share updated Notices and Training Materials with J.M. for review by the Parties in the settlement.
III.B.1.a.ii	10	Tishla Jones	Revise the Tenant/Owner form to the specifications given in (a) through (d).	11/14/22 - Share updated the Tenant/Owner form with J.M. for review by the Parties in the settlement.
III.B.1.a.iii	10-11	Tishla Jones	Accept other proof of tenancy.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
III.B.1.b.i-v	11-12	Tishla Jones	Notify tenant that owner receives copies of bills and notices and develop an opt-out procedure.	11/14/22 - Share updated Notices and Training Materials with J.M. for review by the Parties in the settlement.
III.B.1.c.i-ii	12	Tishla Jones	Remove the approval of a tenant by the property owner and create a Property Owner letter.	11/14/22 - Share new Property Owner letter with J.M. for review by the Parties in the settlement.
III.B.1.d.i-ii	12-13	Tishla Jones	Create a Tenant Welcome letter.	11/14/22 - Share new Tenant Welcome letter with J.M. for review by the Parties in the settlement.
III.B.2.a-b	13	Zachary Larimer	Ensure that tenants are vetted for customer assistance programs.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
III.B.3.a-c	13	Sharon Gottschalk	Ensure rights of tenants under DSLPA who do not become customers.	11/14/22 - Share updated Training Materials and DSLPA flyer with J.M. for review by the parties in the settlement.
III.B.4.a-c	13-14	Brittany Schacht	Develop process to educate, identify, protect victims of domestic violence.	11/14/22 - Share updated Training Materials, Tenant Welcome letter, and Customer Advantage portal content with J.M. for review by Parties in the settlement.
III.C.1	14	Sharon Gottschalk	Remove the requirement to satisfy account balance to become a residential customer and eliminate the Assumption Affidavit.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
III.D.1	14	Sharon Gottschalk	Add a 14 day follow-up period by Collections personnel after a successful Personal Contact Attempt.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
III.E.1.a	15	Tracy Willy	Adjust usage occurring after a customer requested shut.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
III.E.1.b	15	Kenneth Thurston	Proactively identify, repair/replace inoperable curb boxes.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
III.E.2	15	Tracy Willy	Develop process to identify and address with customers any known curb box tampering.	11/14/22 - Share updated Notices and Training Materials with J.M. for review by the Parties in the settlement.
III.E.3	15	Kenneth Thurston	Quantify costs to PWSA to correct curb box tampering by the customer and work with Legal to recover costs from the customer.	11/14/22 - Share updated Notices and Training Materials with J.M. for review by the Parties in the settlement.
III.F.1-2	15	Brittany Schacht	Provide additional Waste of Water Notice to property address and advise tenants to contact PWSA if they are working with the owner to make repairs.	11/14/22 - Share updated Notices and Training Materials with J.M. for review by the Parties in the settlement.
III.G	16	Brittany Schacht	Use reasonable efforts to avoid termination due to property owner refusal with LSR notices and initiate discussion with CLRAC members.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
III.H	16-18	Julie Mechling	Draft multi-faceted Collections Plan.	8/14/22 - Convene meeting with the Parties to review and discuss the draft plan.
III.I	18-19	Sharon Gottschalk	Continue to pursue debt collection via the lien process and review the Lien SOP for possible updates per these terms.	11/14/22 - Share updated Lien SOP with J.M. for review by the Parties in the settlement.
III.J	19	Eckert Seamans	Draft Compliance Tariffs.	8/29/22 - Share updated Compliance Tariffs with J.M. for review by the Parties in the settlement.
III.K	19-20	Eckert Seamans	File an updated Stage 2 Compliance Plan.	9/14/22 - File updated Stage 2 Compliance Plan.
III.L	20-21	Julie Mechling	Ensure that all listed Notices have been updated consistent with the settlement language.	11/14/22 - Share updated Notices for review by the Parties in the settlement.
III.M.1-2	21	Julie Mechling	Ensure that all affected Training Materials have been updated consistent with the settlement language.	11/14/22 - Share updated Training Materials for review by the Parties in the settlement.
III.M.3.a-b	21	Sharon Gottschalk	Strengthen Training Materials with respect to medically vulnerable tenants and medical certificate renewals.	11/14/22 - Share updated Training Materials with J.M. for review by the Parties in the settlement.
BCS Edit		Sharon Gottschalk	Develop a letter that will include the required contents of 52 PA Code § 56.36(b)(1) to be sent to any applicant denied service due to outstanding balance.	11/14/22 - Share new letter with J.M. for review by the Parties in the settlement.

- = Outstanding
- = In Progress
- = Complete

Timing	Action
<i>TBD</i>	<i>Commission Final Order</i>
Within 30 days of Commission Final Order	PWSA shares draft Collection Plan with parties, convenes collaborative to discuss
Within 45 days of Commission Final Order	PWSA uses best efforts to draft tariffs and share drafts with parties
Within 60 days of Commission Final Order	PWSA files Updated Stage 2 Plan (with Collections Plan) and Compliance Tariffs
Within 30 days after Compliance filing	Initial Comment period for all parties
With 15 days after Initial Comment Period	Reply Comment period for all parties
<i>TBD</i>	<i>Final Commission Action Regarding Compliance Filing</i>
30 days after Final Commission Action Regarding Compliance Filing	PWSA shares proposed revisions to customer notices and its updated training materials with parties

Exhibit JAM-2



PWSA Standard Operating Procedure

Division: Customer Service

Scope: How to Work the Dunning Process in SAP

Job Title: Customer Service Representative II (CSR II), Customer Service Representative III (CSR III), Collections Analyst, Senior Collections Coordinator

Subject: Dunning Process in SAP

The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator begins the Dunning Process in SAP with Capacity Planning. During this stage of the process, all accounts are verified through the system to locate payments that were posted the day before to ensure that those accounts that are *not* eligible for termination of service are not displayed. After Capacity Planning is complete, accounts that are eligible to receive termination of service notices are determined based on high delinquent dollar amounts. SAP locates these accounts based on their location class. The location class will determine if the account receives a 10-day termination of service notice or a 37-day termination of service notice.

To obtain the 10-day termination notices:

1. Choose Capacity Planning.
2. Select the 10-day option.
3. Add the total amount of notices desired to generate.
4. Click Save.

After an overnight batch runs, the process is complete. SAP then uploads the eligible accounts to Document Advantage. Notices are automatically transferred to KUBRA, PWSA's print and mail vendor. The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator verifies, reviews, and approves the notices in KUBRA's iDox application. KUBRA will then mail the notices to PWSA customers.



To obtain the 37-day termination notices:

1. Choose Capacity Planning.
2. Select the 37-day option.
3. Add the total amount of notices desired to generate.
4. Click Save.

After an overnight batch runs, the process is complete. SAP then creates an in-house print file of those eligible accounts. The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator downloads, exports, and names the file, and then they open the file of the 37-day notices. The next step is to create a mail merge. Once the mail merge is complete, they print and mail the letters for the certified and regular mailings.

On the 8th day, the CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator creates a file of accounts that are carrying an unaddressed delinquent balance, making them eligible for a call or posting of the 10-day termination notice. They then update the Capacity Planning and add the total number of postings under the correct 3-day option. After an overnight batch runs, this process is complete. SAP will create an in-house print file of those eligible accounts. The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator downloads, exports, and names the file, and then they open the file of the 3-day notices. The next step is to create a mail merge. Once the mail merge is complete, they print the postings at the Howard Street field office or create a .csv file for outbound calling.

For step two of the 37-day notice process, update the capacity total, and an overnight batch will run. SAP will create an in-house print file of those eligible accounts. The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator downloads, exports, and names the file. They then go to the file of 30-day notices and create a mail merge, adding a column with the tenant payment amount. Once this process is complete, print the 30-day postings to the Howard Street field office. For the second 30-day postings, update the capacity total, and an overnight batch will run. SAP will create an in-house print file of those eligible accounts. The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator downloads, exports, and names the file, and then they open the file of the 37-day notices. They then go to the file of the 30-day notices and create a mail merge, adding a column with the tenant payment amount. They remove any accounts with past due charges paid in full or with tenant payments and print the postings at the Howard Street field office for a second 30-day posting on the next day.



During the winter months from December 1st through March 31st, select the Capacity Planning option to create the 48-hour posting notice to identify those accounts that are eligible for a 10-day termination of service notice. Update the amount for the capacity. After an overnight batch runs, this process is complete. SAP will create an in-house print file of those eligible accounts. The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator downloads, exports, and names the file. The next step is to create a mail merge. Once the mail merge is complete, print the postings at the Howard Street field office.

For the 10-day process and the 37-day process of residential accounts eligible for termination of service notices, PWSA Field Technicians attempt to make personal contact with the customers on the day of the termination. In SAP, update the capacity. After an overnight batch runs, this process is complete. SAP will create an in-house print file of those eligible accounts. The CSR II, CSR III, Collections Analyst, or Senior Collections Coordinator downloads, exports, and names the file. The next step is to create a mail merge. Once the mail merge is complete, print the postings at the Howard Street field office.

Exhibit JAM-3

Survey Question	Average	Score of 5	Score of 4	Score of 3	Score of 2	Score of 1	No Response
Question 1	4.666228301	20176	752	257	160	1467	0
Question 2	4.625449479	18681	1372	765	289	1141	564
Question 3	4.678809747	18159	0	742	306	1024	2581
Question 4	4.365354104	14074	2982	2079	596	1068	2013
Question 5	4.259651245	12361	3317	2271	741	1152	2970

CSR Focused (Q1 - Q3)	4.656829176
PWSA Focused (Q4 and Q5)	4.312502674

Exhibit JAM-4



Customer Assistance Programs

Which are right for you?

Exhibit JAM-4

Join the thousands of customers who are receiving assistance with their monthly bills! Our Customer Assistance Programs provide financial relief for income-qualified, residential customers who are having difficulty paying their PGH2O bill. Many options are available, and no one should have to choose between paying their water/wastewater bill and other essential expenses. To discuss which options are right for you, please call our PGH2O Cares team at **412-255-2457** or e-mail the team at cares@pgh2o.com.

Bill Discount Program (BDP): For customers who are at or below 150% of the Federal Poverty Level (FPL), your first 1,000 gallons of water and wastewater conveyance service is free, and you pay only 15% of the monthly stormwater fee. For customers who are at or below 50% of the FPL, you also receive a 50% reduction of your usage over 1,000 gallons. If you qualify, carry a balance, and are on an active payment plan, you receive a \$30 monthly credit for each on-time payment to reduce your past due charges.

Hardship Grants + Clean Water Assistance Fund (CWAFF): Customers who are at or below 150% of the FPL can qualify for a grant of up to \$300. Our Cares team can also assist you with applying for the ALCOSAN Clean Water Assistance Fund grant.

Payment Arrangements with Arrearage Forgiveness: Income-based payment arrangements are available to help residential customers and small business owners pay down high balances without accruing late charges. Residential customers who are in the Bill Discount Program and have a past due balance will receive a \$30 credit for each on-time payment while enrolled in an active payment plan.

Winter Moratorium (WM): Customers who are at or below 300% of the FPL can qualify for protection from termination of water service in the winter months of December through March.

Lead Service Line Replacement Reimbursement Program (LSLRRP): When you choose to proactively hire a plumber to replace a lead service line, you can qualify for reimbursement of some of the cost. For more information, please visit lead.pgh2o.com/leadreimbursement.



2023 Annual Income Guidelines

People in Household	50% of FPL	150% of FPL	300% of FPL
1	\$7,290	\$21,870	\$43,740
2	\$9,860	\$29,580	\$59,160
3	\$12,430	\$37,290	\$74,580
4	\$15,000	\$45,000	\$90,000
5	\$17,570	\$52,710	\$105,420
6	\$20,140	\$60,420	\$120,840
7	\$22,710	\$68,130	\$136,260
8	\$25,280	\$75,840	\$151,680
For each additional household member add:	\$2,570	\$7,710	\$15,420

To learn more about these programs and other assistance options, please visit www.pgh2o.com/CAP.



Penn Liberty Plaza 1
1200 Penn Avenue
Pittsburgh, PA 15222
www.pgh2o.com

Customer Service*
T 412.255.2423 (Choose Option #5)
F 412.255.2475
info@pgh2o.com

Emergency Dispatch*
T 412.255.2423 (Choose Option #1)
Available 24/7

- Translation services available |
- Servicios de traducción disponibles |
- 提供翻译服务 | • Доступные услуги перевода |
- قرفوتتم تمچرشلانا تامادخ



Programas de asistencia al cliente

¿Cuál es el adecuado para usted?

Exhibit JAM-4

¡Únase a los miles de clientes que reciben ayuda con sus facturas mensuales! Nuestros programas de asistencia al cliente brindan alivio financiero a los clientes residenciales que reúnen los requisitos de ingresos y tienen dificultades para pagar su factura de PGH2O. Hay muchas opciones disponibles y nadie debería tener que elegir entre pagar su factura de agua/aguas residuales y otros gastos esenciales. Para analizar qué opciones se adaptan mejor a sus necesidades, llame a nuestro equipo PGH2O Cares al **412-255-2457** o envíe un correo electrónico a cares@pgh2o.com.

Programa de Descuento de Facturas (BDP): En el caso de los clientes que se sitúan en el 150 % o por debajo de este porcentaje del Nivel Federal de Pobreza (FPL), los primeros 1,000 galones de agua y el servicio de transporte de aguas residuales son gratuitos, y solo pagan el 15 % de la cuota mensual de aguas pluviales. Los clientes que se sitúan en el 50 % o por debajo de este porcentaje del FPL también obtienen una reducción del 50 % para el consumo superior a 1,000 galones. Si califica, tiene un saldo pendiente y está en un plan de pago activo, recibirá un crédito mensual de \$30 por cada pago que realice a tiempo para reducir sus cargos vencidos.

Subsidios por dificultades extremas + Fondo de Asistencia de Agua Limpia (CWAFF): Los clientes que se sitúan en el 150 % o por debajo de este porcentaje del FPL pueden calificar para recibir un subsidio de hasta \$300. Nuestro equipo Cares también puede ayudarlo a solicitar el subsidio del Fondo de Asistencia de Agua Limpia de ALCOSAN.

Convenios de pago con condonación de atrasos: Hay disponibles convenios de pago basados en los ingresos para ayudar a los clientes residenciales y a los propietarios de pequeñas empresas a pagar en cuotas saldos altos sin acumular cargos por mora. Los clientes residenciales que estén en el Programa de Descuento de Facturas y tengan un saldo vencido recibirán un crédito de \$30 por cada pago que realicen a tiempo mientras estén inscritos en un plan de pago activo.

Moratoria de invierno (WM): Los clientes que se sitúan en el 300 % o por debajo de este porcentaje del FPL pueden calificar para obtener protección contra la finalización del servicio de agua en los meses invernales de diciembre a marzo.

Programa de reembolso por sustitución de línea de servicio de plomo (LSLRRP): Si opta por contratar proactivamente a un plomero para sustituir una línea (tubería) de servicio de plomo, puede calificar para un reembolso por parte del costo. Para obtener más información, visite lead.pgh2o.com/leadreimbursement.



Pautas de ingresos anuales para 2023

Personas en el hogar	50 % del FPL	150 % del FPL	300 % del FPL
1	\$7,290	\$21,870	\$43,740
2	\$9,860	\$29,580	\$59,160
3	\$12,430	\$37,290	\$74,580
4	\$15,000	\$45,000	\$90,000
5	\$17,570	\$52,710	\$105,420
6	\$20,140	\$60,420	\$120,840
7	\$22,710	\$68,130	\$136,260
8	\$25,280	\$75,840	\$151,680
Por cada miembro adicional del hogar agregue:	\$2,570	\$7,710	\$15,420

Para obtener más información sobre estos programas y otras opciones de ayuda, visite www.pgh2o.com/CAP.



Penn Liberty Plaza 1
1200 Penn Avenue
Pittsburgh, PA 15222
www.pgh2o.com

Servicio al Cliente*
T 412-255-2423 (Elija la opción 5)
F 412-255-2475
info@pgh2o.com

Despacho de Emergencias*
T 412-255-2423 (Elija la opción 1)
Disponibles las 24 horas del día,
los 7 días de la semana

• Translation services available |
• Servicios de traducción disponibles |
• 提供翻译服务 | • Доступные услуги
перевода | • خدمات الترجمة متوفرة

Exhibit JAM-5

Is the customer already aware of active leaks in the property?	Count
NO	1,778
YES	14
Total Service Orders	1,792

Did you share any leak information with the customer?	Count
NO	3,913
YES	96
Total Service Orders	4,009

Did you provide any leak detection tablets to the customer?	Count
NO	3,953
YES	56
Total Service Orders	4,009

Number of leak detection tablets given	Count
9	1
5	1
4	7
3	13
2	19
1	14
0	3,850
No Answer	104
Total Leak Detection Tablets	133
Total Service Orders	4,009

Did you provide any leak detection tip cards to the customer?	Count
NO	2,391
YES	52
No Answer	3
Total Service Orders	2,446

Number of leak detection tip cards given	Count
4	1
3	1
2	15
1	35
0	2,391
No Answer	3
Total Leak Detection Tip Cards	72
Total Service Orders	2,446

Exhibit JAM-6

PWSA Standard Operating Procedure

Division: Customer Service

Scope: How to Run the Continuous Consumption Report

Job Title: RNI Data Analyst, AMI and Billing Analyst, AMI and Billing Manager

Subject: Continuous Consumption Report

Daily Continuous Consumption reports are generated in Sensus Analytics and are reviewed by the RNI Data Analyst, AMI and Billing Analyst, and/or the AMI and Billing Manager (<https://pwsa.sensus-analytics.com>). These reports must be saved in the shared drive via this link: <S:\Customer Service\BILLING AND METERING DEPARTMENT\Billing files\Continuous Consumption Report>.

The report criteria must *exclude* cycle/portion 77 and *include* only 5/8" and 3/4" meters. Filter the output to view accounts where the hourly average consumption is 150 gallons or more over the most recent 72 hours. Research these accounts to determine if the spike in consumption could be the result of a leak at the property. The threshold of 150 gallons is used to make certain that potential leaking toilets are discovered. The average household toilet holds 1.5 gallons and has a 30 second tank refill time. Leaking toilets would average out to about 3 gallons per minute or 180 gallons per hour. **Please note that during the winter months, continuous usage of 150 gallons or more for any amount of time will be reviewed. Additional assistance from AMI personnel can be requested to review and contact customers.**

Each account should be thoroughly reviewed, including researching the usage history, account comments, and service orders, to determine which of the following, or any combination thereof, should be performed:

1. Call the customer to advise them of the reported higher than usual consumption and provide them with ways to check the property for leaks.
2. After you speak with the customer, or when you are unable to speak with the customer, mail the letter titled, "High Consumption Notice". Letters must be saved in the subfolder at the following path: <S:\Customer Service\BILLING AND METERING DEPARTMENT\Billing files\Continuous Consumption Report>.
3. If our records indicate that a property is vacant, or if the usage is over 4,000 gallons per day and you cannot reach the customer, issue a request for an emergency shut at the curb via Dispatch at dispatch@pgh2o.com or 412-255-2423 and choose Option #1.

Exhibit JAM-7

Queue Performance by Month

[3300 ICP] P009 - STORMWATER

Activity period	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Calls interflowed	Average speed of answer (hh:mm:ss)	Average delay to abandon (hh:mm:ss)	Average delay to interflow (hh:mm:ss)	ACD handling time (hh:mm:ss)	Average ACD handling time (hh:mm:ss)	Abandon %	Service level %	Answer %
January	281	269	1	12	0	00:01:13	00:03:24	00:00:00	35:16:16	00:07:52	4.3%	85.1%	95.7%
February	427	409	5	18	0	00:01:09	00:02:57	00:00:00	47:48:02	00:07:01	4.2%	78.2%	95.8%
March	753	723	1	27	3	00:01:30	00:01:40	00:02:59	91:47:20	00:07:37	3.6%	71.7%	96.0%
April	509	485	0	23	1	00:01:25	00:02:29	00:04:20	58:46:32	00:07:16	4.5%	72.3%	95.3%
May	377	363	0	14	0	00:01:21	00:03:52	00:00:00	41:57:19	00:06:56	3.7%	76.1%	96.3%
June	233	217	1	16	0	00:01:22	00:02:31	00:00:00	26:38:38	00:07:22	6.9%	73.8%	93.1%
July	226	198	1	28	0	00:02:02	00:01:50	00:00:00	23:39:01	00:07:10	12.4%	59.7%	87.6%
August	161	123	0	38	0	00:06:04	00:06:59	00:00:00	12:19:10	00:06:01	23.6%	37.3%	76.4%
September	209	139	1	70	0	00:08:08	00:05:55	00:00:00	19:38:45	00:08:29	33.5%	23.4%	66.5%
October	234	158	3	76	0	00:07:53	00:06:48	00:00:00	26:00:19	00:09:53	32.5%	26.1%	67.5%
November	163	54	0	109	0	00:02:44	00:02:48	00:00:00	07:11:35	00:08:00	66.9%	60.1%	33.1%
December	103	64	0	39	0	00:03:05	00:01:59	00:00:00	07:48:01	00:07:19	37.9%	62.1%	62.1%
Totals	3676	3202	13	470	4	00:02:15	00:04:05	00:03:19	398:50:58	00:07:28	12.8%	65.5%	87.1%

Exhibit JAM-8

Queue Performance by Month

[3300 ICP] P009 - STORMWATER

Activity period	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Calls interflowed	Average speed of answer (hh:mm:ss)	Average delay to abandon (hh:mm:ss)	Average delay to interflow (hh:mm:ss)	ACD handling time (hh:mm:ss)	Average ACD handling time (hh:mm:ss)	Abandon %	Service level %	Answer %
January	100	95	1	5	0	00:02:17	00:06:37	00:00:00	15:46:23	00:09:58	5.0%	76.0%	95.0%
February	152	142	2	10	0	00:01:24	00:02:20	00:00:00	17:27:24	00:07:23	6.6%	72.4%	93.4%
March	143	137	1	3	3	00:00:52	00:00:23	00:02:59	17:50:24	00:07:49	2.1%	81.8%	95.8%
April	101	94	0	6	1	00:01:19	00:02:12	00:04:20	10:19:39	00:06:36	5.9%	69.3%	93.1%
Totals	496	468	4	24	4	00:01:25	00:02:57	00:03:19	61:23:50	00:07:52	4.8%	75.2%	94.4%

Exhibit JAM-9

PWSA Standard Operating Procedure

Division: Customer Service; Legal

Scope: How to Perfect a Lien Against a Property

Job Title: CSR 3; Paralegal

Subject: Lien Process

The Senior Customer Service Manager or Senior Collections Coordinator reviews accounts on the pending lien report in our Customer Information System (CIS) to determine if PWSA has exhausted all collections activities. The accounts are added to the lien spreadsheet located in the shared drive [\\fs1\Shared\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\Liens \(version 1\).xlsx](\\fs1\Shared\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\Liens (version 1).xlsx). A 30-day lien notice [S:\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\Lien Letter \(30-day\) JQ.docx](S:\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\Lien Letter (30-day) JQ.docx) is mailed via first class letter to customers and their mortgage holders whose debt has, at minimum, one of the following attributes:

- Debt over 4 years old that cannot be debited to the active account per PA PUC regulation
- Unpaid final bill
- Unpaid debt accrued by a tenant who moved out of the property
- Sewage-only account
- Flat/party line account
- Water provider is West View Water Authority (termination process is costly)
- High dollar account where PWSA has attempted termination and there is an inoperable curb box at the property
- Active bankruptcy
- Shut account

After 30 days, the accounts are researched for payment. If payment in full has not been made, a 10-day lien notice [\\fs1\Shared\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\Lien Letter \(10-day\) JQ mail merge.docx](#) is mailed via first class letter.

After 10 days, the accounts are researched for payment. If payment in full has not been made, the row containing the delinquent account is highlighted on our lien spreadsheet [\\fs1\Shared\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\Liens \(version 1\).xlsx](#).

The Paralegal files liens on the highlighted accounts electronically and sends the filing letter [S:\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\LIEN COVER LETTER TEMPLATE \(003\).docx](#) to the customer and mortgage holder, which states that the balance must be paid in full along with a \$78.00 filing fee. A lien filing fee is assessed by the County of Allegheny to The Pittsburgh Water and Sewer Authority in order to perfect the lien. The filing fee is then passed to the customer.

The Paralegal also adds the General Docket (GD) number and filing date to the lien spreadsheet [\\fs1\Shared\Customer Service\COLLECTIONS TERM LETTER FOLDER\Liens 2019\Liens \(version 1\).xlsx](#).

A Customer Service Representative 1 reviews the spreadsheet weekly to add the GD numbers to the associated accounts in the CIS.

Once payment in full is received, including payment of the lien filing fee, the GD number is emailed to the Paralegal with a request to electronically satisfy the lien.

Exhibit JAM-10

Pilot Private Service Line Leak Repair and Expanded Conservation Program for Low-Income Customers



PWSA Project No. 2023-008-OPS

April 4, 2023

Agenda

- Introductions
- Schedule
- General Information
- Overview of Project
- Requirements
- Scope of Work



Introductions

Key PWSA Staff

- Julie Mechling, Director of Customer Service
- Brittany Schacht, Deputy Director of Customer Service
- Susan Kemery, Senior Contract Specialist (Procurement)
- Emily Pontarelli, Senior Manager Performance
- Zachary Larimer, PUC Compliance Manager
- Sarah Viszneki, PGH2O Cares Coordinator

Sign-In Sheet

- Please make sure everyone present signs in using the chat feature in Microsoft Teams. Note Contact Name, Company Name, email address, phone number and list if your company is certified as a MBE, WBE, DBE, SBE, VBE, and/or SDVBE.

Schedule

Date	Activity
March 30, 2023	✓ Advertising
April 4, 2023	✓ Mandatory Pre-Proposal Meeting
April 13, 2023	✓ Deadline for questions
April 27, 2023	✓ Proposals Due
Week of May 15, 2023	✓ Presentations
June 2023	✓ Anticipated Construction Start Date
Until budget is expended	✓ Substantial Completion

General Information

- Items discussed during this meeting will be memorialized in an Addenda. All bidders must rely on published Addenda for official answers to questions that are not covered in the Bid Documents.
- Contractors shall ONLY contact the Procurement Department via the Bonfire Procurement Portal.
- Bid/Proposal Format: Vendors shall submit their bids/proposals in the Bonfire Procurement Portal per the instructions in the solicitation.

General Information – Supplier Diversity Program

- Includes MBE, WBE, SBE, VBE, DOBE, LGTBE
- Goal of 10% to 25%
- Complete the SDP Commitment Form
- If you are unable to meet the minimum goal of 10% you must complete the Good Faith Effort Waiver Request Form.

General Information – Supplier Diversity Program

- All bids/proposals must be accompanied with your backup documentation (email correspondence, bids/proposals received, certifications).
- Document your attempts (must be timely and reasonable) to engage sub participation.
- If you do not select a sub for which you received a quote, you must indicate your reason.

Overview of Project

- PWSA has remained committed to increasing enrollment in its customer assistance programs for low-income, residential customers and to serving as mindful stewards of our water system. These commitments include assisting all of PWSA's customers to conserve water as a vital resource through an education campaign as well as the availability of various tools and information about the benefits of conservation.
- On March 2, 2023, the Pennsylvania Public Utility Commission approved PWSA's Petition, via settlement, for a Pilot Private Service Line Leak Repair and Expanded Conservation Program for Low-Income Customers.

Requirements

- A. The Bidder must retain on staff licensed journeymen plumbers who are working for a master plumber.
- B. The Bidder must ensure adequate staffing to perform work in ≈300 eligible customer's homes within 24 hours of a notice of an internal leak on exposed plumbing/one toilet/one showerhead.
- C. The Bidder must provide wi-fi enabled tablets and retain staff who are capable of data entry into PWSA's work order and asset management application.
- D. The Bidder must retain staff capable of educating PWSA residential, low-income customers on conservation in the home.
- E. The Bidder must retain staff capable of instructing PWSA residential, low-income customers on how to create a username and password, navigate, and set usage alerts in the Customer Advantage portal (myaccount@pgh2o.com).

Scope of Work

- The Pilot Private Service Line Leak Repair and Expanded Conservation Program for Low-Income Customers has a not-to-exceed budget of \$324,084.
- The bidder must be able to provide the following services within 24 hours to Pittsburgh Water and Sewer Authority (PWSA) customers in the city of Pittsburgh and borough of Millvale who are low-income, residential customers with program eligibility verified by the PGH2O Cares team and where the owner has signed an agreement for work to be performed in the property.
 - Repair of exposed plumbing with materials purchased by the bidder
 - Replacement of showerhead with low flow showerhead purchased by the bidder
 - Replacement of toilet with low flow toilet purchased by the bidder
 - Installation of two faucet aerators purchased by the bidder
 - Above services may not exceed \$1,356 for any property
 - Education on conservation in the home and the Customer Advantage portal with materials and training provided by PWSA

Scope of Work (continued)

The bidder is required to provide:

- Wi-fi enabled tablets for data collection in PWSA's work order and asset management application with training provided by PWSA
- A detailed safety plan for all work to be performed in PWSA customers' homes
- Criminal background check results for all employees who will be working in customers' homes
- An on-site, pre-repair estimate to determine 1) if the service line inside the property is lead, and 2) if the costs to repair the leaking plumbing/device will not exceed \$1,356
- Timely communication with the PGH2O Cares team
- Invoicing to PWSA that is by item, i.e., plumbing repair, low-flow showerhead installation, low-flow toilet installation, faucet aerator installation
- A warranty period of no less than one year for all plumbing repairs, device installations, and devices

Scope of Work (continued)

Workflow for this offering will be as follows:

1. PGH2O Cares personnel will perform customer intake to determine income and leak location eligibility.
2. Contractor will perform an on-site, pre-repair estimate to determine if the costs to repair the leaking plumbing/device will not exceed \$1,356.
3. PGH2O Cares personnel obtain a signed agreement from the owner of record of an eligible property.
4. Contractor:
 - a. performs leak repair and device installation(s),
 - b. conservation education of the customer,
 - c. facilitates the customer's enrollment in PWSA's Customer Advantage portal with enabled leak alerts, and
 - d. leaves warranty paperwork at property.

Questions

Exhibit JAM-11

THE PITTSBURGH WATER AND SEWER AUTHORITY

RATES, RULES AND REGULATIONS GOVERNING

THE PROVISION OF WATER SERVICE

TO THE PUBLIC IN THE TERRITORY DESCRIBED HEREIN

Issued: May 9, 2023

Effective: July 8, 2023

BY: William J. Pickering, Chief Executive Officer
1200 Penn Avenue, Pittsburgh, PA 15222
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NOTICE

This tariff makes changes in rates as supported by the May 9,
2023 filing at Docket No. R-2023-3039920.

LIST OF CHANGES

TABLE OF CONTENTS (PAGE NO. 3):

Added page numbers for new Infrastructure Improvement Charge (IIC)
and Customer Assistance Charge (CAC)

**PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - RATES FOR METERED SERVICE -
NUMBER 1 MINIMUM OR BASE CHARGE (PAGE NO. 8)**

Term "Base" added in addition to "Minimum" to describe fixed
charge. Added rates for Minimum or Base Charges which will
increase for all customer classes effective February 8, 2024,
January 1, 2025 and January 1, 2026. Text moved from Page No. 8
to new Page No. 8a

**PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - RATES FOR METERED SERVICE -
NUMBER 2 CONSUMPTION CHARGE (NEW PAGE NO. 8A)**

New text describing elimination of minimum allowance effective
January 1, 2025. Added rates for Consumption Charges which will
increase for all customer classes effective February 8, 2024,
January 1, 2025 and January 1, 2026. Removed references to 71
P.S. §§ 720.211 to 720.213 as no longer applicable.

**PART I: SCHEDULE OF RATES AND CHARGES, SECTION A-RATES FOR METERED SERVICE -
NUMBER 3 INFRASTRUCTURE IMPROVEMENT CHARGE (IIC) (NEW PAGES NO. 8B-8D)**

New text describing Infrastructure Improvement Charge to include
purpose, effective rate, computation, semi-annual adjustments, and
annual reconciliation.

**PART I: SCHEDULE OF RATES AND CHARGES, SECTION A RATES FOR METERED SERVICE -
NUMBER 4 CUSTOMER ASSISTANCE CHARGE (CAC) (NEW PAGE NO. 8E-8F)**

New text describing Customer Assistance Charge to include purpose,
effective rate, computation, semi-annual adjustments, and annual
reconciliation.

**PART I: SCHEDULE OF RATES AND CHARGES, SECTION A.1 - RATES FOR UNMETERED SERVICE
(PAGE NO. 9)**

Added rates for Unmetered Service for all rate classes effective
February 8, 2024, January 1, 2025 and January 1, 2026.

LIST OF CHANGES (con't)

PART I: SCHEDULE OF RATES AND CHARGES, SECTION B - FIRE PROTECTION RATES (PAGE NOS. 10 AND 11)

Added rates for Private and Public Fire Protection Rates all rate classes effective February 8, 2024, January 1, 2025 and January 1, 2026. Removed references to 71 P.S. §§ 720.211 to 720.213 as no longer applicable.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION I - SALES FOR RESALE (WHOLESALE) (PAGE NO. 16)

Added rates for Sales for Resale classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

RIDER BDP - BILL DISCOUNT PROGRAM (RESIDENTIAL) (PAGE NO. 19)

Increase eligibility from 150% of FPL to 200% of FPL. Added text describing Fixed Discount Bill Credit to be effective January 1, 2025. Added text that effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC.

PART V: SURCHARGES DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) (PAGE NO. 59)

Increase from 5.0% to 7.5% the DSIC charge.

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PART I: SCHEDULE OF RATES AND CHARGES

Section A - Rates for Metered Service

1. **Minimum (or Base) Charge:** Each customer will be assessed a service charge based upon the size of the customer's meter as follows except that residential customers residing in newly constructed townhomes who are required to install a meter larger than 5/8" for fire protection and due to City ordinance requirements, may request assessment of the 5/8" minimum charge and usage allowance: (C)

<u>Meter Size</u>	<u>Minimum Gallons</u>	<u>Per Month Rate (Effective February 8, 2024)</u>	(C)
5/8"	1,000	\$32.43	(I)
3/4"	2,000	\$54.74	(I)
1"	5,000	\$113.88	(I)
1 1/2"	10,000	\$225.41	(I)
2"	17,000	\$373.78	(I)
3"	40,000	\$832.40	(I)
4"	70,000	\$1,408.27	(I)
6"	175,000	\$3,322.70	(I)
8"	325,000	\$5,968.71	(I)
10" or Larger	548,000	\$9,753.09	(I)

<u>Meter Size</u>	<u>Per Month Rate (Effective January 1, 2025)</u>	<u>Per Month Rate (Effective January 1, 2026)</u>	(C)
5/8"	\$16.82	\$20.13	(D)/(I)
3/4"	\$23.96	\$28.67	(D)/(I)
1"	\$38.25	\$45.77	(D)/(I)
1 1/2"	\$73.97	\$88.51	(D)/(I)
2"	\$116.84	\$139.81	(D)/(I)
3"	\$231.14	\$276.58	(D)/(I)
4"	\$359.74	\$430.46	(D)/(I)
6"	\$716.95	\$857.90	(D)/(I)
8"	\$1,145.60	\$1,370.82	(D)/(I)
10" or Larger	\$1,645.69	\$1,969.22	(D)/(I)

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(C) = Change (I)= Increase (D)=Decrease

[text from previous page carried over here]

2. **Consumption Charge:** In addition to the Minimum or Base Charge, the following water consumption charges will apply for each 1,000 gallons above the Minimum Gallons for each meter size effective February 8, 2024 and for all metered consumption effective January 1, 2025: (C)

Customer Class Consumption Charge Rate per 1000 Gals.

	Effective February 8, 2023	Effective January 1, 2025	Effective January 1, 2026	(C)
Residential	\$17.12	\$18.67	\$22.34	(I) / (I) / (I)
Commercial	\$18.95	\$21.04	\$25.18	(I) / (I) / (I)
Industrial**	\$17.14	\$18.63	\$22.29	(I) / (I) / (I)
Health or Education	\$22.98	\$24.67	\$29.52	(I) / (I) / (I)

The rate under this schedule applies to all customers, except public fire protection and private fire protection customers, unless otherwise specifically identified in this tariff.

** Rate applies to any new bulk water customers.

(I) = Increase (C) = Change

3. **Infrastructure Improvement Charge (IIC)**: In addition to the charges provided in this tariff, and pursuant to the Commission's Statement of Policy at 52 Pa. Code §§ 69.361 et seq., and Section 1307(a) of the Public Utility Code, an Infrastructure Improvement Charge will apply uniformly to all classes of water customers (with the exception of fire protection customers) for each 1,000 gallons consumed.

a. **Purpose.** The purpose of the IIC is to begin timely recovery of specific interest only and principal and interest ("PI") obligations due by PWSA for loans received from the Pennsylvania Infrastructure Investment Authority ("PENNVEST") and the federal government loan program known as the Water Infrastructure Finance and Innovation Act ("WIFIA") when they first become due and until fully repaid and will remain in effect until costs are fully recovered.

b. The currently effective IIC is:

Customer Class	Infrastructure Improvement Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

The above charge per 1000 Gallons is determined as follows:

$$\text{IIC} = \text{PI} / \text{Consumption}$$

IIC = Infrastructure Improvement Charge per 1,000 gallons

PI = Annual Interest Only and/or Principal and Interest
payments per PENNVEST and WIFIA Loans identified below

Consumption = total projected consumption in 1000s gallons used by
all customers in forecast year

- c. **Computation.** The IIC will be adjusted to conform to the specific interest only and principal and interest ("PI") obligations payable pursuant to the final PENNVEST amortization schedules and WIFIA amortization schedules. Currently, the IIC is recovering the following loans:

Loan Source	Loan Number / Identifier	Start Date of Interest Only Payments	Start of Final Amortization Schedule

- d. **Semi-Annual Adjustments.** The IIC is subject to change on a semi-annual basis effective February 1 and August 1 based on the status of applicable PENNVEST and WIFIA loans. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.
- e. **Annual Reconciliation.** The IIC will be subject to annual reconciliation based on actual consumption for the prior 12- month fiscal year period. The IIC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided.

- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement. The IIC shall remain in effect if and until included in the general base rates of the Authority; provided, however, that the charge may be continued or adjusted by the Authority as additional PENNVEST and WIFIA loans, which have been approved for other PWSA Infrastructure Improvement projects, become due and payable.
- g. The charge will be not reflected as a separate line item on each customer's bill.
- h. The Authority will segregate all revenues dedicated for PENNVEST and WIFIA repayment so long as the charge remains in effect.

4. **Customer Assistance Charge ("CAC").** In addition to the charges provided in this tariff, and pursuant to Section 1307(a) of the Public Utility Code, a Customer Assistance Charge will apply uniformly to all classes of water customers (with the exception of fire protection customers) for each 1,000 gallons consumed.

a. **Purpose.** The purpose of the CAC is to recover: **1)** the discounts provided to Customers pursuant to the Bill Discount Program (BDP); **2)** the operating costs for the PGH2O Cares Team; **3)** the costs of PWSA's Hardship Funding; and **4)** for customers entering the BDP on or after February 8, 2024, past due arrearages forgiven pursuant to the PWSA's Arrearage Forgiveness Program.

b. The currently effective CAC is:

Customer Class	Customer Assistance Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

c. **Computation.** The basic component of the CAC will be determined by dividing the total costs as identified applicable costs for recovery by the applicable volumetric consumption in units of 1,000 gallons in the forecast year.

d. **Semi-Annual Adjustments.** The CAC is subject to change on a semi-annual basis effective February 1 and August 1 based on projected changes in actual costs to be incurred in the next six-month period. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

- e. **Annual Reconciliation.** The CAC will be subject to annual reconciliation and refund based on based on actual consumption and actual costs for the prior 12-month fiscal year period. The CAC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided at least ten (10) days prior to the February 1 effective date of the reconciliation.
- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement.
- g. The charge will be not reflected as a separate line item on each customer's bill.

Section A.1 - Rates for Unmetered Service

As of September 1, 2018, enrollment for Unmetered Service will be closed and no new Unmetered Service customers will be accepted by the Authority. Customers who are receiving unmetered service will be assessed a monthly customer charge per unmetered connection as follows:

<u>Customer Class</u>	<u>Customer Charge Per Month</u>			(C)
	Effective February 8, 2024	Effective January 1, 2025	Effective January 1, 2026	
Residential (per unit)	\$83.79	\$91.50	\$109.49	(I) / (I) / (I)
Commercial*	\$108.23	\$122.02	\$146.03	(I) / (I) / (I)

*Rate does not apply to City of Pittsburgh Municipal Accounts pursuant to 71 P.S. §§ 720.211 to 720.213.

(I) = Increase (C) = Change

Section B - Fire Protection Rates

1. Private Fire Protection: A customer charge for non-residential private fire protection service will be assessed as follows:

<u>Meter Size</u>	<u>Line Size</u> (if unmetered)	<u>Customer Charge Per Month (effective February 8, 2024)</u>	<u>Customer Charge Per Month (effective January 1, 2025)</u>	<u>Customer Charge Per Month (effective January 1, 2026)</u>	(C)
1" or Less	2"	\$31.38	\$29.82	\$35.68	(I) / (D) / (I)
1 ½"-3"	3"	\$97.59	\$92.07	\$110.17	(I) / (D) / (I)
4"	4"	\$314.86	\$299.49	\$358.37	(I) / (D) / (I)
6" or Greater	6" or Greater	\$654.53	\$628.51	\$752.07	(I) / (D) / (I)

2. In addition to any customer charge as applicable above, all customers shall be charged for consumption pursuant to the following terms:

- a. In the event of a confirmed fire, no charge shall be made for the use of water to fight the fire using private fire hydrants or fire abatement equipment. Customers whose fire equipment has been activated to fight a fire should notify the Authority to assure that the associated water use will not be billed.
- b. For consumption of water related to testing, training on, and maintenance of private fire hydrants and fire abatement equipment, consumption charges shall be billed in accordance with the following rates for water consumption. Water used from private fire protection for these purposes should be based on meter readings where possible. If a meter cannot be used, the Authority will estimate the usage.

Consumption Charge
Rate per 1,000 Gals.

	<u>Effective February 8, 2024</u>	<u>Effective January 1, 2025</u>	<u>Effective January 1, 2026</u>	(C)
Private Fire Protection	\$31.79	\$50.05	\$59.88	(D) / (I) / (I)

(I)= Increase, (D)= Decrease, (C)= Change

3. Public Fire Protection: For public fire protection, the charges will be assessed as follows:

Per Hydrant Charge				(C) (I)/(I)/(I)
<u>Per Month</u>				
	<u>Effective</u> February 8, 2024	<u>Effective</u> January 1, 2025	<u>Effective</u> January 1, 2026	
Public Fire Protection	\$21.80	\$25.94	\$31.04	

No charge shall be made for the use of water to fight a confirmed fire or for reasonable testing, training on, and maintenance of public fire hydrants and abatement equipment.

For use other than public fire protection, charges based on metered usage of a hydrant as set forth in Part II, Section H.3.

(I) = Increase, (C) = Change

Section I - Sales for Resale (Wholesale)

1. Application: This schedule applies to all new sales of water to other water utilities or public authorities for resale.
2. Rates and Terms of Service: A customer consumption charge per 1,000 gallons of usage will be assessed as follows:

		<u>Consumption Charge</u> Rate per 1000 Gals.			
		<u>effective</u> <u>February 8,</u> <u>2024</u>	<u>effective</u> <u>January 1,</u> <u>2025</u>	<u>effective</u> <u>January 1,</u> <u>2026</u>	(C)
Sales for Resale		\$15.04	\$16.24	\$19.43	(I) / (I) / (I)

3. Contracts stipulating the negotiated rate and negotiated terms of Sale for Resale Service may be renegotiated and/or entered into between the Authority and Customer or Applicant when the Authority, in its sole discretion, deems such offering to be economically advantageous to the Authority. Service under this rate is interruptible, and the Authority reserves the right to interrupt service at Authority's discretion.

Section J - New Automatic Payment Enrollment Credit

(C)

Customers enrolling in paperless billing and establishing automatic bill payments for the first time will receive a one-time credit of \$5.00. For customers receiving water, wastewater, and/or storm water service from PWSA, this credit will only be applied once per PWSA account.

(C)= Change; (I) Increase

Rider BDP - Bill Discount Program (Residential)

1. Bill Discount Program: This rider is a program designed to enroll residential ratepayers who satisfy the criteria set forth below in a monthly discounted rate program.
2. Availability: This rider is available for a Residential customer that meets the low-income criteria of annual household gross income at or below 200% of the Federal Poverty Level. (C)
 - a. A residential ratepayer who meets the eligibility criteria should complete an application for the Bill Discount Program.
 - b. Eligible customers may be asked to verify income every two years.
3. Rate (Minimum or Base Charge): The Minimum or Base Charge for residential service pursuant to Rider BDP will be 0% of the prevailing Minimum Service Charge under Part I, Section A. Any other rates, fees and charges will be at the prevailing amounts under this tariff. (C)
4. Rate (Consumption Charge): The Consumption Charge for residential service pursuant to Rider BDP for participants with income at or below 50% of the Federal Poverty Level will pay 50% of the prevailing Consumption Charge under Part I, Section A (which represents a 50% discount off the charge). Any other rates, fees and charges will be at the prevailing amounts under this tariff.
5. Fixed Discount Bill Credit: Qualifying customers will also receive a fixed bill credit up to the amounts stated as set forth below starting on January 1, 2025: (C)

	Effective January 1, 2025	Effective January 1, 2026
BDP Participants above 50% - 200% of FPL	\$17.00 per bill for water charges	\$20.00 per bill for water charges
CAP Customers at or below 50% of FPL	\$10.00 per bill for water charges	\$12.00 per bill for water charges

6. Infrastructure Improvement Charge ("IIC") and Customer Assistance Charge ("CAC"): Effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC. (C)

(D) = Decrease (C) = Change

PART V: SURCHARGES

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)

In addition to the net charges provided for in this Tariff, a charge of 7.5% will apply.

(I)

1. General Description

a. Purpose: To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements and to develop and implement solutions to regional supply problems.

The costs of extending facilities to serve new customers are not recoverable through the DSIC.

b. Eligible Property: The DSIC-eligible property will consist of the following:

- Services (account 333000), meters (account 334100) and hydrants (account 335000) installed as in-kind replacements for customers;
- Mains and valves (account 331800) installed as replacements for existing facilities that have worn out, are in deteriorated condition, or are required to be upgraded to meet under 52 Pa Code § 65 (relating to water service);
- Main extensions (account 331800) installed to eliminate dead ends and to implement solutions to regional water supply problems that present a significant health and safety concern for customers currently receiving service from the water utility;
- Main cleaning and relining (account 331800) projects; and
- Unreimbursed costs related to highway relocation projects where a water utility must relocate its facilities; and
- Other related capitalized costs

(I) = Increase

Exhibit JAM-12

Supplement No. 12
Tariff Water - Pa. P.U.C. No. 1

THE PITTSBURGH WATER AND SEWER AUTHORITY

RATES, RULES AND REGULATIONS GOVERNING

THE PROVISION OF WATER SERVICE

TO THE PUBLIC IN THE TERRITORY DESCRIBED HEREIN

Issued: ~~March 3,~~ **May 9, 2023** ~~2023~~ Effective: ~~March 6,~~ **July 8, 2023** ~~2023~~

BY: William J. Pickering, Chief Executive Officer
1200 Penn Avenue, Pittsburgh, PA 15222
Tel: 412-255-8800

NOTICE

This tariff makes changes in **rates** ~~rules and regulations~~ regarding private service line leak repair as approved by the Commission in its Final Order entered **as supported by the May 9, 2023 filing at** ~~March 2, 2023 at~~ **Docket No. R-2023-3039920 P-** ~~2022-3030253.~~

LIST OF CHANGES

TABLE OF CONTENTS (PAGE NO. 3) :

Added page numbers for new Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC)

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PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - RATES FOR METERED SERVICE - NUMBER 2 CONSUMPTION CHARGE (NEW PAGE NO. 8A)

New text describing elimination of minimum allowance effective January 1, 2025. Added rates for Consumption Charges which will increase for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026. Removed references to 71 P.S. §§ 720.211 to 720.213 as no longer applicable.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A-RATES FOR METERED SERVICE - NUMBER 3 INFRASTRUCTURE IMPROVEMENT CHARGE (IIC) (NEW PAGES NO. 8B-8D)

New text describing Infrastructure Improvement Charge to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A RATES FOR METERED SERVICE - NUMBER 4 CUSTOMER ASSISTANCE CHARGE (CAC) (NEW PAGE NO. 8E-8F)

New text describing Customer Assistance Charge to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A.1 - RATES FOR UNMETERED SERVICE (PAGE NO. 9)

Added rates for Unmetered Service for all rate classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

LIST OF CHANGES (con't)

PART I: SCHEDULE OF RATES AND CHARGES, SECTION B - FIRE PROTECTION RATES (PAGE NOS. 10 AND 11)

Added rates for Private and Public Fire Protection Rates all rate classes effective February 8, 2024, January 1, 2025 and January 1, 2026. Removed references to 71 P.S. §§ 720.211 to 720.213 as no longer applicable.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION I - SALES FOR RESALE (WHOLESALE) (PAGE NO. 16)

Added rates for Sales for Resale classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

RIDER BDP - BILL DISCOUNT PROGRAM (RESIDENTIAL) (PAGE NO. 19)

Increase eligibility from 150% of FPL to 200% of FPL. Added text describing Fixed Discount Bill Credit to be effective January 1, 2025. Added text that effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC.

PART V: SURCHARGES DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) (PAGE NO. 59)

Increase from 5.0% to 7.5% the DSIC charge.

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PART I: SCHEDULE OF RATES AND CHARGES

Section A - Rates for Metered Service

1. **Minimum (or Base) Charge***: Each customer will be assessed a service charge based upon the size of the customer's meter as follows except that residential customers residing in newly constructed townhomes who are required to install a meter larger than 5/8" for fire protection and due to City ordinance requirements, may request assessment of the 5/8" minimum charge and usage allowance: (C)

<u>Meter Size</u>	<u>Minimum Gallons</u>	<u>Per Month Rate</u> <u>(Effective February 8, 2024 January 12, 2022)</u>		<u>Effective</u> <u>January 1, 2023</u>	(C)
5/8"	1,000	\$32.43	\$27.00	\$26.52	(I)
3/4"	2,000	\$54.74	\$45.12	\$46.47	(I)
1"	5,000	\$113.88	\$94.17	\$102.08	(I)
1 1/2"	10,000	\$225.41	\$184.73	\$201.85	(I)
2"	17,000	\$373.78	\$306.23	\$337.28	(I)
3"	40,000	\$832.40	\$685.83	\$766.42	(I)
4"	70,000	\$1,408.27	\$1,165.81	\$1,313.93	(I)
6"	175,000	\$3,322.70	\$2,777.07	\$3,174.80	(I)
8"	325,000	\$5,968.71	\$5,018.53	\$5,784.48	(I)
10" or Larger	548,000	\$9,753.09	\$8,249.44	\$9,582.36	(I)

<u>Meter Size</u>	<u>Per Month Rate</u> <u>(Effective January 1, 2025)</u>	<u>Per Month Rate</u> <u>(Effective January 1, 2026)</u>	(C)
5/8"	\$16.82	\$20.13	(D) / (I)
3/4"	\$23.96	\$28.67	(D) / (I)
1"	\$38.25	\$45.77	(D) / (I)
1 1/2"	\$73.97	\$88.51	(D) / (I)
2"	\$116.84	\$139.81	(D) / (I)
3"	\$231.14	\$276.58	(D) / (I)
4"	\$359.74	\$430.46	(D) / (I)
6"	\$716.95	\$857.90	(D) / (I)
8"	\$1,145.60	\$1,370.82	(D) / (I)
10" or Larger	\$1,645.69	\$1,969.22	(D) / (I)

[text previously on page moved to next page]

(C) = Change (I) = Increase (D) = Decrease

Issued: ~~May 9, 2023~~ ~~December 30, 2021~~

Effective: July 8, 2023
~~January 12, 2022~~

[text from previous page carried over here]

2. **Consumption Charge:** In addition to the Minimum or Base Charge, the following water consumption charges will apply for each 1,000 gallons above the Minimum Gallons for each meter size effective February 8, 2024 and for all metered consumption effective January 1, 2025: (C)

Customer Class	Consumption Charge Rate per 1000 Gals.				
	Effective January 12, 2022 Effective February 8, 2023	Effective January 1, 2023 Effective January 1, 2025	Effective January 1, 2023	Effective January 1, 2026	(C)
Residential	\$17.12	\$13.10	\$18.67	\$14.64	\$22.34 (I) / (I) / (I)
Commercial*	\$18.95	\$12.61	\$21.04	\$13.80	\$25.18 (I) / (I) / (I)
Industrial**	\$17.14	\$10.96	\$18.63	\$12.13	\$22.29 (I) / (I) / (I)
Health or Education	\$22.98	\$15.65	\$24.67	\$16.29	\$29.52 (I) / (I) / (I)

The rate under this schedule applies to all customers, except public fire protection and private fire protection customers, unless otherwise specifically identified in this tariff.

* Rate applies to City of Pittsburgh Municipal Accounts but bills will be calculated based on a phase in factor pursuant to 71 P.S. §§ 720.211 to 720.213.

** Rate applies to any new bulk water customers.

(I) = Increase (C) = Change

3. **Infrastructure Improvement Charge (IIC)**: In addition to the charges provided in this tariff, and pursuant to the Commission's Statement of Policy at 52 Pa. Code §§ 69.361 et seq., and Section 1307(a) of the Public Utility Code, an Infrastructure Improvement Charge will apply uniformly to all classes of water customers (with the exception of fire protection customers) for each 1,000 gallons consumed.

a. **Purpose.** The purpose of the IIC is to begin timely recovery of specific interest only and principal and interest ("PI") obligations due by PWSA for loans received from the Pennsylvania Infrastructure Investment Authority ("PENNVEST") and the federal government loan program known as the Water Infrastructure Finance and Innovation Act ("WIFIA") when they first become due and until fully repaid and will remain in effect until costs are fully recovered.

b. The currently effective IIC is:

Customer Class	Infrastructure Improvement Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

The above charge per 1000 Gallons is determined as follows:

$$IIC = PI / \text{Consumption}$$

IIC = Infrastructure Improvement Charge per 1,000 gallons

PI = Annual Interest Only and/or Principal and Interest payments per PENNVEST and WIFIA Loans identified below

Consumption = total projected consumption in 1000s gallons used by all customers in forecast year

c. **Computation.** The IIC will be adjusted to conform to the specific interest only and principal and interest ("PI") obligations payable pursuant to the final PENNVEST amortization schedules and WIFIA amortization schedules. Currently, the IIC is recovering the following loans:

Loan Source	Loan Number / Identifier	Start Date of Interest Only Payments	Start of Final Amortization Schedule

d. **Semi-Annual Adjustments.** The IIC is subject to change on a semi-annual basis effective February 1 and August 1 based on the status of applicable PENNVEST and WIFIA loans. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

e. **Annual Reconciliation.** The IIC will be subject to annual reconciliation based on actual consumption for the prior 12- month fiscal year period. The IIC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided.

- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement. The IIC shall remain in effect if and until included in the general base rates of the Authority; provided, however, that the charge may be continued or adjusted by the Authority as additional PENNVEST and WIFIA loans, which have been approved for other PWSA Infrastructure Improvement projects, become due and payable.
- g. The charge will be not reflected as a separate line item on each customer's bill.
- h. The Authority will segregate all revenues dedicated for PENNVEST and WIFIA repayment so long as the charge remains in effect.

4. **Customer Assistance Charge ("CAC").** In addition to the charges provided in this tariff, and pursuant to Section 1307(a) of the Public Utility Code, a Customer Assistance Charge will apply uniformly to all classes of water customers (with the exception of fire protection customers) for each 1,000 gallons consumed.

a. **Purpose.** The purpose of the CAC is to recover: **1)** the discounts provided to Customers pursuant to the Bill Discount Program (BDP); **2)** the operating costs for the PGH2O Cares Team; **3)** the costs of PWSA's Hardship Funding; and **4)** for customers entering the BDP on or after February 8, 2024, past due arrearages forgiven pursuant to the PWSA's Arrearage Forgiveness Program.

b. The currently effective CAC is:

Customer Class	Customer Assistance Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

c. **Computation.** The basic component of the CAC will be determined by dividing the total costs as identified applicable costs for recovery by the applicable volumetric consumption in units of 1,000 gallons in the forecast year.

d. **Semi-Annual Adjustments.** The CAC is subject to change on a semi-annual basis effective February 1 and August 1 based on projected changes in actual costs to be incurred in the next six-month period. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

- e. **Annual Reconciliation.** The CAC will be subject to annual reconciliation and refund based on based on actual consumption and actual costs for the prior 12-month fiscal year period. The CAC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided at least ten (10) days prior to the February 1 effective date of the reconciliation.

- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement.

- g. The charge will be not reflected as a separate line item on each customer's bill.

Section A.1 - Rates for Unmetered Service

As of September 1, 2018, enrollment for Unmetered Service will be closed and no new Unmetered Service customers will be accepted by the Authority. Customers who are receiving unmetered service will be assessed a monthly customer charge per unmetered connection as follows:

<u>Customer Class</u>	<u>Customer Charge Per Month</u>				Effective January 1, 2026	(C)
	Effective January 12, 2022 February 8, 2024		Effective January 1, 2025			
Residential (per unit)	\$83.79	\$66.30	\$91.50	\$70.44	\$109.49	(I) / (I) / (I)
Commercial*	\$108.23	\$77.86	\$122.02	\$82.92	\$146.03	(I) / (I) / (I)

*Rate does not apply to City of Pittsburgh Municipal Accounts pursuant to 71 P.S. §§ 720.211 to 720.213.

(I) = Increase (C) = Change

Section B - Fire Protection Rates

1. Private Fire Protection: A customer charge for non-residential private fire protection service will be assessed as follows:

<u>Meter Size</u>	<u>Line Size (if unmetered)</u>	<u>Customer Charge Per Month (effective February 8, 2024</u> January 12, 2022)	<u>Customer Charge Per Month (effective January 1, 2025)</u> 2023)	<u>Customer Charge Per Month (effective January 1, 2026)</u>	(C)
1" or Less	2"	\$31.38 \$26.92	\$29.82 \$15.43	\$35.68	(I) / (D) / (I)
1 1/2"-3"	3"	\$97.59 \$82.20	\$92.07 \$46.28	\$110.17	(I) / (D) / (I)
4"	4"	\$314.86 \$256.85	\$299.49 \$152.25	\$358.37	(I) / (D) / (I)
6" or Greater	6" or Greater	\$654.53 \$519.70	\$628.51 \$325.06	\$752.07	(I) / (D) / (I)

2. In addition to any customer charge as applicable above, all customers shall be charged for consumption pursuant to the following terms:

a. In the event of a confirmed fire, no charge shall be made for the use of water to fight the fire using private fire hydrants or fire abatement equipment. Customers whose fire equipment has been activated to fight a fire should notify the Authority to assure that the associated water use will not be billed.

b. For consumption of water related to testing, training on, and maintenance of private fire hydrants and fire abatement equipment, consumption charges shall be billed in accordance with the following rates for water consumption. Water used from private fire protection for these purposes should be based on meter readings where possible. If a meter cannot be used, the Authority will estimate the usage.

Consumption Charge
Rate per 1,000 Gals.

	<u>Effective February 8, 2024</u> January 12, 2022	<u>Effective January 1, 2025</u> 2023	<u>Effective January 1, 2026</u>	(C)
Private Fire Protection	\$31.79 \$22.90	\$50.05 \$39.05	\$59.88	(D) / (I) / (I)

(I) = Increase, (D) = Decrease, (C) = Change

3. Public Fire Protection: For public fire protection, the charges will be assessed as follows:

	Per Hydrant Charge Per Month			(C) (I) / (I) / (I)
	<u>Effective</u> January 12, 2022 February 8, 2024	<u>Effective</u> January 1, 2025 3	<u>Effective</u> January 1, 2026	
Public Fire Protection*	\$21.80 \$15.62	\$25.94 \$18.35	\$31.04	

**Rate applies to City of Pittsburgh Municipal Accounts but bills will be calculated based on a phase-in factor pursuant to 71 P.S. §§ 720.211 to 720.213.*

No charge shall be made for the use of water to fight a confirmed fire or for reasonable testing, training on, and maintenance of public fire hydrants and abatement equipment.

For use other than public fire protection, charges based on metered usage of a hydrant as set forth in Part II, Section H.3. ~~(C)~~

(I) = Increase, (C) = Change

Section I - Sales for Resale (Wholesale)

1. Application: This schedule applies to all new sales of water to other water utilities or public authorities for resale.
2. Rates and Terms of Service: A customer consumption charge per 1,000 gallons of usage will be assessed as follows:

<u>Consumption Charge</u> Rate per 1000 Gals.				(C)
	<u>effective</u> <u>January 12,</u> 2022 February 8, 2024	<u>effective</u> <u>January 1,</u> 2025	<u>effective</u> <u>January 1,</u> 2026	
Sales for Resale	\$9.77 \$15.04	\$10.89 \$16.24	\$19.43		(I) / (I) / (I)

3. Contracts stipulating the negotiated rate and negotiated terms of Sale for Resale Service may be renegotiated and/or entered into between the Authority and Customer or Applicant when the Authority, in its sole discretion, deems such offering to be economically advantageous to the Authority. Service under this rate is interruptible, and the Authority reserves the right to interrupt service at Authority's discretion.

Section J - New Automatic Payment Enrollment Credit

(C)

Customers enrolling in paperless billing and establishing automatic bill payments for the first time will receive a one-time credit of \$5.00. For customers receiving water, wastewater, and/or storm water service from PWSA, this credit will only be applied once per PWSA account.

(C) = Change; (I) Increase

Rider BDP - Bill Discount Program (Residential)

1. Bill Discount Program: This rider is a program designed to enroll residential ratepayers who satisfy the criteria set forth below in a monthly discounted rate program.
2. Availability: This rider is available for a Residential customer that meets the low-income criteria of annual household gross income at or below ~~200~~**150**% of the Federal Poverty Level. (C)
 - a. A residential ratepayer who meets the eligibility criteria should complete an application for the Bill Discount Program.
 - b. Eligible customers may be asked to verify income every two years.
3. Rate (Minimum ~~or~~ **Base** Charge): The Minimum ~~or~~ **Base** Charge for residential service pursuant to Rider BDP will be 0% of the prevailing Minimum Service Charge under Part I, Section A. Any other rates, fees and charges will be at the prevailing amounts under this tariff. (C)
4. Rate (Consumption Charge): The Consumption Charge for residential service pursuant to Rider BDP for participants with income at or below 50% of the Federal Poverty Level will pay 50% of the prevailing Consumption Charge under Part I, Section A (which represents a 50% discount off the charge). Any other rates, fees and charges will be at the prevailing amounts under this tariff.
5. Fixed Discount Bill Credit: Qualifying customers will also receive a fixed bill credit up to the amounts stated as set forth below starting on January 1, 2025: (C)

	Effective January 1, 2025	Effective January 1, 2026
BDP Participants above 50% - 200% of FPL	\$17.00 per bill for water charges	\$20.00 per bill for water charges
CAP Customers at or below 50% of FPL	\$10.00 per bill for water charges	\$12.00 per bill for water charges

6. Infrastructure Improvement Charge ("IIC") and Customer Assistance Charge ("CAC"): Effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC. (C)

(D) = Decrease (C) = Change

PART V: SURCHARGES

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)

In addition to the net charges provided for in this Tariff, a charge of ~~7.5-0%~~ will apply ~~consistent with the Commission Order dated December 3, 2020 at Docket No. P-2020-3019019, approving the DSIC.~~ (I)

1. General Description

a. Purpose: To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements and to develop and implement solutions to regional supply problems.

The costs of extending facilities to serve new customers are not recoverable through the DSIC.

b. Eligible Property: The DSIC-eligible property will consist of the following:

- Services (account 333000), meters (account 334100) and hydrants (account 335000) installed as in-kind replacements for customers;
- Mains and valves (account 331800) installed as replacements for existing facilities that have worn out, are in deteriorated condition, or are required to be upgraded to meet under 52 Pa Code § 65 (relating to water service);
- Main extensions (account 331800) installed to eliminate dead ends and to implement solutions to regional water supply problems that present a significant health and safety concern for customers currently receiving service from the water utility;
- Main cleaning and relining (account 331800) projects; and
- Unreimbursed costs related to highway relocation projects where a water utility must relocate its facilities; and
- Other related capitalized costs

(I) = Increase

Exhibit JAM-13

THE PITTSBURGH WATER AND SEWER AUTHORITY

RATES, RULES AND REGULATIONS GOVERNING

THE PROVISION OF WASTEWATER CONVEYANCE SERVICE

TO THE PUBLIC IN THE TERRITORY DESCRIBED HEREIN

Issued: May 9, 2023

Effective: July 8, 2023

BY: William J. Pickering, Chief Executive Officer
1200 Penn Avenue, Pittsburgh, PA 15222
Tel: 412-255-8800

NOTICE

This tariff makes changes in rates supported by the May 9, 2023
filing at Docket No. R-2023-3039912

LIST OF CHANGES

TABLE OF CONTENTS (PAGE No. 3) :

Added page numbers for new Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC)

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - WASTEWATER CONVEYANCE - NUMBER 1 MINIMUM OR BASE CHARGE (PAGE No. 9)

Term "Base" added in addition to "Minimum" to describe fixed charge. Added rates for Minimum or Base Charges which will increase for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026. Text moved from Page No. 9 to new Page No. 9A

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - WASTEWATER CONVEYANCE - NUMBER 2 CONVEYANCE CHARGE (NEW PAGE No. 9A)

New text describing elimination of minimum allowance effective January 1, 2025. Added rates for Conveyance Charges for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026. Removed references to 71 P.S. §§ 720.211 to 720.213 as no longer applicable.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - NUMBER 3 INFRASTRUCTURE IMPROVEMENT CHARGE (IIC) (NEW PAGES No. 9B-9D)

New text describing Infrastructure Improvement Charge to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - NUMBER 4 CUSTOMER ASSISTANCE CHARGE (CAC) (NEW PAGE No. 9E-9F)

New text describing Customer Assistance Charge to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - NUMBER 5 TREATMENT RATE (PAGE No. 10)

Updated numbering and text to include reference to IIC and CAC.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A.1 - RATES FOR UNMETERED SERVICE (PAGE No. 11)

Added rates for Unmetered Service for all rate classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

LIST OF CHANGES (con't)

RIDER BDP - BILL DISCOUNT PROGRAM (RESIDENTIAL) (PAGE NO. 17)

Increase eligibility from 150% of FPL to 200% of FPL. Added text describing Fixed Discount Bill Credit to be effective January 1, 2025. Added text that effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC.

PART V: SURCHARGES DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) (PAGE NO. 64)

Increase from 5.0% to 7.5% the DSIC charge.

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PART I: SCHEDULE OF RATES AND CHARGES

Section A - Wastewater Conveyance

1. Minimum (or Base) Charge: Each customer will be assessed a service charge based upon the size of the customer's water meter as follows except that residential customers residing in newly constructed townhomes who are required to install a meter larger than 5/8" for fire protection and due to City ordinance requirements, may request assessment of the 5/8" minimum charge and usage allowance: (C)

<u>Meter Size</u>	<u>Minimum Gallons</u>	<u>Per Month Rate</u> <u>(Effective February 8, 2024)</u>	(C)
5/8"	1,000	\$7.42	(I)
3/4"	2,000	\$11.43	(D)
1"	5,000	\$22.50	(D)
1 1/2"	10,000	\$42.56	(D)
2"	17,000	\$69.68	(D)
3"	40,000	\$155.24	(D)
4"	70,000	\$264.10	(D)
6"	175,000	\$632.71	(D)
8"	325,000	\$1,148.40	(D)
10" or Larger	548,000	\$1,896.72	(D)

<u>Meter Size</u>	Base Charge Per Month		(C)
	Effective January 1, 2025	Effective January 1, 2026	(C)
5/8"	\$3.98	\$4.63	(D) / (I)
3/4"	\$4.69	\$5.45	(D) / (I)
1"	\$6.12	\$7.11	(D) / (I)
1 1/2"	\$9.69	\$11.26	(D) / (I)
2"	\$13.98	\$16.25	(D) / (I)
3"	\$25.41	\$29.53	(D) / (I)
4"	\$38.26	\$44.47	(D) / (I)
6"	\$73.97	\$85.97	(D) / (I)
8"	\$116.83	\$135.78	(D) / (I)
10" or Larger	\$166.82	\$193.88	(D) / (I)

[text previously on page moved to next page]

(C) = Change (I) = Increase (D) = Decrease

[text from previous page carried over here]

2. Conveyance Charge: In addition to the Minimum or Base Charge, the following wastewater conveyance charges (based on water consumption/usage or wastewater flows, at the Authority's discretion) will apply for each 1,000 gallons above the Minimum Gallons for each meter size effective February 8, 2024 and for all metered consumption effective January 1, 2025: (C)

Customer Class	Conveyance Charge Rate Per 1000 Gals.			(C)
	Effective February 8, 2024	Effective January 1, 2025	Effective January 1, 2026	
Residential	\$6.28	\$5.73	\$6.66	(I) / (D) / (I)
Commercial	\$5.76	\$5.75	\$6.68	(I) / (D) / (I)
Industrial	\$5.49	\$5.69	\$6.61	(I) / (I) / (I)
Health or Education	\$6.33	\$6.29	\$7.31	(D) / (D) / (I)

(C)

3. **Infrastructure Improvement Charge (IIC):** In addition to the charges provided in this tariff, and pursuant to the Commission's Statement of Policy at 52 Pa. Code §§ 69.361 et seq., and Section 1307(a) of the Public Utility Code, an Infrastructure Improvement Charge will apply uniformly to all classes of wastewater conveyance customers (for each 1,000 gallons conveyed).
- a. **Purpose.** The purpose of the IIC is to begin timely recovery of specific interest only and principal and interest ("PI") obligations due by PWSA for loans received from the Pennsylvania Infrastructure Investment Authority ("PENNVEST") and the federal government loan program known as the Water Infrastructure Finance and Innovation Act ("WIFIA") when they first become due and until fully repaid and will remain in effect until costs are fully recovered.

b. **The Currently Effective IIC Is:**

Customer Class	Infrastructure Improvement Charge Rate per 1000 Gals. Effective February 8, 2024
All Customers	\$0.00

The above charge per 1000 Gallons is determined as follows:

$$\text{IIC} = \text{PI} / \text{Conveyance}$$

IIC = Infrastructure Improvement Charge per 1,000 gallons

PI = Annual Interest Only and/or Principal and Interest payments per PENNVEST and WIFIA Loans identified below

Conveyance = total projected conveyance in 1000s gallons conveyed by all customers in forecast year

- c. **Computation.** The IIC will be adjusted to conform to the specific interest only and principal and interest ("PI") obligations payable pursuant to the final PENNVEST amortization schedules and WIFIA amortization schedules. Currently, the IIC is recovering the following loans:

Loan Source	Loan Number / Identifier	Start Date of Interest Only Payments	Start of Final Amortization Schedule

- d. **Semi-Annual Adjustments.** The IIC is subject to change on a semi-annual basis effective February 1 and August 1 based on the status of applicable PENNVEST and WIFIA loans. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.
- e. **Annual Reconciliation.** The IIC will be subject to annual reconciliation based on actual consumption for the prior 12- month fiscal year period. The IIC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided.

- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement. The IIC shall remain in effect if and until included in the general base rates of the Authority; provided, however, that the charge may be continued or adjusted by the Authority as additional PENNVEST and WIFIA loans, which have been approved for other PWSA Infrastructure Improvement projects, become due and payable.
- g. The charge will be not reflected as a separate line item on each customer's bill.
- h. The Authority will segregate all revenues dedicated for PENNVEST and WIFIA repayment so long as the charge remains in effect.

4. **Customer Assistance Charge ("CAC")**. In addition to the charges provided in this tariff, and pursuant to Section 1307(a) of the Public Utility Code, a Customer Assistance Charge will apply uniformly to all classes of wastewater conveyance customers for each 1,000 gallons consumed.

a. **Purpose**. The purpose of the CAC is to recover: **1)** the discounts provided to Customers pursuant to the Bill Discount Program (BDP); **2)** the operating costs for the PGH2O Cares Team; **3)** the costs of PWSA's Hardship Funding; and **4)** for customers entering the BDP on or after February 8, 2024, past due arrearages forgiven pursuant to the PWSA's Arrearage Forgiveness Program.

b. The currently effective CAC is:

Customer Class	Customer Assistance Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

c. **Computation**. The basic component of the CAC will be determined by dividing the total costs as identified applicable costs for recovery by the applicable volumetric conveyance in units of 1,000 gallons in the forecast.

d. **Semi-Annual Adjustments**. The CAC is subject to change on a semi-annual basis effective February 1 and August 1 based on projected changes in actual costs to be incurred in the next six-month period. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

- e. **Annual Reconciliation.** The CAC will be subject to annual reconciliation and refund based on based on actual consumption and actual costs for the prior 12-month fiscal year period. The CAC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided at least ten (10) days prior to the February 1 effective date of the reconciliation.
- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement.
- g. The charge will be not reflected as a separate line item on each customer's bill.

5. **Treatment Rate:**

(C)

- a. In addition to the Minimum or Base Charge, the Conveyance Charge, and the IIC and CAC, customers will be required to pay rates for Wastewater/Sewage treatment to Premises. (C)
- b. The rates for Wastewater/Sewage treatment to Premises within the Authority's service area are established by ALCOSAN, and are paid by the Authority to ALCOSAN. Information on ALCOSAN's rates is available on its website.
- c. Wastewater/Sewage treatment charges may be reflected on Authority bills/invoices as ALCOSAN charges, basic service and sewage treatment.

Section A.1 - Wastewater Conveyance (Unmetered Service)

1. Customer Charge. As of September 1, 2018 enrollment for Unmetered Service will be closed and no new Unmetered Service customers will be accepted by the Authority. Customers who are receiving unmetered service will be assessed a monthly customer charge per unmetered connection as follows:

<u>Customer Class</u>	<u>Customer Charge</u>			<u>(C)</u>
	Effective February 8, 2024	Effective January 1, 2025	Effective January 1, 2026	
Residential (per unit)	\$26.26	\$26.90	\$31.27	(I) / (I) / (I)
Commercial*	\$30.46	\$32.73	\$38.03	(I) / (I) / (I)

*Rate does not apply to City of Pittsburgh Municipal Accounts pursuant to 71 P.S. §§ 720.211 to 720.213.

2. Treatment Rate: In addition to the Customer Charge, Customers who are receiving unmetered service will be required to pay rates for Wastewater/Sewage treatment to Premises, as set forth in Section A.3.

Section B - Bulk Wastewater Conveyance

1. Application: This schedule applies to all bulk wastewater conveyance for other wastewater utilities or public authorities.
2. Rates and Terms of Service: Contracts stipulating the negotiated rate and negotiated terms of Bulk Wastewater Conveyance may be entered into between the Authority and Customer or Applicant when the Authority, in its sole discretion, deems such offering to be economically advantageous to the Authority.

(D)= Decrease (I) = Increase (C)=Change

Rider BDP - Bill Discount Program (Residential)

1. Bill Discount Program: This rider is a program designed to enroll residential ratepayers who satisfy the criteria set forth below in a monthly discounted rate program
2. Availability: This rider is available for a Residential customer that meets the low-income criteria of annual household gross income at or below 200% based on the Federal Poverty Level. (C)
 - a. A residential ratepayer who meets the eligibility criteria should complete an application for the Bill Discount Program.
 - b. Eligible customers may be asked to verify income every two years.
3. Rate (Minimum or Base Charge): The Minimum or Base Charge for residential service pursuant to Rider BDP will be 0% of the prevailing Minimum Service Charge under Part I, Section A. Any other rates, fees and charges will be at the prevailing amounts under this tariff.
4. Rate (Conveyance Charge): The Consumption Charge for residential service pursuant to Rider BDP for participants with income at or below 50% of the Federal Poverty Level will pay 50% of the prevailing Consumption Charge under Part I, Section A (which represents a 50% discount off the charge). Any other rates, fees and charges will be at the prevailing amounts under this tariff.
5. Fixed Discount Bill Credit: Qualifying customers will also receive a fixed bill credit up to the amounts stated as set forth below starting on January 1, 2025: (C)

	Effective January 1, 2025	Effective January 1, 2026
BDP Participants above 50% - 200% of FPL	\$5.00 per bill for wastewater conveyance charges	\$6.00 per bill for wastewater conveyance charges (C)
CAP Customers at or below 50% of FPL	\$3.00 per bill for wastewater conveyance charges	\$4.00 per bill for wastewater charges

6. Infrastructure Improvement Charge ("IIC") and Customer Assistance Charge ("CAC"): Effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC. (C)

(D) = Decrease; (C) = Change

5. PART V: SURCHARGES

(C)

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)

In addition to the net charges provided for in this Tariff, a charge of 7.5% will apply.

(I)

1. General Description

- a. Purpose: To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements and to develop and implement solutions to regional supply problems.

The costs of extending facilities to serve new customers are not recoverable through the DSIC.

- b. Eligible Property: The DSIC-eligible property will consist of the following:
- Collection sewers, collecting mains and service laterals, including sewer taps, curb stops and lateral cleanouts installed as in-kind replacements for customers; Accounts (360, 361 and 363)
 - Collection mains and valves for gravity and pressure systems and related facilities such as manholes, grinder pumps, air and vacuum release chambers, cleanouts, main line flow meters, valve vaults and lift stations installed as replacements or upgrades for existing facilities that have worn out, are in deteriorated condition or are required to be upgraded by law, regulation or order; Accounts (360, 361, 364 and 365)

(I) = Increase

Exhibit JAM-14

PWSA Exh JAM-14

Supplement No. ~~1110~~
Tariff Wastewater - Pa. P.U.C. No. 1

THE PITTSBURGH WATER AND SEWER AUTHORITY

RATES, RULES AND REGULATIONS GOVERNING

THE PROVISION OF WASTEWATER CONVEYANCE SERVICE

TO THE PUBLIC IN THE TERRITORY DESCRIBED HEREIN

Issued: ~~November 15, 2022~~
May 9, 2023

Effective: ~~January 14, 2023~~
July 8, 2023

BY: William J. Pickering, Chief Executive Officer
1200 Penn Avenue, Pittsburgh, PA 15222
Tel: 412-255-8800

NOTICE

This tariff makes changes in ~~rules and regulations~~ **rates** ~~as supported by the May 9, 2023 filing approved by the Commission in its Final Order dated July 14, 2022 at Docket No. R-2023-3039912~~ ~~M-2018-2640802 and M-2018-2640803~~

LIST OF CHANGES

TABLE OF CONTENTS (PAGE No. 3) :

Added page numbers for new Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC)

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - WASTEWATER CONVEYANCE - NUMBER 1 MINIMUM OR BASE CHARGE (PAGE No. 9)

Term "Base" added in addition to "Minimum" to describe fixed charge. Added rates for Minimum or Base Charges which will increase for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026. Text moved from Page No. 9 to new Page No. 9A

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - WASTEWATER CONVEYANCE - NUMBER 2 CONVEYANCE CHARGE (NEW PAGE No. 9A)

New text describing elimination of minimum allowance effective January 1, 2025. Added rates for Conveyance Charges for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026. Removed references to 71 P.S. §§ 720.211 to 720.213 as no longer applicable.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - NUMBER 3 INFRASTRUCTURE IMPROVEMENT CHARGE (IIC) (NEW PAGES No. 9B-9D)

New text describing Infrastructure Improvement Charge to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - NUMBER 4 CUSTOMER ASSISTANCE CHARGE (CAC) (NEW PAGE No. 9E-9F)

New text describing Customer Assistance Charge to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A - NUMBER 5 TREATMENT RATE (PAGE No. 10)

Updated numbering and text to include reference to IIC and CAC.

PART I: SCHEDULE OF RATES AND CHARGES, SECTION A.1 - RATES FOR UNMETERED SERVICE (PAGE No. 11)

Added rates for Unmetered Service for all rate classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

LIST OF CHANGES (con't)

RIDER BDP - BILL DISCOUNT PROGRAM (RESIDENTIAL) (PAGE NO. 17)

Increase eligibility from 150% of FPL to 200% of FPL. Added text describing Fixed Discount Bill Credit to be effective January 1, 2025. Added text that effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC.

PART V: SURCHARGES DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) (PAGE NO. 64)

Increase from 5.0% to 7.5% the DSIC charge.

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(C)

PART I: SCHEDULE OF RATES AND CHARGES

Section A - Wastewater Conveyance

1. Minimum (or Base) Charge*: Each customer will be assessed a service charge based upon the size of the customer's water meter as follows except that residential customers residing in newly constructed townhomes who are required to install a meter larger than 5/8" for fire protection and due to City ordinance requirements, may request assessment of the 5/8" minimum charge and usage allowance: (C)

<u>Meter Size</u>	<u>Minimum Gallons</u>	<u>Per Month Rate</u> <u>(Effective February 8, 2024)</u> <u>January 12, 2022</u>	<u>Effective</u> <u>January 1, 2023</u>	(C)
5/8"	1,000	\$7.42 \$8.09	\$7.32	(I)
3/4"	2,000	\$11.43 \$15.27	\$11.70	(D)
1"	5,000	\$22.50 \$35.01	\$24.27	(D)
1 1/2"	10,000	\$42.56 \$70.91	\$46.19	(D)
2"	17,000	\$69.68 \$119.36	\$76.29	(D)
3"	40,000	\$155.24 \$271.91	\$173.03	(D)
4"	70,000	\$264.10 \$465.73	\$297.52	(D)
6"	175,000	\$632.71 \$1,120.70	\$725.62	(D)
8"	325,000	\$1,148.40 \$2,035.83	\$1,330.48	(D)
10" or Larger	548,000	\$1,896.72 \$3,361.79	\$2,218.44	(D)

<u>Meter Size</u>	<u>Base Charge</u> <u>Per Month</u>		(C)
	<u>Effective</u> <u>January 1, 2025</u>	<u>Effective</u> <u>January 1, 2026</u>	(C)
5/8"	\$3.98	\$4.63	(D) / (I)
3/4"	\$4.69	\$5.45	(D) / (I)
1"	\$6.12	\$7.11	(D) / (I)
1 1/2"	\$9.69	\$11.26	(D) / (I)
2"	\$13.98	\$16.25	(D) / (I)
3"	\$25.41	\$29.53	(D) / (I)
4"	\$38.26	\$44.47	(D) / (I)
6"	\$73.97	\$85.97	(D) / (I)
8"	\$116.83	\$135.78	(D) / (I)
10" or Larger	\$166.82	\$193.88	(D) / (I)

[text previously on page moved to next page]

(C) = Change (I) = Increase (D) = Decrease

[text from previous page carried over here]

2. Conveyance Charge: In addition to the Minimum or Base Charge, the following wastewater conveyance charges (based on water consumption/usage or wastewater flows, at the Authority's discretion) will apply for each 1,000 gallons above the Minimum Gallons for each meter size effective February 8, 2024 and for all metered consumption effective January 1, 2025: (C)

Customer Class	Conveyance Charge Rate Per 1000 Gals.			(C)
	Effective February 8, 2024	Effective January 1, 2025	Effective January 1, 2026	
Residential	\$6.28 \$6.99	\$5.73 \$5.81	\$6.66	(I) / (D) / (I)
Commercial*	\$5.76 \$6.22	\$5.75 \$5.28	\$6.68	(I) / (D) / (I)
Industrial	\$5.49 \$5.76	\$5.69 \$5.05	\$6.61	(I) / (I) / (I)
Health or Education	\$6.33 \$7.71	\$6.29 \$6.38	\$7.31	(D) / (D) / (I)

* ~~Rate applies to City of Pittsburgh Municipal Accounts but bills will be calculated based on a phase-in factor pursuant to 71 P.S. §§ 720.211 to 720.213.~~ (C)

(D)= Decrease (I)=Increase (c) = Change

3. **Infrastructure Improvement Charge (IIC):** In addition to the charges provided in this tariff, and pursuant to the Commission's Statement of Policy at 52 Pa. Code §§ 69.361 et seq., and Section 1307(a) of the Public Utility Code, an Infrastructure Improvement Charge will apply uniformly to all classes of wastewater conveyance customers (for each 1,000 gallons conveyed).
- a. **Purpose.** The purpose of the IIC is to begin timely recovery of specific interest only and principal and interest ("PI") obligations due by PWSA for loans received from the Pennsylvania Infrastructure Investment Authority ("PENNVEST") and the federal government loan program known as the Water Infrastructure Finance and Innovation Act ("WIFIA") when they first become due and until fully repaid and will remain in effect until costs are fully recovered.

b. The currently effective IIC is:

Customer Class	Infrastructure Improvement Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

The above charge per 1000 Gallons is determined as follows:

$$\text{IIC} = \text{PI} / \text{Conveyance}$$

IIC = Infrastructure Improvement Charge per 1,000 gallons

PI = Annual Interest Only and/or Principal and Interest payments per PENNVEST and WIFIA Loans identified below

Conveyance = total projected conveyance in 1000s gallons conveyed by all customers in forecast year

- c. **Computation.** The IIC will be adjusted to conform to the specific interest only and principal and interest ("PI") obligations payable pursuant to the final PENNVEST amortization schedules and WIFIA amortization schedules. Currently, the IIC is recovering the following loans:

Loan Source	Loan Number / Identifier	Start Date of Interest Only Payments	Start of Final Amortization Schedule

- d. **Semi-Annual Adjustments.** The IIC is subject to change on a semi-annual basis effective February 1 and August 1 based on the status of applicable PENNVEST and WIFIA loans. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.
- e. **Annual Reconciliation.** The IIC will be subject to annual reconciliation based on actual consumption for the prior 12- month fiscal year period. The IIC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided.

- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement. The IIC shall remain in effect if and until included in the general base rates of the Authority; provided, however, that the charge may be continued or adjusted by the Authority as additional PENNVEST and WIFIA loans, which have been approved for other PWSA Infrastructure Improvement projects, become due and payable.
- g. The charge will be not reflected as a separate line item on each customer's bill.
- h. The Authority will segregate all revenues dedicated for PENNVEST and WIFIA repayment so long as the charge remains in effect.

4. **Customer Assistance Charge ("CAC")**. In addition to the charges provided in this tariff, and pursuant to Section 1307(a) of the Public Utility Code, a Customer Assistance Charge will apply uniformly to all classes of wastewater conveyance customers for each 1,000 gallons consumed.

a. **Purpose**. The purpose of the CAC is to recover: **1)** the discounts provided to Customers pursuant to the Bill Discount Program (BDP); **2)** the operating costs for the PGH2O Cares Team; **3)** the costs of PWSA's Hardship Funding; and **4)** for customers entering the BDP on or after February 8, 2024, past due arrearages forgiven pursuant to the PWSA's Arrearage Forgiveness Program.

b. The currently effective CAC is:

Customer Class	Customer Assistance Charge Rate per 1000 Gals. Effective February 8, 2024
All Customers	\$0.00

c. **Computation**. The basic component of the CAC will be determined by dividing the total costs as identified applicable costs for recovery by the applicable volumetric conveyance in units of 1,000 gallons in the forecast.

d. **Semi-Annual Adjustments**. The CAC is subject to change on a semi-annual basis effective February 1 and August 1 based on projected changes in actual costs to be incurred in the next six-month period. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

- e. **Annual Reconciliation.** The CAC will be subject to annual reconciliation and refund based on based on actual consumption and actual costs for the prior 12-month fiscal year period. The CAC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided at least ten (10) days prior to the February 1 effective date of the reconciliation.
- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement.
- g. The charge will be not reflected as a separate line item on each customer's bill

35. Treatment Rate:

(C)

- a. In addition to the Minimum ~~or Base~~ Charge, ~~and~~ the Conveyance Charge, ~~and the IIC and CAC~~, customers will be required to pay rates for Wastewater/Sewage treatment to Premises. (C)
- b. The rates for Wastewater/Sewage treatment to Premises within the Authority's service area are established by ALCOSAN, and are paid by the Authority to ALCOSAN. Information on ALCOSAN's rates is available on its website.
- c. Wastewater/Sewage treatment charges may be reflected on Authority bills/invoices as ALCOSAN charges, basic service and sewage treatment.

Section A.1 - Wastewater Conveyance (Unmetered Service)

1. Customer Charge. As of September 1, 2018 enrollment for Unmetered Service will be closed and no new Unmetered Service customers will be accepted by the Authority. Customers who are receiving unmetered service will be assessed a monthly customer charge per unmetered connection as follows:

<u>Customer Class</u>	<u>Customer Charge</u>			(C)
	Effective January 12, 2022 Effective February 8, 2024	Effective January 1, 2025	Effective January 1, 2026	
Residential (per unit)	\$26.26 \$29.06	\$26.90 \$24.75	\$31.27	(I) / (I) / (I)
Commercial*	\$30.46 \$32.97	\$32.73 \$28.44	\$38.03	(I) / (I) / (I)

*Rate does not apply to City of Pittsburgh Municipal Accounts pursuant to 71 P.S. §§ 720.211 to 720.213.

2. Treatment Rate: In addition to the Customer Charge, Customers who are receiving unmetered service will be required to pay rates for Wastewater/Sewage treatment to Premises, as set forth in Section A.3.

Section B - Bulk Wastewater Conveyance

1. Application: This schedule applies to all bulk wastewater conveyance for other wastewater utilities or public authorities.
2. Rates and Terms of Service: Contracts stipulating the negotiated rate and negotiated terms of Bulk Wastewater Conveyance may be entered into between the Authority and Customer or Applicant when the Authority, in its sole discretion, deems such offering to be economically advantageous to the Authority.

(D)= Decrease (I) = Increase (C)=Change

Rider BDP - Bill Discount Program (Residential)

1. Bill Discount Program: This rider is a program designed to enroll residential ratepayers who satisfy the criteria set forth below in a monthly discounted rate program
2. Availability: This rider is available for a Residential customer that meets the low-income criteria of annual household gross income at or below ~~200~~**150**% based on the Federal Poverty Level. (C)
 - a. A residential ratepayer who meets the eligibility criteria should complete an application for the Bill Discount Program.
 - b. Eligible customers may be asked to verify income every two years.
3. Rate (Minimum ~~or~~ **Base** Charge): The Minimum ~~or~~ **Base** Charge for residential service pursuant to Rider BDP will be 0% of the prevailing Minimum Service Charge under Part I, Section A. Any other rates, fees and charges will be at the prevailing amounts under this tariff.
4. Rate (Conveyance Charge): The Consumption Charge for residential service pursuant to Rider BDP for participants with income at or below 50% of the Federal Poverty Level will pay 50% of the prevailing Consumption Charge under Part I, Section A (which represents a 50% discount off the charge). Any other rates, fees and charges will be at the prevailing amounts under this tariff.
5. Fixed Discount Bill Credit: ~~Qualifying customers will also receive a fixed bill credit up to the amounts stated as set forth below starting on January 1, 2025:~~ (C)

	Effective January 1, 2025	Effective January 1, 2026
BDP Participants above 50% - 200% of FPL	\$5.00 per bill for wastewater conveyance charges	\$6.00 per bill for wastewater conveyance charges (C)
CAP Customers at or below 50% of FPL	\$3.00 per bill for wastewater conveyance charges	\$4.00 per bill for wastewater charges

6. Infrastructure Improvement Charge ("IIC") and Customer Assistance Charge ("CAC"): ~~Effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC.~~ (C)

(D) = Decrease; (C) = Change

5. PART V: SURCHARGES

(C)

DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC)

In addition to the net charges provided for in this Tariff, a charge of ~~7.5-0%~~ **7.5-0%** will apply ~~consistent with the Commission Order dated December 3, 2020 at Docket No. P-2020-3019019, approving the DSIC.~~

(I)

1. General Description

- a. Purpose: To recover the reasonable and prudent costs incurred to repair, improve, or replace eligible property which is completed and placed in service and recorded in the individual accounts, as noted below, between base rate cases and to provide the Utility with the resources to accelerate the replacement of aging infrastructure, to comply with evolving regulatory requirements and to develop and implement solutions to regional supply problems.

The costs of extending facilities to serve new customers are not recoverable through the DSIC.

- b. Eligible Property: The DSIC-eligible property will consist of the following:
- Collection sewers, collecting mains and service laterals, including sewer taps, curb stops and lateral cleanouts installed as in-kind replacements for customers; Accounts (360, 361 and 363)
 - Collection mains and valves for gravity and pressure systems and related facilities such as manholes, grinder pumps, air and vacuum release chambers, cleanouts, main line flow meters, valve vaults and lift stations installed as replacements or upgrades for existing facilities that have worn out, are in deteriorated condition or are required to be upgraded by law, regulation or order; Accounts (360, 361, 364 and 365)

(I)= Increase

Exhibit JAM-15

The Pittsburgh Water
and Sewer Authority

Supplement No. 3
Tariff Storm Water - Pa. P.U.C. No. 1

THE PITTSBURGH WATER AND SEWER AUTHORITY

RATES, RULES AND REGULATIONS GOVERNING

THE PROVISION OF STORM WATER COLLECTION, CONVEYANCE,

TREATMENT AND/OR DISPOSAL SERVICE

TO THE PUBLIC IN THE TERRITORY DESCRIBED HEREIN

Issued: May 9, 2023

Effective: July 8, 2023

By: William J. Pickering, Chief Executive Officer
1200 Penn Avenue, Pittsburgh, PA 15222
Tel: 412-255-8800

NOTICE

This tariff makes changes in rates supported by the May 9, 2023
filing at Docket Nos. R-2023-3039919

LIST OF CHANGES

TABLE OF CONTENTS (PAGE No. 3)

Added page number for new Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC)

PART I: SCHEDULE OF RATES AND CHARGES SECTION A.1 RESIDENTIAL SERVICE, No. 3 SERVICE CHARGE (PAGE No. 7)

Added rates which will increase for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

PART I: SCHEDULE OF RATES AND CHARGES SECTION A.2 NON-RESIDENTIAL SERVICE, No. 3 SERVICE CHARGE (PAGE No. 8)

Added rates which will increase for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

PART I: SCHEDULE OF RATES AND CHARGES SECTION A.3 INFRASTRUCTURE IMPROVEMENT AND CUSTOMER ASSISTANCE CHARGES (NEW PAGE NOS. 8A-8E)

New text describing Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC) to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES SECTION B STORM WATER MANAGEMENT CHARGE CREDITS, No. B.1 RESIDENTIAL AND NON-RESIDENTIAL CREDIT (PAGE No. 9, NEW PAGE NOS. 9A-9C AND PAGE No. 10)

Revised and updated text and deletions to reflect terms and conditions related to availability of credits to customers who take steps to reduce stormwater runoff.

RIDER BDP - BILL DISCOUNT PROGRAM (RESIDENTIAL) (PAGE No. 17)

Increase eligibility from 150% of FPL to 200% of FPL. Added text that effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC.

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Rider BDP - Bill Discount Program (Residential)	17

(C) = Change

PART I: SCHEDULE OF RATES AND CHARGES

Section A - Storm Water Management Service Charge

Section A.1 - Residential Service

1. Applicability:

The rates under this schedule apply throughout the Authority's service territory for service rendered on and after the effective date shown at the bottom of this page.

2. Availability:

The rates under this schedule are available to residential customers.

3. Rate:

Each residential customer receiving service under this schedule will be assessed a monthly service charge at the following rate. Rates shall be calculated based upon the Equivalent Residential Unit (ERU) as determined by the Authority.

Service Charge

	<u>Effective February 8, 2024</u>	<u>Effective January 1, 2025</u>	<u>Effective January 1, 2026</u>	<u>(C)</u>
Tier 1 (Impervious area of 400 square feet to less than 1,015 square feet, 0.5 ERUs)	\$5.13	\$6.07	\$7.10	(I) / (I) / (I)
Tier 2 (Impervious area of 1,015 square feet to less than 2,710 square feet, 1 ERU)	\$10.26	\$12.14	\$14.20	(I) / (I) / (I)
Tier 3 (Impervious area greater than or equal to 2,710 square feet, 2 ERUs)	\$20.52	\$24.28	\$28.40	(I) / (I) / (I)

(C) = Change (I) = Increase

Section A.2 - Non-Residential Service

1. Applicability:

The rates under this schedule apply throughout the Authority's service territory for service rendered on and after the effective date shown at the bottom of this page.

2. Availability:

The rates under this schedule are available to non-residential customers.

3. Service Charge:

Rates for developed properties are determined on an Equivalent Residential Unit basis. Each Customer receiving service under this schedule will be assessed the following monthly service charge(s) based upon the total amount of measured impervious area contained on the property. Measured impervious area shall be divided by 1,650 square feet and rounded up to the nearest whole number to determine the number of ERUs represented on the property. The service charge applicable to each developed property shall be calculated as follows:

Calculation of Service Charge

Service Charge = (Total IA / 1,650 square feet per ERU (quotient rounded up to nearest whole number)) * ERUR

Where:

IA = The Customer's property impervious area (sq. ft.) as measured by the Authority.

ERUR = The equivalent rate in dollars and cents for one (1) ERU.

	<u>Effective February 8, 2024</u>	<u>Effective January 1, 2025</u>	<u>Effective January 1, 2026</u>	(C)
Rate per (1) ERU	\$10.26	\$12.14	\$14.20	(I) / (I) / (I)

The minimum service charge for any developed property is equal to that charged for Tier 2 residential properties.

(C) = Change (I) = Increase

Section A.3 - Infrastructure Improvement and Customer Assistance Charges

1. Infrastructure Improvement Charge (IIC): In addition to the charges provided in this tariff, and pursuant to the Commission's Statement of Policy at 52 Pa. Code §§ 69.361 et seq., and Section 1307(a) of the Public Utility Code, an Infrastructure Improvement Charge will apply uniformly to all classes of **stormwater** customers **for each Equivalent Residential Unit (ERU) assessed.**

a. Purpose. The purpose of the IIC is to begin timely recovery of specific interest only and principal and interest ("PI") obligations due by PWSA for loans received from the Pennsylvania Infrastructure Investment Authority ("PENNVEST") and the federal government loan program known as the Water Infrastructure Finance and Innovation Act ("WIFIA") when they first become due and until fully repaid and will remain in effect until costs are fully recovered.

b. The currently effective IIC is:

Customer Class	Infrastructure Improvement Charge
	Rate per ERU
	Effective February 8, 2024
All Customers	\$0.00

The above charge per ERU is determined as follows:

$$IIC = (PI/TOTERU)/12$$

IIC = Monthly Infrastructure Improvement Charge per ERU

PI = Annual Principal and Interest per PENNVEST and WIFIA
Loans identified below

TOTERU = Total Equivalent Residential Units of all
customers in forecast year

c. Computation. The IIC will be adjusted to conform to the specific interest only and principal and interest ("PI") obligations payable pursuant to the final PENNVEST amortization schedules and WIFIA amortization schedules. Currently, the IIC is recovering the following loans:

Loan Source	Loan Number / Identifier	Start Date of Interest Only Payments	Start of Final Amortization Schedule

The total costs identified above for recovery will be divided by the applicable ERUs for all customers in the forecast year.

d. Semi-Annual Adjustments. The IIC is subject to change on a semi-annual basis effective February 1 and August 1 based on the status of applicable PENNVEST and WIFIA loans. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

e. Annual Reconciliation. The IIC will be subject to annual reconciliation based on actual number of ERUs assessed for the prior 12- month fiscal year period. The IIC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided.

f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement. The IIC shall remain in effect if and until included in the general base rates of the Authority; provided, however, that the charge may be continued or adjusted by the Authority as additional PENNVEST and WIFIA loans, which have been approved for other PWSA Infrastructure Improvement projects, become due and payable.

g. The charge will be not reflected as a separate line item on each customer's bill.

h. The Authority will segregate all revenues dedicated for PENNVEST and WIFIA repayment so long as the charge remains in effect.

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2. Customer Assistance Charge ("CAC"). In addition to the charges provided in this tariff, and pursuant to Section 1307(a) of the Public Utility Code, a Customer Assistance Charge will apply uniformly to all classes of stormwater customers for each Equivalent Residential Unit (ERU) assessed.

- a. **Purpose.** The purpose of the CAC is to recover: 1) the discounts provided to Customers pursuant to the Bill Discount Program (BDP); 2) the operating costs for the PGH20 Cares Team; 3) the costs of PWSA's Hardship Funding; and 4) for customers entering the BDP on or after February 8, 2024, past due arrearages forgiven pursuant to the PWSA's Arrearage Forgiveness Program.
- b. The currently effective CAC is:

Customer Class	Customer Assistance Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

- c. **Computation.** The basic component of the CAC will be determined by dividing the total costs as identified applicable costs for recovery by the applicable ERUs for all customers in the forecast year.
- d. **Semi-Annual Adjustments.** The CAC is subject to change on a semi-annual basis effective February 1 and August 1 based on projected changes in actual costs to be incurred in the next six-month period. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

- e. **Annual Reconciliation.** The CAC will be subject to annual reconciliation and refund based on based on actual ERUs assessed and actual costs for the prior 12- month fiscal year period. The CAC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided at least ten (10) days prior to the February 1 effective date of the reconciliation.
- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement.
- g. The charge will be not reflected as a separate line item on each customer's bill.

Section B - Storm Water Management Service Charge Credits

B.1 - Residential and Non-Residential Credit

1. Applicability:

The credits under this schedule are available to customers who take steps to reduce stormwater runoff leaving their property and entering PWSA's stormwater management system and natural receiving waters. Residential and non-residential customers are eligible for different credits as detailed in the sections below. (C)

[rest of page intentionally blank]

(C) = Change

2. Residential Customers:

Residential customers can receive a stormwater credit, reducing the stormwater charge by at least 50%, by controlling at least $\frac{3}{4}$ of an inch of runoff from their property's impervious surfaces. A residential customer may receive a stormwater credit by installing (or documenting the performance of previously installed) stormwater control measures. The control measure must capture for 24 to 72 hours and slowly release at least $\frac{3}{4}$ of an inch of runoff from the impervious surfaces on their property. The more impervious surface on a residential property, the more runoff a measure must control to qualify for the fee credit. To calculate the runoff volume that needs to be controlled on a residential property -

$$\begin{aligned} * \text{Runoff Volume to be Controlled on a Residential Property in Gallons} = \\ \text{Impervious Area sf} \times 0.0625 \times 7.48 \end{aligned}$$

*To find your property's Impervious Area, consult your stormwater bill, or visit the PWSA Stormwater Fee Finder website -

(<https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29889a42125edc>)

$$* 0.0625 \text{ ft} = \frac{3}{4} \text{ inches} \times \frac{1 \text{ ft}}{12 \text{ inches}}$$

*To convert the value from cubic feet to gallons, multiply by 7.48.

Residential customers are also eligible for a one-time credit of \$40 if they can demonstrate the use of a rain barrel to capture and detain roof runoff. Customers must submit a photo of the rain barrel installed and in good working order.

3. Non-Residential Customers

Non-residential customers can receive stormwater fee credit by capturing and detaining runoff on-site through the use of structural BMPs that meet or exceed recent development standards in place in the City of Pittsburgh.

Non-residential customers who bring parts of their property up to the most stringent Stormwater Management standards, (the "2019 standards" <https://pittsburghpa.gov/dcp/stormwater>) will receive a 60% credit on the part of the property that meets the standards. Those standards are:

- Keep 1" or more of water from running off the impervious surfaces on their property and from getting into rivers or streams.

Non-residential customers who bring parts of their property up to the second-most stringent Stormwater Management standards (the "2016 standards"), will receive a 45% credit on the part of the property that meets those standards. While the 2016 Stormwater Management Standards have been replaced by the 2019 Stormwater Management Standards, the 2016 standards are:

- Keep $\frac{3}{4}$ " of an inch or more of water from running off the impervious surfaces on their property and from getting to rivers or streams.

In both of the above situations, only the portion of the property's impervious area that meets the requirement will be used to compute the credit. The rest of the property will have the same charge as before.

Non-Residential Customers will be eligible for a credit provided that an approved stormwater BMP has been installed and the owner can demonstrate that the BMP is functioning as intended. Customers who have completed a Stormwater Plan and have received a letter from the City attesting that their plan is adequate to have met these requirements. The letter from the City must be submitted with a credit application and other required supporting documentation for a Non-Residential property. Customers who have implemented stormwater treatment outside of City requirements may not receive this letter; however, Customers may submit their plans and calculations to PWSA review.

To calculate the runoff volume that needs to be controlled on a property to obtain a 60% credit, multiply the impervious area in square feet by 0.083 feet (the same as one inch).

To calculate the runoff volume that needs to be controlled on a property to obtain a 45% credit, multiply the impervious area in square feet by 0.0625 feet (the same as 3/4 inch).

Non-residential customers can also earn a credit of between 75% and 100% of their stormwater fees, for "regional efforts - or "Enhanced Volume Control" for controlling at least 25% more runoff than what is required by the City of Pittsburgh 2019 stormwater standards.

Non-residential customers can also receive credit through passive management of stormwater via a property's green spaces. Non-residential customers who provide an engineer-stamped drainage analysis which demonstrates that green spaces are receiving and infiltrating runoff from adjacent impervious surfaces for which $\frac{3}{4}$ inch of runoff is infiltrated by green spaces will be eligible for 45% credit, and impervious surfaces for which 1 inch of runoff is infiltrated by green spaces will be eligible for 60% credit.

4. Terms:

Application

Customers must submit a completed BMP credit application. The current application will be available on the Authority's website.

Site Inspection

The Authority has the right to inspect the parcel and BMP(s) to verify the information provided in the application and to verify ongoing compliance with the Tariff. If a credit recipient fails an inspection, a notice will be sent to the Customer stating that corrections need to be made. If adequate corrections are not completed or addressed within the time frame specified in the notice, the credit shall be rescinded. To reinstate the credit, the Customer must reapply.

Maintenance

Customers receiving credits must notify the Authority if a BMP becomes impaired, inoperable or is removed from the property within 10 business days of the event causing this condition. If a Customer fails to maintain a BMP such that, in the Authority's sole determination, it ceases to function in the same manner as which the credit was approved, the Authority may terminate the Customer's credit and require a new credit application to be submitted and approved.

(C) = Change

Rider BDP - Bill Discount Program (Residential)

1. Bill Discount Program: This rider is a program designed to enroll residential ratepayers who satisfy the criteria set forth below in a monthly discounted rate program.

2. Availability: This rider is available for a Residential customer that meets the low-income criteria of annual household gross income at or below 200% based on the Federal Poverty Level. (C)
 - a. A residential ratepayer who meets the eligibility criteria should complete an application for the Bill Discount Program.
 - b. Eligible customers may be asked to verify income every two years.

3. Rate (Storm Water Service Charge): The Storm Water Service Charge for residential customers pursuant to Rider BDP for participants with income at or below 150% of the Federal Poverty Level will pay 15% of the applicable Storm Water Service Charge under Part I, Section A.1 (which represents an 85% discount off the service charge). Any other rates, fees and charges will be at the prevailing amounts under this tariff.

4. Infrastructure Improvement Charge ("IIC") and Customer Assistance Charge ("CAC"): Effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC. (C)

(C) = Change

Exhibit JAM-16

The Pittsburgh Water
and Sewer Authority

Supplement No. 3
Tariff Storm Water - Pa. P.U.C. No. 1

THE PITTSBURGH WATER AND SEWER AUTHORITY

RATES, RULES AND REGULATIONS GOVERNING

THE PROVISION OF STORM WATER COLLECTION, CONVEYANCE,

TREATMENT AND/OR DISPOSAL SERVICE

TO THE PUBLIC IN THE TERRITORY DESCRIBED HEREIN

Issued: ~~November 15, 2022~~ **May 9, 2023**

Effective: ~~January 14, 2023~~ **July 8, 2023**

By: William J. Pickering, Chief Executive Officer
1200 Penn Avenue, Pittsburgh, PA 15222
Tel: 412-255-8800

NOTICE

This tariff makes changes in **rates** ~~rules and regulations~~ as **supported by the May 9, 2023 filing** ~~approved by the Commission in its Final Order dated July 14, 2022~~ at Docket Nos. **R-2023-3039919** ~~M-2018-2640802 and M-2018-2640803~~

LIST OF CHANGES

TABLE OF CONTENTS (PAGE NO. 3)

Added page number for new Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC)

PART I: SCHEDULE OF RATES AND CHARGES SECTION A.1 RESIDENTIAL SERVICE, NO. 3 SERVICE CHARGE (PAGE NO. 7)

Added rates which will increase for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

PART I: SCHEDULE OF RATES AND CHARGES SECTION A.2 NON-RESIDENTIAL SERVICE, NO. 3 SERVICE CHARGE (PAGE NO. 8)

Added rates which will increase for all customer classes effective February 8, 2024, January 1, 2025 and January 1, 2026.

PART I: SCHEDULE OF RATES AND CHARGES SECTION A.3 INFRASTRUCTURE IMPROVEMENT AND CUSTOMER ASSISTANCE CHARGES (NEW PAGE NOS. 8A-8E)

New text describing Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC) to include purpose, effective rate, computation, semi-annual adjustments, and annual reconciliation.

PART I: SCHEDULE OF RATES AND CHARGES SECTION B STORM WATER MANAGEMENT CHARGE CREDITS, NO. B.1 RESIDENTIAL AND NON-RESIDENTIAL CREDIT (PAGE NO. 9, NEW PAGE NOS. 9A-9C AND PAGE NO. 10)

Revised and updated text and deletions to reflect terms and conditions related to availability of credits to customers who take steps to reduce stormwater runoff.

RIDER BDP – BILL DISCOUNT PROGRAM (RESIDENTIAL) (PAGE NO. 17)

Increase eligibility from 150% of FPL to 200% of FPL. Added text that effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC.

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(C) = Change

PART I: SCHEDULE OF RATES AND CHARGES

Section A - Storm Water Management Service Charge

Section A.1 - Residential Service

1. Applicability:

The rates under this schedule apply throughout the Authority's service territory for service rendered on and after the effective date shown at the bottom of this page.

2. Availability:

The rates under this schedule are available to residential customers.

3. Rate:

Each residential customer receiving service under this schedule will be assessed a monthly service charge at the following rate. Rates shall be calculated based upon the Equivalent Residential Unit (ERU) as determined by the Authority.

Service Charge

	<u>Effective</u> <u>January 12,</u> <u>2022</u> <u>February 8,</u> <u>2024</u>	<u>Effective</u> <u>January 1, 2025</u>	<u>Effective</u> <u>January 1,</u> <u>2026</u>	<u>(C)</u>
Tier 1 (Impervious area of 400 square feet to less than 1,015 square feet, 0.5 ERUs)	\$5.13 \$2.98	\$6.07 \$3.98	\$7.10	(I) / (I) / (I)
Tier 2 (Impervious area of 1,015 square feet to less than 2,710 square feet, 1 ERU)	\$10.26 \$5.96	\$12.14 \$7.95	\$14.20	(I) / (I) / (I)
Tier 3 (Impervious area greater than or equal to 2,710 square feet, 2 ERUs)	\$20.52 \$11.92	\$24.28 \$15.90	\$28.40	(I) / (I) / (I)

(c) = Change (I) = Increase

Section A.2 - Non-Residential Service

1. Applicability:

The rates under this schedule apply throughout the Authority's service territory for service rendered on and after the effective date shown at the bottom of this page.

2. Availability:

The rates under this schedule are available to non-residential customers.

3. Service Charge:

Rates for developed properties are determined on an Equivalent Residential Unit basis. Each Customer receiving service under this schedule will be assessed the following monthly service charge(s) based upon the total amount of measured impervious area contained on the property. Measured impervious area shall be divided by 1,650 square feet and rounded up to the nearest whole number to determine the number of ERUs represented on the property. The service charge applicable to each developed property shall be calculated as follows:

Calculation of Service Charge

Service Charge = (Total IA / 1,650 square feet per ERU (quotient rounded up to nearest whole number)) * ERUR

Where:

IA = The Customer's property impervious area (sq. ft.) as measured by the Authority.

ERUR = The equivalent rate in dollars and cents for one (1) ERU.

	<u>Effective</u> <u>January 12,</u> <u>2022-February</u> <u>8, 2024</u>	<u>Effective</u> <u>January 1,</u> <u>2023</u>	<u>Effective January 1,</u> <u>2026</u>	<u>(C)</u>
Rate per (1) ERU	\$10.26 \$5.96	\$12.14 \$7.95	\$14.20	(I) / (I) / (I)

The minimum service charge for any developed property is equal to that charged for Tier 2 residential properties.

(c) = Change (I) = Increase

Section A.3 - Infrastructure Improvement and Customer Assistance Charges

1. Infrastructure Improvement Charge (IIC): In addition to the charges provided in this tariff, and pursuant to the Commission's Statement of Policy at 52 Pa. Code §§ 69.361 et seq., and Section 1307(a) of the Public Utility Code, an Infrastructure Improvement Charge will apply uniformly to all classes of **stormwater** customers **for each Equivalent Residential Unit (ERU) assessed.**

a. Purpose. The purpose of the IIC is to begin timely recovery of specific interest only and principal and interest ("PI") obligations due by PWSA for loans received from the Pennsylvania Infrastructure Investment Authority ("PENNVEST") and the federal government loan program known as the Water Infrastructure Finance and Innovation Act ("WIFIA") when they first become due and until fully repaid and will remain in effect until costs are fully recovered.

b. The currently effective IIC is:

Customer Class	Infrastructure Improvement Charge Rate per ERU Effective February 8, 2024
All Customers	\$0.00

The above charge per ERU is determined as follows:

$$IIC = (PI/TOTERU)/12$$

IIC = Monthly Infrastructure Improvement Charge per ERU

PI = Annual Principal and Interest per PENNVEST and WIFIA
Loans identified below

TOTERU = Total Equivalent Residential Units of all
customers in forecast year

c. Computation. The IIC will be adjusted to conform to the specific interest only and principal and interest ("PI") obligations payable pursuant to the final PENNVEST amortization schedules and WIFIA amortization schedules. Currently, the IIC is recovering the following loans:

Loan Source	Loan Number / Identifier	Start Date of Interest Only Payments	Start of Final Amortization Schedule

The total costs identified above for recovery will be divided by the applicable ERUs for all customers in the forecast year.

d. Semi-Annual Adjustments. The IIC is subject to change on a semi-annual basis effective February 1 and August 1 based on the status of applicable PENNVEST and WIFIA loans. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

e. Annual Reconciliation. The IIC will be subject to annual reconciliation based on actual number of ERUS assessed for the prior 12-month fiscal year period. The IIC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided.

f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement. The IIC shall remain in effect if and until included in the general base rates of the Authority; provided, however, that the charge may be continued or adjusted by the Authority as additional PENNVEST and WIFIA loans, which have been approved for other PWSA Infrastructure Improvement projects, become due and payable.

g. The charge will be not reflected as a separate line item on each customer's bill.

h. The Authority will segregate all revenues dedicated for PENNVEST and WIFIA repayment so long as the charge remains in effect.

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2. Customer Assistance Charge ("CAC"). In addition to the charges provided in this tariff, and pursuant to Section 1307(a) of the Public Utility Code, a Customer Assistance Charge will apply uniformly to all classes of stormwater customers for each Equivalent Residential Unit (ERU) assessed.

a. **Purpose.** The purpose of the CAC is to recover: 1) the discounts provided to Customers pursuant to the Bill Discount Program (BDP); 2) the operating costs for the PGH20 Cares Team; 3) the costs of PWSA's Hardship Funding; and 4) for customers entering the BDP on or after February 8, 2024, past due arrearages forgiven pursuant to the PWSA's Arrearage Forgiveness Program.

b. The currently effective CAC is:

Customer Class	Customer Assistance Charge Rate per 1000 Gals.
	Effective February 8, 2024
All Customers	\$0.00

c. **Computation.** The basic component of the CAC will be determined by dividing the total costs as identified applicable costs for recovery by the applicable ERUs for all customers in the forecast year.

d. **Semi-Annual Adjustments.** The CAC is subject to change on a semi-annual basis effective February 1 and August 1 based on projected changes in actual costs to be incurred in the next six-month period. Semi-annual updates to be filed by PWSA at least ten (10) days prior to the effective date of the update. Supporting data for each semi-annual update will be provided.

- e. **Annual Reconciliation.** The CAC will be subject to annual reconciliation and refund based on based on actual ERUs assessed and actual costs for the prior 12- month fiscal year period. The CAC will be adjusted to reflect either a credit or an increase in the charge as determined by the reconciliation process to be effective February 1. Supporting data for each annual reconciliation will be provided at least ten (10) days prior to the February 1 effective date of the reconciliation.

- f. The charge will be effective the first billing cycle immediately following the effective date of the tariff supplement.

- g. The charge will be not reflected as a separate line item on each customer's bill.

Section B - Storm Water Management Service Charge Credits

B.1 - Residential and Non-Residential Credit

1. Applicability:

The credits under this schedule are available to customers who take steps to reduce stormwater runoff leaving their property and entering PWSA's stormwater management system and natural receiving waters. Residential and non-residential customers are eligible for different credits as detailed in the sections below. apply throughout the Authority's service territory for service rendered on and after the effective date shown at the bottom of this page. (C)

[rest of page intentionally blank]

2. Availability

This credit is available to non-residential Customers that meet Pittsburgh 2019 stormwater standards in Title Thirteen of the Pittsburgh Zoning Code, or more recent or restrictive standards, by controlling at least 1" of runoff from impervious surfaces on the property for which a credit is sought, if (i) Best Management Practices (BMPs) located on the property have been constructed in compliance with approved plans, (ii) the Customer is current with payments owed on all billed charges and fees on the Customer's account and are otherwise in compliance with the Rules and Regulations of this Tariff; (iii) the Customer remains responsible for all cost of operation and maintenance of the BMP; (iv) the Authority is granted access to the BMP for purpose of inspecting adherence to design, maintenance and operating standards; and (v) there is no significant change in land use draining to the BMP or alterations made to the approved BMP without prior approval of the Authority. This credit is also available to residential customers who disconnect downspouts and redirect property drainage to street planters, or who control at least ¾" of runoff from impervious surfaces on the property for which a credit is sought. A similar credit is available for properties meeting the 2016 storm water standards that were replaced by the Pittsburgh 2019 storm water standards in Title Thirteen of the Pittsburgh Zoning Code. (C)

(C) = Change

2. Residential Customers:

Residential customers can receive a stormwater credit, reducing the stormwater charge by at least 50%, by controlling at least $\frac{3}{4}$ of an inch of runoff from their property's impervious surfaces. A residential customer may receive a stormwater credit by installing (or documenting the performance of previously installed) stormwater control measures. The control measure must capture for 24 to 72 hours and slowly release at least $\frac{3}{4}$ of an inch of runoff from the impervious surfaces on their property. The more impervious surface on a residential property, the more runoff a measure must control to qualify for the fee credit. To calculate the runoff volume that needs to be controlled on a residential property –

$$\begin{aligned} & * \text{Runoff Volume to be Controlled on a Residential Property in Gallons} = \\ & \text{Impervious Area sf} \times 0.0625 \times 7.48 \end{aligned}$$

*To find your property's Impervious Area, consult your stormwater bill, or visit the PWSA Stormwater Fee Finder website –

<https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29889a42125edc>

$$* 0.0625 \text{ ft} = \frac{3}{4} \text{ inches} \times \frac{1 \text{ ft}}{12 \text{ inches}}$$

*To convert the value from cubic feet to gallons, multiply by 7.48.

Residential customers are also eligible for a one-time credit of \$40 if they can demonstrate the use of a rain barrel to capture and detain roof runoff. Customers must submit a photo of the rain barrel installed and in good working order.

3. Non-Residential Customers

Non-residential customers can receive stormwater fee credit by capturing and detaining runoff on-site through the use of structural BMPs that meet or exceed recent development standards in place in the City of Pittsburgh.

Non-residential customers who bring parts of their property up to the most stringent Stormwater Management standards, (the “2019 standards” <https://pittsburghpa.gov/dcp/stormwater>) will receive a 60% credit on the part of the property that meets the standards. Those standards are:

- Keep 1” or more of water from running off the impervious surfaces on their property and from getting into rivers or streams.

Non-residential customers who bring parts of their property up to the second-most stringent Stormwater Management standards (the “2016 standards”), will receive a 45% credit on the part of the property that meets those standards. While the 2016 Stormwater Management Standards have been replaced by the 2019 Stormwater Management Standards, the 2016 standards are:

- Keep $\frac{3}{4}$ ” of an inch or more of water from running off the impervious surfaces on their property and from getting to rivers or streams.

In both of the above situations, only the portion of the property’s impervious area that meets the requirement will be used to compute the credit. The rest of the property will have the same charge as before.

Non-Residential Customers will be eligible for a credit provided that an approved stormwater BMP has been installed and the owner can demonstrate that the BMP is functioning as intended. Customers who have completed a Stormwater Plan and have received a letter from the City attesting that their plan is adequate to have met these requirements. The letter from the City must be submitted with a credit application and other required supporting documentation for a Non-Residential property. Customers who have implemented stormwater treatment outside of City requirements may not receive this letter; however, Customers may submit their plans and calculations to PWSA review.

To calculate the runoff volume that needs to be controlled on a property to obtain a 60% credit, multiply the impervious area in square feet by 0.083 feet (the same as one inch).

To calculate the runoff volume that needs to be controlled on a property to obtain a 45% credit, multiply the impervious area in square feet by 0.0625 feet (the same as 3/4 inch).

Non-residential customers can also earn a credit of between 75% and 100% of their stormwater fees, for "regional efforts - or "Enhanced Volume Control" for controlling at least 25% more runoff than what is required by the City of Pittsburgh 2019 stormwater standards.

Non-residential customers can also receive credit through passive management of stormwater via a property's green spaces. Non-residential customers who provide an engineer-stamped drainage analysis which demonstrates that green spaces are receiving and infiltrating runoff from adjacent impervious surfaces for which $\frac{3}{4}$ inch of runoff is infiltrated by green spaces will be eligible for 45% credit, and impervious surfaces for which 1 inch of runoff is infiltrated by green spaces will be eligible for 60% credit.

~~3. Determination of Credit:~~

~~For non-residential customers the amount of credit shall be 60% for that proportion of impervious surface for which the 2019 standard is met, and 45% for that proportion of impervious surface for which the 2016 standard is met. For residential tier 2 or tier 3 Customers the amount of the credit will be that associated with reducing the property's storm water service charge to that of the next lower residential tier rate. For tier 1 Customers the credit amount will be 50%.~~

(C)

~~For non-residential customers who undertake regional efforts or exceed Pittsburgh 2019 stormwater standards by controlling at least 25% more runoff than required, a higher level of credit may be granted upon review. The maximum credit under this approach will be 100%.~~

(C)

4. Terms:

Application

Customers must submit a completed BMP credit application. The current application will be available on the Authority's website.

Site Inspection

The Authority has the right to inspect the parcel and BMP(s) to verify the information provided in the application and to verify ongoing compliance with the Tariff. If a credit recipient fails an inspection, a notice will be sent to the Customer stating that corrections need to be made. If adequate corrections are not completed or addressed within the time frame specified in the notice, the credit shall be rescinded. To reinstate the credit, the Customer must reapply.

Maintenance

Customers receiving credits must notify the Authority if a BMP becomes impaired, inoperable or is removed from the property within 10 business days of the event causing this condition. If a Customer fails to maintain a BMP such that, in the Authority's sole determination, it ceases to function in the same manner as which the credit was approved, the Authority may terminate the Customer's credit and require a new credit application to be submitted and approved.

(C) = Change

Rider BDP - Bill Discount Program (Residential)

1. Bill Discount Program: This rider is a program designed to enroll residential ratepayers who satisfy the criteria set forth below in a monthly discounted rate program.

2. Availability: This rider is available for a Residential customer that meets the low-income criteria of annual household gross income at or below ~~200~~150% based on the Federal Poverty Level. (C)
 - a. A residential ratepayer who meets the eligibility criteria should complete an application for the Bill Discount Program.
 - b. Eligible customers may be asked to verify income every two years.

3. Rate (Storm Water Service Charge): The Storm Water Service Charge for residential customers pursuant to Rider BDP for participants with income at or below 150% of the Federal Poverty Level will pay 15% of the applicable Storm Water Service Charge under Part I, Section A.1 (which represents an 85% discount off the service charge). Any other rates, fees and charges will be at the prevailing amounts under this tariff.

4. Infrastructure Improvement Charge ("IIC") and Customer Assistance Charge ("CAC"): Effective January 1, 2025, BDP participants will pay 50% of the IIC charge and 0% of the CAC. (C)

(C) = Change

VERIFICATION

I, Julie A. Mechling, hereby state that I am the Director of Customer Service for The Pittsburgh Water and Sewer Authority (“PWSA”), I hereby verify that the facts set forth in in the attached Petition for Authorization to Implement Customer Assistance Charge are true and correct (or are true and correct to the best of my knowledge, information and belief). I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 05/08/2023 | 9:17 AM EDT

DocuSigned by:
Julie A. Mechling
00802B35EA54E3...

Julie A. Mechling
Director of Customer Service
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

HAROLD J. SMITH

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Allocation of Total System Revenue Requirements

Cost Allocation

Rate Design

Gradualism

Rates for Years Two and Three

May 9, 2023

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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Harold J. Smith. My business address is 383 Corona Street, #204, Denver,
4 Colorado 80218.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY.**

6 A. I am a Vice President of Raftelis Financial Consultants, Inc. (Raftelis), a consulting firm
7 specializing in the areas of water and wastewater finance and pricing. Raftelis was
8 established in 1993 in Charlotte, North Carolina, by George A. Raftelis to provide
9 financial and management consulting services to public and private sector clients.
10 Raftelis is a national leader in the development of water, wastewater, and stormwater
11 rates.

12 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK**
13 **EXPERIENCE.**

14 A. I obtained a Master of Business Administration from Wake Forest University in 1997 and
15 a Bachelor of Science in Natural Resources from the University of the South in 1987. As
16 an employee of Raftelis Financial Consultants, I have been involved in numerous projects
17 for public utilities, including studies involving a wide range of technical specialties,
18 including water utility cost of service and rate structure studies and water utility financial
19 planning studies.

20 **Q. DO YOU BELONG TO ANY PROFESSIONAL ORGANIZATIONS OR**
21 **COMMITTEES?**

22 A. Yes. I am a member of the American Water Works Association where I served as
23 chairman of the Competitive Practices Committee.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN PROCEEDINGS BEFORE THE**
2 **PENNSYLVANIA PUBLIC UTILITY COMMISSION (PAPUC) ON BEHALF OF**
3 **PWSA?**

4 A. Yes, I provided testimony for the Pittsburgh Water and Sewer Authority's (PWSA) first
5 three water (Docket Nos. R-2018-3002645, R-2020-3017951, and R-2021-3024772) and
6 wastewater conveyance (Docket Nos. R-2018-3002647, R-2020-3017970 and R-2021-
7 3024774), and first stormwater (Docket No.R-2021-3024779) rate filings before the
8 PAPUC.

9 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY OTHER REGULATORY**
10 **AGENCIES ON UTILITY RATE RELATED MATTERS?**

11 A. Yes. I have provided testimony before the Rhode Island Public Utilities Commission
12 (RIPUC) in Providence Water Supply Board's nine most recent filings before the RIPUC
13 (Docket Nos. 3832, 4061, 4070, 4080, 4287, 4406, 4571, 4618 and 4994) and in Newport
14 Water's nine most recent filings (RIPUC Docket Nos. 3578, 3675, 3818, 4025, 4128,
15 4243, 4355, 4595 and 4933). I have also provided testimony on water, sewer and
16 stormwater rate-related matters before the Tennessee Regulatory Authority as well as in
17 court proceedings in Arizona, Connecticut, Indiana, Maryland, and Maine.

18 **II. PURPOSE OF TESTIMONY**

19 **Q. PLEASE DESCRIBE YOUR ROLE IN THIS PROCEEDING.**

20 A. I have worked with the staff of PWSA to prepare a class cost of service study (CCOSS)
21 and develop cost-based rates and charges for water, wastewater conveyance, and

1 stormwater service. The results of my analyses are included in the schedules
2 incorporated herein with my testimony.

3 **Q. HAVE YOU PERFORMED SIMILAR ANALYSES FOR PWSA IN THE PAST?**

4 A. Raftelis performed a water and wastewater conveyance rate study for PWSA in 2016 and
5 again in 2017. Raftelis also prepared the CCOSS that supported PWSA’s first three rate
6 filings before the PAPUC.

7 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

8 A. I am sponsoring PWSA’s CCOSS and rate designs for the water, wastewater conveyance,
9 and stormwater tariffs. The purpose of the CCOSS is to allocate PWSA’s costs of
10 providing service to each utility and rate class. The rate design analysis results in water,
11 wastewater conveyance, and stormwater rates that help ensure that PWSA’s costs are
12 recovered from each class in a fair and equitable manner and in a way that reflects the
13 demands that each class places on the systems. This testimony provides a description of
14 the cost allocation and rate setting process and provides an explanation for each schedule
15 attached to my testimony. The schedules use revenue requirements developed by Mr. Ed
16 Barca for the Fiscal Years Ending (FY) December 30, 2024, 2025, and 2026. The FY
17 2024 revenue requirement forms the basis for the cost-of-service analysis and FY 2024
18 rates. The schedules also include revenue requirements and rates for FY 2025 and FY
19 2026. The proposed rates for FY 2025 include implementing two new charges, one for
20 the recovery of costs associated with PWSA’s low-income customer assistance program
21 (Customer Assistance Charge) and the other for the recovery of debt service on future
22 PENNVEST and WIFIA loans (Infrastructure Improvement Charge). The proposed rates
23 for FY 2025 also accommodate the elimination of the monthly water and sewer usage

1 allowances. FY 2026 rates represent an across the board increase of the FY 2025 rates to
 2 generate revenue to meet the utility’s FY 2026 revenue requirements.

3 **Q. WHAT ARE YOUR GENERAL CONCLUSIONS?**

4 A. PWSA needs additional rate revenue to properly fund O&M and capital costs related to
 5 providing safe and reliable service to its customers. PWSA is seeking to address this
 6 need through a multi-year rate increase. The proposed increases in overall rate revenue,
 7 inclusive of the DSIC, are as follows:

- 8 • FY 2024 – \$46.8 million (22.5%)
- 9 • FY 2025 – \$45.4 million (17.8%)
- 10 • FY 2026 – \$53.9 million (17.9%)

11 **Q. WILL ALL RATES INCREASE BY THE PERCENTAGE INDICATED FOR**
 12 **EACH FISCAL YEAR?**

13 A. No, the percent increase represents the increase in total overall rate revenue needed in
 14 each fiscal year. The breakdown of current rates, proposed rates, and the associated
 15 percentage changes will be discussed in more detail below and detailed in my water,
 16 wastewater conveyance, and stormwater schedules. Rate adjustments will vary and are
 17 based on the cost-of-service analysis and rate design described below.

18 **Q. HOW WILL THE INCREASES IN FY 2025 AND FY 2026 BE APPLIED?**

19 A. The rate development process for each year will be described in detail in my testimony.
 20 In general, the adjustments for FY 2025 will be applied based on the COSS performed for
 21 the FY 2024 rates; however, rate design adjustments will be needed to accommodate the
 22 elimination of the usage allowance and the implementation of the Customer Assistance
 23 Charges (CAC) and the Infrastructure Improvement Charge (IIC).
 24 Adjustments for FY 2026 will be on an across-the-board basis such that all rates will
 25 increase by the percent increase in revenue requirements.

1 **Q. HAVE YOU EVER PREPARED A MULTI-YEAR FILING FOR A REGULATED**
 2 **UTILITY?**

3 A. Yes, I have prepared multi-year filings for two municipal regulated utilities in Rhode
 4 Island in accordance with R.I. Gen. Laws § 39-15.1-4, which allows utilities to file a rate
 5 plan for a period not to exceed six years. The City of Newport Water Department has
 6 filed two multi-year rate plans. The first of these was a four-year plan filed in April of
 7 2011 (RIPUC Docket No. 4243). The second was a two-year rate plan filed in February
 8 of 2019 (RIPUC Docket No. 4933).

9 In Docket 4243, the rates for years two through four of the plan were designed to recover
 10 additional debt service costs associated with a series of three borrowings used to fund the
 11 replacement of and upgrades to Newport’s water treatment facilities. The rates approved
 12 for Steps 2 through Step 4 of the plan were based on assumptions regarding the
 13 anticipated borrowing schedule and the interest rates associated with future borrowings
 14 and did not recover additional operating and maintenance costs.

15 In December of 2019, Providence Water filed a three-year rate plan (RIPUC Docket No.
 16 4994). Rates for the first year of the plan were based on a cost-of-service study. Proposed
 17 rate increases for years two and three of the plan were applied on an across-the-board
 18 basis to recover additional revenue needed to offset increases in O&M and capital costs.

19 **Q. HOW DOES THE MULTI-YEAR FILING PROCESS WORK IN RHODE**
 20 **ISLAND?**

21 A. As is the case with a standard rate filing, utilities in Rhode Island are required to submit
 22 an application for a rate increase, and the Commission has the option of approving the
 23 proposed rates or suspending the filing for up to eight months from the proposed effective
 24 date to conduct a full investigation and hearing on the proposal. After the investigation,

1 the Commission approves the rates for the first year and grants tentative approval for the
2 rates in each subsequent year of the multi-year plan. Before implementing each step of
3 the multi-year plan, utilities must submit a compliance filing at least 90 days prior to the
4 proposed effective date of the new rates. The compliance filing includes information
5 regarding the actual cost increases and proposed rates designed to recover the actual
6 costs. Upon review of the compliance filing, the Commission can either approve the
7 proposed rates or disallow certain costs and adjust the proposed rates. It is important to
8 note that only cost increases addressed in the original filing can be recovered in the new
9 rates. This restriction limits the scope of the investigation required to verify the need for
10 the proposed increases.

11 In the case of Newport, changes in construction schedules allowed Newport to delay
12 borrowing for a year and Newport filed a compliance filing requesting that the second
13 step of its multi-year plan be delayed by a year. The Commission approved Newport's
14 request and Newport filed a compliance filing the following year. The compliance filing
15 requested rate increases to recover the actual additional debt service associated with state
16 revolving fund loans.

17 In the case of Providence, the Commission made a downward adjustment to O&M costs
18 in the second year of the plan and set rates at a level sufficient to cover the reduced O&M
19 costs. Providence sought approval for a delay in the implementation of its third increase
20 in order to assess whether increases in its capital costs could be offset with funds
21 anticipated to be available as a result of the Bipartisan Infrastructure Law. The RIPUC
22 allowed a one-year delay in the implementation of the increase.

1 **Q. WHAT ARE THE BENEFITS OF HAVING A MULTI-YEAR RATE PLAN?**

2 A. The primary benefit is that multi-year filings allow for scrutiny of the utility's rate
3 request, but the amount of time and effort on the part of the utility and regulators is
4 significantly less than would be required if the utility was required to prepare, submit,
5 and defend a full rate filing for each year of the multi-year plan.

6 An approved multi-year plan also provides lenders and rating agencies with a greater
7 level of certainty that the utility will be able to implement the rates necessary to ensure
8 that its debt service obligations will be met. This greater level of certainty should result in
9 more favorable borrowing terms, thereby reducing the utility's cost of providing service.

10 **Q. DID PWSA AGREE TO ADDRESS CERTAIN ISSUES WITH THE CCOSS AS**
11 **PART OF THE MOST RECENT RATE CASE SETTLEMENT ENTERED IN**
12 **DOCKET NOS. R-2021-3024772 (WATER), R-2021-3024774(WASTEWATER)**
13 **AND R-2021-3024779 (STORMWATER)?**

14 A. Yes, in the Settlement Agreement, PWSA agreed to address the following issues related
15 to cost allocation and rate design:

- 16 1) Identify and properly allocate the costs associated with water service lines
17 2) Consider the removal of the minimum usage allowances
18

19 **Q. HAVE ALL OF THESE ISSUES BEEN ADDRESSED IN THIS DOCKET?**

20 A. Yes. All items have been addressed in this rate case.

21 **Q. HOW DOES YOUR TESTIMONY RELATE TO THAT OF OTHER PWSA**
22 **WITNESSES?**

23 A. Mr. Barca's testimony supports PWSA's revenue requirements for the total system
24 revenue requirements. My testimony uses PWSA's revenue requirements for the Fully
25 Projected Future Test Year ("FPFTY") as a starting point. Mr. Keith Readling has also
26 provided testimony relating to PWSA's proposed stormwater tariff.

1 **Q. PLEASE DESCRIBE HOW YOUR TESTIMONY IS ORGANIZED.**

2 A. I will first describe the process used to allocate PWSA’s FY 2024 revenue requirements
 3 to each utility service. I will then describe the process used to develop rates that will
 4 recover revenue requirements for water and wastewater conveyance services. Mr. Keith
 5 Readling will provide testimony that describes the process used to develop rates for
 6 stormwater service. Next, I will address the use of gradualism to help ensure that no
 7 single rate class experiences rate shock once the approved rates are implemented. Next, I
 8 will describe the development of proposed water and sewer rates for FY 2025. As noted
 9 previously, the proposed rates for FY 2025 accommodate the elimination of the monthly
 10 volume allowance and introduce the CAC and the IIC. Lastly, I will describe the
 11 development of the proposed rates for FY 2026.

12 **Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE EXHIBITS THAT YOU**
 13 **ARE SPONSORING.**

14 A. My testimony includes four separate sets of exhibits, one set for total system revenue
 15 requirements, a second set for water rates, a third set for wastewater conveyance rates,
 16 and a fourth set for stormwater conveyance rates. They are as follows:

17 **Allocation of Total System Revenue Requirements Exhibits:**

- 18 a. **HJS-1 FPFTY 2024 Revenue Requirements:** This schedule shows the total
 19 system revenue requirements for the FPFTY. It also provides the allocation of the
 20 total system revenue requirements to the water, wastewater conveyance, and
 21 stormwater utility services.
- 22 b. **HJS-2 Utility Allocation Factor Summary:** This schedule provides a summary of
 23 the factors used to assign costs to the water, wastewater conveyance, and
 24 stormwater utility services.

25
 26

1 **Water Cost of Service Allocation and Rate Design Methodology Exhibits:**

- 2 a. **HJS-1W FPFTY Water Revenue Requirements:** This schedule shows the water
3 revenue requirements that must be recovered from the various water rates and
4 charges assessed by PWSA.
- 5 b. **HJS-2W Assignment to Functional Categories:** This schedule shows how the
6 FPFTY revenue requirements are allocated to different functional categories.
- 7 c. **HJS-3W Allocation to Base/Extra Capacity Categories:** This schedule shows
8 the way in which the FPFTY revenue requirements are allocated to different cost-
9 of-service categories.
- 10 d. **HJS-4W Allocation Factor Summary:** This schedule provides a summary of the
11 factors used to assign costs to functional categories and cost of service categories.
- 12 e. **HJS-5W Allocation Factor Detail:** This schedule shows the derivation of the
13 allocation factors presented in Schedules HJS-2 and HJS-4W.
- 14 f. **HJS-6W Water Units of Service:** This schedule demonstrates projected water
15 consumption and peaking factors for each customer class.
- 16 g. **HJS-7W Fire Protection Cost Allocation and Units of Service:** This schedule
17 shows the derivation of allocation factors for allocating costs to public and private
18 fire protection services as well as the equivalent units of service for fire charge
19 calculations.
- 20 h. **HJS-8W Water Unit Cost of Service:** This schedule shows the calculation for
21 the unit costs of providing service to meet the base and extra capacity demands
22 placed on the water system. It also shows the unit cost of the various fixed cost
23 components.
- 24 i. **HJS-9W Cost Distribution to Customer Classes:** This schedule shows the
25 allocation of categorized costs to customer classes based on their demand
26 characteristics.
- 27 j. **HJS-10W Adjustments to Allocated Cost of Service:** This schedule shows the
28 adjustments PWSA is required to make to the allocated cost of service by customer
29 class.

- 1 k. **HJS-11W Forgone Revenue Cost of the Bill Discount Program:** This schedule
2 calculates the forgone revenue cost of the Bill Discount Program for assignment to
3 customer classes.
- 4 l. **HJS-12W Rate Design:** This schedule demonstrates the calculation of the
5 Minimum Charges and Volumetric Charges necessary to meet both the Cost of
6 Service and Adjusted Cost of Service revenue requirements.
- 7 m. **HJS-13W Proposed Rates:** This schedule shows the proposed water Minimum
8 Charges and Volume Charges for each customer class, the proposed Fire System
9 Charges, and how the proposed charges compare to existing rates.
- 10 n. **HJS-14W Comparison of Base Rate Revenues by Customer Class:** This
11 schedule provides a comparison of revenue generated from each customer class
12 under both the existing and proposed rates. This schedule also demonstrates the
13 percent difference between revenues under existing and proposed rates and
14 provides a comparison of revenue by class at both cost of service and adjusted cost
15 of service rates.
- 16 o. **HJS-15W FPFTY CCOS Comparison – Water:** This schedule summarizes the
17 differences in total revenue generated at existing rates, revenue at proposed rates,
18 and the unadjusted cost of service for each customer class, including DSIC and
19 miscellaneous revenues.
- 20 p. **HJS-16W Typical Water Bill Comparison – 2024:** This schedule provides a
21 comparison of typical monthly water bills under the existing and proposed rates for
22 typical customers from each customer class.
- 23 q. **HJS-17W Water Revenue Proof:** This schedule provides a summary of the
24 revenue requirements and revenue to be recovered under both the unadjusted Cost
25 of Service rates and the proposed rates.
- 26 r. **HJS-18W Projected Units of Service:** This schedule summarizes consumption
27 data for each of PWSA’s customer classes for the HTY, FTY, FPFTY, and the
28 previous two fiscal years.
- 29 s. **HJS-19W 2025 and 2026 Water Revenue Requirements:** This schedule presents
30 the water system revenue requirements for FY 2025 and FY 2026.

- 1 t. **HJS-20W Revenue Increase Needed for 2025 and 2026:** This schedule
2 summarizes the rate revenue increases required to meet revenue requirements in
3 FY 2025 and FY 2026.
- 4 u. **HJS-21W 2025 Base Charge Calculation:** This schedule shows the calculations
5 used to determine a base charge in FY 2025 for different customers based on meter
6 size without usage allowances.
- 7 v. **HJS-22W 2025 Volume Charge Calculation:** This schedule shows the
8 calculations used to determine a volume charge in FY 2025 for different customers
9 based on class and the calculation of the CAC and the IIC.
- 10 w. **HJS-23W Proposed Rates:** This schedule shows the proposed water Minimum
11 Charges and Volume Charges for each customer class, the proposed Fire System
12 Charges, and the proposed CAC and IIC. The schedule also shows how the
13 proposed charges compare to charges for the prior year.
- 14 x. **HJS-24W Water Revenue Proof – 2025 and 2026:** This schedule provides a
15 summary of the revenue to be recovered under proposed rates for each year of the
16 multi-year plan.
- 17 y. **HJS-25W Typical Water Bill Comparison – 2025 and 2026:** This schedule
18 provides a comparison of typical monthly water bills under the existing and FY
19 2025-2026 proposed rates for typical customers from each customer class.

20
21 **Wastewater Conveyance Cost of Service Allocation and Rate Design Methodology**
22 **Exhibits:**

- 23 a. **HJS-1WW FPFTY Wastewater Conveyance Revenue Requirements:** This
24 schedule shows the wastewater conveyance revenue requirements that must be
25 recovered from the various rates and charges assessed by PWSA.
- 26 b. **HJS-2WW Assignment to Functional Categories:** This schedule shows how the
27 FPFTY revenue requirements are assigned to different functional categories.
- 28 c. **HJS-3WW Allocation to Cost Categories:** This schedule shows how the FPFTY
29 revenue requirements are allocated to different cost of service categories.
- 30 d. **HJS-4WW Allocation Factor Summary:** This schedule provides a summary of
31 the factors used to assign costs to functional categories and to allocate costs to the
32 cost-of-service categories.

- 1 e. **HJS-5WW Allocation Factor Detail:** This shows the derivation of the allocation
2 factors presented in Schedules HJS-2 and HJS-4WW.
- 3 f. **HJS-6WW Wastewater Conveyance Units of Service:** This schedule
4 demonstrates projected wastewater discharge volumes for each customer class.
- 5 g. **HJS-7WW Wastewater Conveyance Unit Cost of Service:** This schedule shows
6 the calculation for the unit costs of providing service to meet the demands placed
7 on the wastewater conveyance system as well as the unit costs of the various
8 components of the Minimum Charge.
- 9 h. **HJS-8WW Cost Distribution to Customer Classes:** This schedule shows the
10 allocation of categorized costs to customer classes based on their demand.
- 11 i. **HJS-9WW Adjustments to Allocated Cost of Service:** This schedule shows the
12 adjustments PWSA is required to make to the allocated cost of service by customer
13 class.
- 14 j. **HJS-10WW Forgone Revenue Cost of the Bill Discount Program:** This
15 schedule calculates the forgone revenue cost of the Bill Discount Program for
16 assignment to customer classes.
- 17 k. **HJS-11WW Rate Design:** This schedule demonstrates the calculation of the
18 Minimum Charges and Volumetric Charges necessary to meet both the Cost of
19 Service and Adjusted Cost of Service revenue requirements.
- 20 l. **HJS-12WW Proposed Rates:** This schedule shows the proposed wastewater
21 conveyance Minimum Charges and Volume Charges for each customer class and
22 the percent change that the proposed charges represent compared to existing rates.
- 23 m. **HJS-13WW Comparison of Base Rate Revenues by Customer Class:** This
24 schedule provides a comparison of revenue generated from each customer class
25 under both the existing and proposed rates. This schedule also shows the percent
26 difference between revenues under existing and proposed rates and provides a
27 comparison of revenue by class at both the cost of service and adjusted cost of
28 service rates.
- 29 n. **HJS-14WW FPFTY CCOS Comparison – Wastewater Conveyance:** This
30 schedule summarizes the differences in revenue at existing rates, revenue at
31 proposed rates, and the unadjusted cost of service.

- 1 o. **HJS-15WW Typical Wastewater Bill Comparison – 2024:** This schedule
2 provides a comparison of typical monthly wastewater bills under the existing and
3 proposed rates for typical customers from each customer class.
- 4 p. **HJS-16WW Wastewater Revenue Proof:** This schedule provides a summary of
5 the revenue to be recovered under both the cost-of-service rates and proposed rates.
- 6 q. **HJS-17WW Projected Units of Service:** This schedule summarizes wastewater
7 discharge data for each of PWSA’s customer classes for the HTY, FTY, FPFTY,
8 and the previous two fiscal years.
- 9 r. **HJS-18WW 2025 and 2026 Wastewater Conveyance Revenue Requirements:**
10 This schedule presents the revenue requirements for FY 2025 and FY 2026.
- 11 s. **HJS-19WW Revenue Increase Needed for 2025 and 2026:** This schedule
12 summarizes the rate revenue increases required to meet revenue requirements in
13 FY 2025 and FY 2026.
- 14 t. **HJS-20WW 2025 Base Charge Calculation:** This schedule shows the
15 calculations used to determine the base charge in FY 2025 for different customers
16 based on meter size without usage allowances.
- 17 u. **HJS-21WW 2025 Volume Charge Calculation:** This schedule shows the
18 calculations used to determine a volume charge and the CAC and IIC in FY 2025
19 for different customers based on class.
- 20 v. **HJS-22WW Proposed Rates:** This schedule shows the proposed sewer Minimum
21 Charges, Volume Charges, CAC and IIC, and compares the proposed charges to
22 charges for the prior year.
- 23 w. **HJS-23WW Wastewater Revenue Proof – 2025 and 2026:** This schedule
24 provides a summary of the revenue to be recovered under the proposed rates for FY
25 2025 and FY 2026.
- 26 x. **HJS-24WW Typical Wastewater Bill Comparison – 2025 and 2026:** This
27 schedule provides a comparison of typical monthly wastewater bills under the FTY,
28 FPFTY, and FY 2025-2026 proposed rates for typical customers from each
29 customer class.

Stormwater Cost of Service Allocation and Rate Design Methodology Exhibits:

- a. **HJS-1SW FPPTY Stormwater Revenue Requirements:** This schedule shows the stormwater revenue requirements that must be recovered from the stormwater rates assessed by PWSA.
- b. **HJS-2SW Net Revenue Requirements:** This schedule shows the stormwater revenue requirements under a “full cost of service” cost distribution and a net revenue requirement proposed for ratemaking.
- c. **HJS-3SW Stormwater Units of Service:** This schedule shows projected stormwater parcels and equivalent residential units (ERUs) for each customer class.
- d. **HJS-4SW Stormwater COS by Customer Class:** This schedule shows the calculation of the unit cost per ERU of providing service to meet the demands placed on the stormwater conveyance system and the assignment to customer classes.
- e. **HJS-5SW Adjustments to Cost of Service - Stormwater:** This schedule shows the adjustments PWSA made to the allocated cost of service by customer class.
- f. **HJS-6SW Stormwater Rate Design:** This schedule demonstrates the calculation of the monthly stormwater rate under the Adjusted Cost of Service scenario.
- g. **HJS-7SW FPPTY CCOS Comparison – Stormwater:** This schedule summarizes the differences in revenue at existing rates, proposed rates, and unadjusted cost of service rates.
- h. **HJS-8SW Revenue Proof:** This schedule provides a summary of the revenue requirements and revenue to be recovered under both the Cost of Service rates and the proposed rates.
- i. **HJS-9WW 2025 and 2026 Stormwater Revenue Requirements:** This schedule presents the differences in revenue requirements between FY 2025 and FY 2026 for operating expenses, debt service, and capital expenditures.
- j. **HJS-10SW Revenue Increase Needed for 2025 and 2026:** This schedule summarizes the rate revenue increases required to meet revenue requirements in FY 2025 and FY 2026.
- k. **HJS-11SW Rate Design:** This schedule demonstrates the calculation of the ERU rates necessary to meet FY 2025-2026 revenue requirements.

- 1 1. **HJS-12SW Stormwater Revenue Proof – 2025 and 2026:** This schedule provides
2 a summary of the revenue requirements and revenue to be recovered under both the
3 unadjusted Cost of Service rates and the proposed rates for FY 2025 and FY 2026.
4 m. **HJS-13SW Typical Stormwater Bill Comparison – 2024-2026:** This schedule
5 provides a comparison of typical monthly bills under the FTY, FPFTY, and FY
6 2025-2026 proposed rates for typical customers from each customer class.

7
8 **III. ALLOCATION OF TOTAL SYSTEM REVENUE REQUIREMENTS**

9 **Q. WHAT IS THE LEVEL OF TOTAL SYSTEM REVENUE REQUIREMENTS?**

10 A. Mr. Barca’s testimony supports PWSA’s revenue requirements for the total system. The
11 total system revenue requirements for the FPFTY is \$255.3 million, as shown on
12 Schedule HJS-1. This requirement produces an overall rate increase of \$46.8 million.

13 **Q. AFTER DETERMINING THE TOTAL SYSTEM REVENUE REQUIREMENTS,**
14 **HOW ARE THE WATER, WASTEWATER CONVEYANCE, AND**
15 **STORMWATER UTILITY SERVICE REVENUE REQUIREMENTS**
16 **DETERMINED?**

17 A. The revenue requirements are designated as water only, wastewater only, stormwater
18 only, or allocated between water, wastewater, and stormwater based on a set of allocation
19 factors. The allocation of total system revenue requirements to water, wastewater, and
20 stormwater for the FPFTY are shown on Schedule HJS-1.

21 **Q. WHAT COSTS ARE DESIGNATED AS WATER ONLY?**

22 A. Operating budgets for the water quality lab, water treatment plant, and water distribution
23 system are designated as water only costs, as shown on Schedule HJS-1W.

24 **Q. WHAT COSTS ARE DESIGNATED AS WASTEWATER CONVEYANCE**
25 **ONLY?**

26 A. The majority of the operating budget for sewer operations is designated as wastewater
27 only with the exception of the costs associated with catch basin cleaning, which are
28 designated as stormwater only costs.

1 **Q. ARE ANY OTHER COSTS DESIGNATED AS STORMWATER ONLY?**

2 A. No, the only cost line item in the PWSA operating budget that is allocated directly to
3 stormwater is Catch Basin Cleaning.

4 **Q. HOW ARE THE REMAINING COSTS ALLOCATED BETWEEN WATER AND**
5 **WASTEWATER CONVEYANCE?**

6 The remaining costs are allocated using a set of allocation factors. The allocation factors
7 used in the establishment of utility service revenue requirements are summarized and
8 described in Schedule HJS-2. The majority of the Administrative Division expenses were
9 allocated between water, wastewater, and stormwater based on each utility's
10 proportionate share of operations costs. The only exception is Customer Service.

11 **Q. HOW ARE CUSTOMER SERVICE COSTS ALLOCATED BETWEEN WATER,**
12 **WASTEWATER, AND STORMWATER?**

13 A. The majority of Customer Service costs are allocated based on the number of bills
14 generated, or expected to be generated, for each utility. The only exception is the Meter
15 Service line item which is allocated based on the number of meters. Since stormwater is
16 not a metered service, no meter costs are allocated to stormwater, as shown on Schedule
17 HJS-2.

18 **Q. HOW ARE THE REMAINING COSTS ALLOCATED BETWEEN WATER,**
19 **WASTEWATER, AND STORMWATER?**

20 A. Under the Operations Division, most costs are allocated as 100% water or wastewater
21 conveyance. The exceptions are:

- 22 • Environmental Compliance, which is allocated based on PWSA staff's
- 23 determination of time spent on activities;
- 24 • Warehouse, which is allocated based on operations factors;
- 25 • Engineering and Construction is allocated based on the CIP.

1 Existing debt is allocated by fixed assets. Proposed debt and PAYGO are allocated by the
2 capital plan and known sources and uses. Costs of transfers to reserves are allocated
3 based on rate revenue between water, wastewater, and stormwater.

4 **Q. HAVE YOU IDENTIFIED THE LEVEL OF PROJECTED STORMWATER**
5 **COSTS FOR THE FPFTY?**

6 A. Yes. As previously mentioned, the breakdown is presented on Schedule HJS-1, which
7 shows PWSA's total revenue requirements allocated between water, wastewater
8 conveyance, and stormwater. These costs were derived using the allocation factors
9 provided in HJS-2. The allocation factors were applied to the total system revenue
10 requirements in some cases and to only the wastewater conveyance costs in other cases,
11 as shown in the allocation tables. The stormwater costs identified through the allocation
12 process serve as the revenue requirements for the stormwater fees that that PWSA will be
13 proposing. The process used to develop the proposed stormwater rates will be described
14 later in this testimony and in the testimony of PWSA witness Mr. Keith Readling.

15 **IV. WATER COST ALLOCATION**

16 **Q. WHAT IS THE LEVEL OF REVENUE REQUIREMENTS TO BE RECOVERED**
17 **BY WATER RATES AND CHARGES?**

18 A. Mr. Barca's testimony supports PWSA's total revenue requirements, and HJS-1 and HJS-
19 2 support the allocation of total revenue requirements for water service. As shown on
20 HJS-1W, the total water system revenue requirements for the FPFTY are \$170.1 million.
21 A portion is projected to be recovered by a proposed Distribution System Improvement
22 Charge (DSIC) at 7.5% of water revenues, which will be used to fund capital projects as
23 outlined in Mr. King's and Mr. Barca's testimony. The water system revenue
24 requirements net of DSIC are \$158.8 million.

1 **Q. HOW ARE WATER REVENUE REQUIREMENTS ALLOCATED TO COST**
 2 **CATEGORIES AND CUSTOMER CLASSES?**

3 A. Costs are allocated in a manner consistent with the Base/Extra Capacity cost allocation
 4 methodology described in the American Water Works Association (AWWA) Manual M-
 5 1 “Principle of Water Rates, Fees and Charges.” The methodology is a three-step process
 6 that involves first assigning costs to functional categories, then assigning the costs from
 7 each functional category to Base/Extra Capacity cost categories based on system demand
 8 characteristics, and then allocating the Base/Extra Capacity cost categories to customer
 9 classes based on customer class demand patterns.

10 **Q. HOW ARE PWSA’S OPERATING AND MAINTENANCE COSTS ASSIGNED**
 11 **TO FUNCTIONAL CATEGORIES?**

12 A. The process of assigning costs to functional categories allows costs to be recovered from
 13 customer classes based on the way that PWSA utilizes the resources within each function
 14 to meet the demands of each customer class. The functions to which costs are assigned
 15 include:

- 16 • Supply
- 17 • Treatment
- 18 • Storage
- 19 • Transmission
- 20 • Distribution
- 21 • Meters/Services
- 22 • Billing
- 23 • Fire Protection
- 24 • Administrative Support

25 As shown on HJS-2W, the FPFTY water operating and maintenance (O&M) expenses
 26 are accounted for in a manner consistent with PWSA’s O&M budget. With the exception
 27 of Customer Service, Water Distribution, and Engineering & Construction, all of the
 28 budget divisions relate directly to one functional category. Costs that are incurred in

1 support of only one function are assigned directly to that function, while costs that are
 2 incurred in support of two or more functions are assigned to functions using allocation
 3 factors that reflect the way a particular budget division supports each function. The
 4 allocation factors used to assign costs to functional categories are listed and described in
 5 Schedules HJS 4W and 5W. Schedules HJS 4W and 5W also show allocation factors
 6 used to allocate costs to Base/Extra Capacity cost categories as described later.

7 **Q. HOW ARE CUSTOMER SERVICE COSTS ASSIGNED TO FUNCTIONAL**
 8 **CATEGORIES?**

9 A. Since the Customer Service division supports both the Meters and Billing functions,
 10 Customer Service costs are assigned to these two functional categories using factor W-I.
 11 This factor was developed based on an analysis of each of the cost line items in the
 12 division's budget as shown in Schedule HJS-5W.

13 **Q. HOW ARE WATER DISTRIBUTION COSTS ASSIGNED TO FUNCTIONAL**
 14 **CATEGORIES?**

15 A. Since the Water Distribution division supports the Transmission and Distribution
 16 functions, Water Distribution costs are assigned to functional categories using factor W-
 17 K. This factor was developed based on an analysis of the water pipe inventory as shown
 18 in Schedule HJS-5W and allocates a portion of the Water Distribution costs to the
 19 Meters/Services function to recognize costs associated with repairing, replacing, and
 20 maintaining service lines that extend from the water main to customer meters.

21 **Q. HOW ARE ENGINEERING & CONSTRUCTION COSTS ASSIGNED TO**
 22 **FUNCTIONAL CATEGORIES?**

23 A. The Engineering & Construction division is responsible for planning and executing
 24 PWSA's capital projects; therefore, the division's costs are allocated using factor W-J
 25 which is based on the composition of the utility's CIP as shown in HJS-5W.

1 **Q. HOW ARE CAPITAL COSTS ASSIGNED TO FUNCTIONAL CATEGORIES?**

2 A. PWSA's capital costs consist of three components: (1) Internally Generated
3 Fund/PAYGO funded capital projects; (2) debt service; and (3) contributions to
4 reserves. To properly assign these costs to Base/Extra Capacity cost categories, the costs
5 must first be assigned to functional categories. All water capital costs are assigned to
6 functions based on the make-up of the fixed assets that currently comprise PWSA's water
7 system. This process involved assigning each of PWSA's fixed assets to the appropriate
8 functional category and determining the percentage of the total value of the assets that is
9 assigned to each function. These percentages are then applied to the capital costs to
10 determine the appropriate distribution of capital costs across the functional categories.
11 Schedule HJS-2W shows the breakdown of water fixed assets by functional categories
12 and the resulting allocation of water capital costs to functional categories.

13 **Q. WHAT IS THE NEXT STEP IN THE COST ALLOCATION PROCESS?**

14 A. Once costs have been assigned to functional categories, the next step is to allocate the
15 functionalized costs to Base/Extra Capacity cost categories.

16 **Q. HOW ARE PWSA'S COSTS ALLOCATED TO THE DIFFERENT BASE/EXTRA**
17 **CAPACITY COST CATEGORIES?**

18 A. O&M and capital costs are assigned to one or more of five Base/Extra Capacity costs
19 categories based on how costs are incurred to meet the demands of the water system as a
20 whole. The assignment of costs to the Base/Extra Capacity categories is shown on
21 Schedule HJS-3W, Allocation to Base/Extra Capacity Categories. The six cost categories
22 consist of:

- 23 • Base – Base costs are those costs that are incurred to meet the average or “base”
24 demands of the system.
- 25 • Max Day – Max Day costs are those costs that are incurred to meet peak daily
26 demands of the system.

- 1 • Max Hour – Max Hour costs are those costs that are incurred to meet peak
2 hourly demands of the system.
- 3 • Meters/Services – Meter/Services costs are the costs associated with installing,
4 maintaining, repairing, and replacing water meters and service lines.
- 5 • Billing – Billing costs are those costs associated with determining each
6 customer’s consumption and then billing them for that consumption.
- 7 • Fire Protection – Fire protection costs are the costs associated with providing
8 and maintaining the hydrants and associated infrastructure throughout the
9 system and ensuring that the system is capable of meeting fire flow demands
10 when needed.

11 Costs are assigned to cost categories using the allocation factors listed and described in
12 Schedules HJS 4W and 5W. Most of the allocation factors are developed using system
13 wide demand data and others are developed based on other analyses.

14 **Q. PLEASE DESCRIBE HOW EACH OF THE ALLOCATION FACTORS SHOWN**
15 **ON SCHEDULE HJS 4W WAS DEVELOPED.**

16 A. Each of the allocation factors was developed as follows:

- 17 • The Base allocation factor (W-AA) simply assigns all of the costs to the Base cost
18 category in recognition that these costs are incurred solely to meet the average
19 demands placed on the system.
- 20 • The Maximum Day allocation factor (W-BB) recognizes the way in which costs
21 are incurred to meet the peak day demands placed on the system by the different
22 customer classes. This factor also allocates a portion of costs to Fire protection in
23 recognition of the potential peak day demand that fire protection service could place
24 on the system. This allocation factor is based on plant production data and is
25 developed by dividing average day plant production by peak day plant production.

- 1 • The Peak Hour allocation factor (W-CC) was developed in the same way as the
2 Maximum Day allocation factor except that average day plant production is divided
3 by the peak hour plant production. Similar to factor W-BB, this factor also allocates
4 a portion of costs to Fire Protection in recognition of the potential peak demands
5 that fire protection service places on the system.
- 6 • The Customer-Meters allocation factor (W-DD) simply allocates all meter related
7 costs to the meter component of the Minimum Charge.
- 8 • The Transmission and Distribution allocation factor (W-D) considers costs
9 associated with linear infrastructure and was developed based on an analysis of the
10 water pipe inventory.
- 11 • The Transmission, Distribution, and Services allocation factor (W-K) considers
12 costs associated with linear infrastructure, including costs associated with the
13 operation, repair, and replacement of service lines, and was developed based on an
14 analysis of the water pipe inventory plus service lines.
- 15 • The Customer-Billing allocation factor (W-EE) allocates all billing-related costs to
16 the billing component of the Minimum Charge.
- 17 • The Fire Protection allocation factor (W-FF) assigns costs to the Fire Protection
18 category in recognition that these costs are incurred to meet the potential demands
19 placed on the system by the public fire protection system and private fire
20 connections.
- 21 • The Administrative Support allocation factor (W-GG) is used to allocate costs that
22 do not readily fall into a specific functional category. This allocation factor is based

1 on the percentages of overall costs that are allocated to each Base/Extra Capacity
 2 cost categories once all other allocations have been performed.

3 **Q. PLEASE DESCRIBE HOW THE COSTS ARE ALLOCATED TO THE**
 4 **BASE/EXTRA CAPACITY COST CATEGORIES.**

5 A. In the cost allocation model, allocation factors are applied to costs in each functional
 6 category such that costs are allocated in a way that reflects the type of demand being met
 7 by the function to which the costs have been assigned, as shown in Schedule HJS-3W.
 8 For instance, the costs in the Treatment function are allocated using Allocation Factor W-
 9 BB, which allocates costs in a way that reflects that the treatment facilities are operated to
 10 meet both average day demand and peak demands. Allocation Factor W-BB allocates
 11 costs to Base and Max Day based on the relationship between the system peak day and
 12 the system average day demand.

13 **Q. PLEASE DESCRIBE SOME OF THE OTHER PRIMARY ALLOCATION**
 14 **FACTORS THAT ARE USED TO ALLOCATE COSTS TO BASE/EXTRA**
 15 **CAPACITY CATEGORIES.**

16 A. In addition to Allocation Factor W-BB, which is used to allocate approximately 45% of
 17 the water revenue requirements, the two factors used to allocate the majority of the
 18 revenue requirements are Allocation Factors W-CC and W-GG.

- 19 • Allocation Factor W-CC is used to allocate costs associated with facilities used to meet
 20 average day, maximum day, and peak hour demands, which are primarily costs
 21 associated with the distribution system.
- 22 • Allocation Factor W-GG is a composite allocator based on the distribution of non-
 23 Administrative Support costs allocated to each of the cost categories and is used to
 24 allocate Administrative Support costs.

1 **Q. WHAT IS THE NEXT STEP IN THE COST ALLOCATION PROCESS?**

2 A. The next step in the allocation of water costs is the distribution of costs to each customer
3 class in a manner that reflects the way each class demands service.

4 **Q. HOW ARE THE REVENUE REQUIREMENTS ALLOCATED TO EACH OF**
5 **PWSA'S CUSTOMER CLASSES?**

6 A. As demonstrated in Schedule HJS-8W, the revenue requirements from each cost category
7 are used to determine the unit cost of providing service to meet both average day and
8 peak demands. For example, approximately \$80 million in water revenue requirements
9 were allocated to the Base cost category. This amount is reduced by approximately \$1.1
10 million to reflect revenue from miscellaneous revenue, resulting in approximately \$78.9
11 million in Base revenue requirements to be recovered through retail and wholesale rates.
12 This amount is used to determine the unit cost to meet average day demand for retail
13 classes and the wholesale class. For example, the unit cost for average day demand for
14 retail classes is determined by first taking the net revenue requirement of \$78.9 million,
15 less \$18.75 million for Distribution related costs (which wholesale isn't responsible for),
16 and dividing by the FPFTY projected water sales volume to arrive at a unit cost for
17 average day demand for all costs except Distribution related costs. The Distribution
18 related costs of \$18.75 million are divided by the FPFTY projected water sales volume
19 for retail classes only and the two sub-unit costs are combined to arrive at the retail
20 classes' unit cost to meet average day demand of \$10.50 per kgal. This unit cost is then
21 multiplied by each class's projected annual water sales volume required to meet average
22 day demand to arrive at the amount of Base costs to be recovered from each retail class,
23 as shown in HJS-9W. For example, the Residential class is projected to purchase
24 approximately 2.6 million kgal to meet its average day demands. This amount is

1 multiplied by the unit cost of \$10.50 to arrive at the total Base costs to be recovered from
2 the Residential class. The same process is applied to the wholesale class but with a
3 reduced unit cost of average day demand of \$7.77, reflecting the removal of the
4 Distribution-related costs.

5 This process is repeated for each of the Base/Extra Capacity cost categories and
6 customer classes to arrive at the total costs to be recovered from each class.

7 **Q. ARE COSTS ALLOCATED TO THE WHOLESALE CUSTOMERS?**

8 A. Yes, costs have been allocated to the Wholesale customer class as shown on HJS-9W.

9 As shown, the Wholesale class is allocated an appropriate share of Base, Max Day, and
10 Max Hour costs based on their demand characteristics.

11 **Q. ARE ANY ADJUSTMENTS MADE TO THE CLASS COST OF SERVICE?**

12 A. Yes. Adjustments to class cost of service were based on several factors, including rate
13 case settlement items, bad debt, and customer assistance program forgone revenue.

14 **Q. WHAT ADJUSTMENTS WERE MADE TO THE ALLOCATED WATER COST
15 OF SERVICE BY CUSTOMER CLASS?**

16 A. PWSA is required to make four adjustments to the cost of service allocated to each
17 customer class. These adjustments are shown in Schedule HJS-10W. The adjustments are
18 described below:

- 19 1. **Public Fire Protection** – PWSA is required to reduce the costs allocated to public
20 fire protection because it is limited by section 1328 of the Public Utility Code to
21 recovering no more than 25% of public fire costs. Public fire costs that cannot be
22 recovered through hydrant charges are reallocated among customer classes by
23 equivalent meters.
- 24 2. **Wholesale Contracts** – While rates that reflect the full cost of service for
25 Wholesale customers are developed in this rate filing, PWSA currently maintains
26 separate contracts for wholesale water service with each of their existing wholesale

1 customers. Rates are set per each agreement and are unable to be changed until the
 2 contracts expire or are due for renewal. At this time, PWSA is unable to modify
 3 any rates with existing customers beyond what is legally allowed in the individual
 4 agreements. As such, costs that were allocated to wholesale service that PWSA is
 5 unable to recover through wholesale rates are allocated among retail customers by
 6 unadjusted cost of service.

7 3. **Bad Debt Expense** – The CCOSS introduces Bad Debt Expense with the other
 8 adjustments on Schedule HJS-10W since it must be allocated directly to customer
 9 classes. Bad Debt Expense is allocated among the customer classes based on each
 10 class’s historical contribution for such costs over a three-year period (2019-2021).

11 4. **Customer Assistance Program** –The forgone revenue resulting from discounts
 12 given to participants in the Customer Assistance Program is allocated among
 13 customer classes based on the unadjusted cost of service, as shown in Schedule
 14 HJS-10W.

15 **Q. HOW ARE PROJECTED AVERAGE DAY AND EXTRA CAPACITY DEMANDS**
 16 **DETERMINED FOR EACH CUSTOMER CLASS?**

17 A. Demand projections were developed using customer class demand data from the three
 18 most recent complete years available (FY 2020 – FY 2022).

19 **Q. PLEASE EXPLAIN HOW THE CUSTOMER CLASS DEMAND DATA WAS**
 20 **USED TO DEVELOP THE DEMAND PROJECTIONS.**

21 A. FPFTY demand by class was set equal to the average annual demand exhibited by each
 22 class based on averaging annual demand by class in 2020, 2021, and 2022. Therefore, as
 23 stated, forecasted FPFTY annual demand represents a three-year average (FY 2020 – FY
 24 2022).

25 Modifications were made to the Residential and CAP classes to reflect an
 26 anticipated increase to 5,500 CAP customers based on expanded eligibility in the bill
 27 discount program in 2024. Residential bills and demand are reduced by the

1 corresponding bills and demand associated with the incremental increase in CAP
2 participation. No other modifications were made.

3 The average day demand for each class was then determined by dividing each
4 class's projected annual demand by 365 days. In order to determine the units of service
5 for allocating base/extra capacity costs between customer classes, peaking factors were
6 developed that recognize the level of peak demands placed on the system by each
7 customer class. PWSA customer class data from 2020 through 2022 was used to establish
8 peaking factors by customer class for all classes except the Industrial class. During 2020,
9 PWSA investigated and recategorized many Industrial customers as Commercial
10 customers. The peaking factor for Industrial customers is based only on the usage and
11 bills (during FY 2021 – FY 2022) for the 30 Industrial customers remaining after re-
12 categorization.

13 We calculated Maximum Month to Average Day factors for each class as shown
14 in HJS-6W. These factors were then adjusted by a system Maximum Day to Maximum
15 Month factor (1.28) which was derived using a three-year average of PWSA water
16 treatment plant production data for 2020-2022. Multiplying those two factors together
17 provided Maximum Day peaking factors for each class. In order to estimate peak hour
18 factors, we utilized an estimated Maximum Hour to Maximum Day factor which was
19 1.33 for industrial and 1.66 for all other customer classes. This factor was utilized to
20 recognize that industrial customers typically have stable usage patterns and thus exhibit
21 lower peak hour usage. Multiplying the estimated Maximum Hour to Maximum Day
22 factor by the Maximum Day factor provided the Maximum Hour peaking factor, as

1 shown in Schedule HJS-6W. FPFTY demands and historical demand data are shown in
 2 HJS-18W.

3 **V. WATER RATE DESIGN**

4 **Q. PLEASE DESCRIBE PWSA'S EXISTING WATER RATE STRUCTURE.**

5 A. PWSA's current rate structure for retail customers consists of a monthly Minimum
 6 Charge that varies by meter size and a Volume Charge that varies by customer class, as
 7 shown in Schedule HJS-13W. The Minimum Charge is used to recover PWSA's
 8 customer costs as well as some of PWSA's costs associated with providing capacity to
 9 meet customer demand. Additionally, the Minimum Charge recovers the cost of a water
 10 usage allowance that also varies by meter size. As mentioned previously, PWSA is
 11 proposing to eliminate the usage allowance in FY 2025.

12 The Volume Charge is designed to recover PWSA's costs that vary based on customer
 13 demand as well as the portion of PWSA's fixed costs that are not recovered through the
 14 Minimum Charge. The volumetric rate per thousand gallons (kgal) of water consumed
 15 varies by customer class based on how each class demands service. The water customer
 16 classes are:

- 17 • Residential (which includes Residential CAP),
- 18 • Commercial (which includes Municipal),
- 19 • Industrial,
- 20 • Health or Education,
- 21 • Fire, and
- 22 • Wholesale

23 PWSA assesses a monthly Fire System Charge to non-residential customers with fire
 24 suppression systems connected to PWSA's water system and a public fire protection
 25 charge, in the form of a per hydrant charge, to the City of Pittsburgh.

1 **Q. ARE YOU PROPOSING TO MAKE CHANGES TO THE EXISTING RATE**
 2 **STRUCTURE?**

3 A. No changes to the existing rate structure are proposed for FY 2024; however, PWSA is
 4 proposing to eliminate the Minimum Allowance and introduce two new reconcilable
 5 charges for the rates proposed for FY 2025.

6 **Q. HOW ARE THE MINIMUM CHARGES CALCULATED?**

7 A. As shown in Schedule HJS-12W, the Minimum Charges are comprised of three
 8 components: the Meter/Services component; the Billing component; the Usage
 9 component. The Minimum Charge is calculated by adding these three components
 10 together and then making a fire protection adjustment and a readiness to serve adjustment
 11 as described below.

12 **Q. HOW IS EACH OF THESE COMPONENTS CALCULATED?**

13 A. The Meter/Services component is calculated by dividing all costs allocated to the
 14 Meter/Services category by the number of 5/8” equivalent meters in the system to
 15 determine a cost per 5/8” equivalent meter. The meter size specific service charges are
 16 determined by then multiplying the cost per 5/8” equivalent meter by the appropriate
 17 AWWA meter equivalency ratio (shown in HJS-5W) to determine the appropriate charge
 18 for each meter size.

19 The Billing component is calculated by dividing the costs allocated to the Billing
 20 category by the total number of bills prepared each year to determine a unit cost per bill.

21 The Usage component is used to recover the costs of providing the volume
 22 allowance included in the Minimum Charge. It is calculated, as shown in Schedule HJS-
 23 12W, by multiplying the allowance for each meter size by the retail volumetric unit cost.
 24 However, in an effort to mitigate potential adverse bill impacts resulting from the

1 elimination of the usage allowance in FY 2025, only 75% of the cost of providing the
 2 allowance is included in the Usage component in FY 2024.

3 The final component is the adjustments. Two adjustments are made for the
 4 standard customer classes:

5 1) Public fire protection. The amount of public fire protection costs that are not
 6 recovered from the public hydrant charge are recovered on an equivalent meter basis in
 7 rate design.

8 2) Readiness-to-serve. 10.0% of PWSA’s debt service cost allocated to water is
 9 recovered on an equivalent meter basis in rate design.

10 Once each of the components of the Minimum Charge are calculated, they are
 11 added together to arrive at the Minimum Charge for each meter size. For example, the
 12 proposed Minimum Charge for an account with a 5/8” meter is \$32.43/month. This
 13 charge is comprised of a Meters/Services component of \$6.75, plus a Billing component
 14 of \$2.34, plus a usage component of \$14.53 (1 kgal), plus \$8.81 of adjustments. The
 15 resulting amount is then rounded up to the nearest cent. This process is demonstrated in
 16 HJS-12W and the proposed Minimum Charges are shown in HJS-13W. HJS-13W also
 17 provides a comparison of the proposed Minimum Charges to the existing Minimum
 18 Charges.

19 **Q. HOW ARE VOLUME CHARGES CALCULATED?**

20 A. Volumetric charges are calculated by subtracting the revenues provided by the minimum
 21 charges from the sum of the adjusted (based on the prior paragraph’s adjustment factors)
 22 base and extra capacity costs allocated to each customer class, and then dividing that
 23 figure by the projected FPFTY consumption of that customer class as demonstrated in
 24 HJS-12W. For example, the rate for the Health or Education class is determined by

1 dividing the total adjusted base and extra capacity costs allocated to the Health or
 2 Education class, net of the revenues provided by the minimum charge, by projected
 3 Health or Education class consumption in the FPFTY to arrive at the consumption rate.
 4 The resulting value, rounded to the nearest cent, is the proposed rate for the Health or
 5 Education class. HJS-12W shows the calculation of volumetric rates and HJS-13W
 6 shows the proposed Volume Charges as well as a comparison of the proposed charges to
 7 the existing charges.

8 As a reminder, the wholesale rate will only be applicable to new wholesale customers
 9 while existing contracts remain in effect for current wholesale customers.

10 **Q. DOES PWSA ASSESS FIRE PROTECTION CHARGES?**

11 A. Monthly fixed Fire System charges are assessed to non-residential customers that have
 12 private fire suppression systems connected to PWSA’s system. PWSA also assesses a
 13 Volumetric Charge for all water used by all fire system customers for purposes other than
 14 firefighting. PWSA assesses a public fire protection charge, in the form of a per hydrant
 15 charge, to the City of Pittsburgh.

16 **Q. HOW ARE THE FIXED FIRE SYSTEM CHARGES CALCULATED?**

17 A. Fire System Charges are comprised of three components: the Meter/Services component;
 18 the Billing component, and the Fire component as shown in Schedule HJS-12W. The
 19 Billing and Meter/Services components are calculated in the same manner as the
 20 Minimum Charge, but the Meter and Readiness-to-Serve components are derived for
 21 meters larger than 5/8”. The Fire component is calculated by dividing the costs allocated
 22 to the Fire Protection cost category by the projected number of 5/8” meter equivalents
 23 based on fire suppression connections and hydrant connections during the FPFTY. Fire
 24 System Charges are also adjusted such that they recover a share of Readiness To Serve

1 costs. The Fire System Charge for each group of meter sizes is the sum of the three
2 components and the Readiness-To-Serve adjustment for each group of meter sizes.

3 **Q. PLEASE EXPLAIN WHY METERS ARE GROUPEd FOR FIRE SYSTEM**
4 **CHARGES?**

5 A. The fire system charge is based on four groupings of meter sizes, which were used when
6 Raftelis first developed water rates for PWSA in 2016. The exact origin of these
7 groupings is not known, but we propose to continue to use these groupings in the interest
8 of rate stability.

9 **Q. HOW ARE THE PROPOSED VOLUMETRIC FIRE SYSTEM CHARGES**
10 **CALCULATED?**

11 A. The volumetric Fire System Charges are calculated in the same manner as the other
12 Volumetric Charges: by dividing the adjusted base and extra capacity costs allocated to
13 fire protection by the projected demand for water from fire systems that is not used for
14 fighting fires. The volume charge calculation is shown in Schedule HJS-12W.

15 **Q. HOW ARE PUBLIC FIRE PROTECTION CHARGES CALCULATED?**

16 A. Public Fire Protection Charges are assessed on a per hydrant basis, with each hydrant set
17 at the equivalent of a six-inch meter, which is standard in the water industry. The Public
18 Fire Protection Charges are first calculated based on the allocated fire costs for a six-inch
19 meter. In accordance with Public Utility Code Section 1328, they are then adjusted so
20 that only 25% of public fire protection costs are assessed in the form of a Public Fire
21 Protection Charge.

22 **Q. AT WHAT LEVEL IS THE DSIC BEING INCORPORATED INTO THE RATE**
23 **PACKAGE?**

24 A. PWSA is proposing a 7.5% DSIC for FY 2024, FY 2025, and FY 2026 as detailed in Mr.
25 Barca's testimony. This is included in Schedule HJS-13W.

1 **Q. DO THE PROPOSED CHARGES GENERATE REVENUE BY CLASS THAT IS**
 2 **CONSISTENT WITH EACH CLASS' COST OF SERVICE AS INDICATED BY**
 3 **THE CCOSS?**

4 A. No. Revenue recovery from the proposed charges for the aforementioned Wholesale
 5 class, CAP customer classes, and Public Fire Protection class are lower than each class's
 6 unadjusted cost of service. This is the result of intentionally under-recovering because of
 7 a discount or agreements in place. However, after the adjustments are made as described
 8 above, the proposed charges generate revenue consistent with the adjusted class cost of
 9 service.

10 **Q. HAVE YOU PROVIDED INFORMATION ON WHAT THE CUSTOMER**
 11 **IMPACTS ARE PROJECTED TO BE?**

12 A. Yes, Schedule HJS-16W shows example monthly bills under existing and proposed rates
 13 and the percentage impacts that are likely to occur for typical customers in each class.
 14 For a typical residential customer using 3 kgal per month, their monthly water bill would
 15 increase from \$58.59 to \$71.67, which represents a 22.3% increase.

16 **Q. WHAT CONSIDERATION HAS BEEN GIVEN AS TO WHETHER THE**
 17 **REVENUES FROM THE RATES AND CHARGES ARE SUFFICIENT TO**
 18 **COVER REVENUE REQUIREMENTS FOR PWSA?**

19 A. Schedule HJS-17W serves as a revenue proof to determine revenue sufficiency of the
 20 proposed rates and charges. The revenues that would be generated under the proposed
 21 rates and charges are shown along with the anticipated revenue from the DSIC. As
 22 shown in this schedule, revenue generated by the proposed rates and charges recovers the
 23 full water system revenue requirements.

24

1 **VI. WASTEWATER COST ALLOCATION**

2 **Q. WHAT IS THE LEVEL OF REVENUE REQUIREMENTS TO BE RECOVERED**
 3 **BY WASTEWATER CONVEYANCE RATES AND CHARGES?**

4 A. Mr. Barca’s testimony supports PWSA’s total revenue requirements and HJS-1 and HJS-
 5 2 support the allocation of total revenue requirements for wastewater conveyance service.

6 As shown in HJS-1WW, the total wastewater conveyance system revenue requirements
 7 for the FPFTY are \$54.6 million. A portion is projected to be recovered by a Distribution
 8 System Improvement Charge (DSIC) at 7.5% of wastewater conveyance revenues, which
 9 will be used to fund capital projects as outlined in Mr. King’s and Mr. Barca’s testimony.

10 The wastewater conveyance system revenue requirements net of DSIC are \$50.9 million.

11 **Q. HOW ARE WASTEWATER CONVEYANCE REVENUE REQUIREMENTS**
 12 **ALLOCATED TO COST CATEGORIES AND CUSTOMER CLASSES?**

13 A. Wastewater conveyance costs are allocated according to standard industry practice as
 14 described in the Water Environment Federation’s (WEF) Manual of Practice No. 27,
 15 “Financing and Charges for Wastewater Systems.” Similar to the allocation methodology
 16 used for determining PWSA’s water rates, the allocation process involves three steps: 1)
 17 assigning costs to functional categories; 2) assigning the costs from each functional
 18 category to cost categories; and 3) allocating the costs from each cost category to
 19 customer classes.

20 **Q. HOW ARE PWSA’S OPERATING AND MAINTENANCE COSTS ASSIGNED**
 21 **TO FUNCTIONAL CATEGORIES?**

22 A. The process of assigning costs to functional categories allows costs to be recovered from
 23 customer classes based on the way that PWSA utilizes the resources within each function
 24

1 to meet the demands of each customer class. The functions to which costs are assigned
2 include:

- 3 • Conveyance & Collection
- 4 • Meters
- 5 • Billing
- 6 • Administrative Support

7 Similar to the water expenses, the FPPTY operating and maintenance (O&M)
8 expenses are accounted for in a manner consistent with PWSA's O&M budget. The
9 wastewater conveyance revenue requirements are shown in HJS-2WW. With the
10 exception of Customer Service, all of the budget divisions relate directly to one
11 functional category. Costs that are incurred in support of only one function are assigned
12 directly to that function, while costs that are incurred in support of two or more functions
13 are assigned to functions using allocation factors that reflect the way a particular budget
14 division supports each function. The allocation factors used to assign costs to functional
15 categories are listed and described in Schedules HJS 4WW and 5WW.

16 **Q. HOW ARE CUSTOMER SERVICE COSTS ASSIGNED TO FUNCTIONAL**
17 **CATEGORIES?**

18 A. Since the Customer Service division supports both the Meters and Billing functions,
19 customer Service costs are assigned to functional categories using factor WW-E. This
20 factor, as shown in Schedule HJS-5WW, was developed based on an analysis of each of
21 the cost line items in the division's budget.

22 **Q. HOW ARE ENGINEERING & CONSTRUCTION COSTS ASSIGNED TO**
23 **FUNCTIONAL CATEGORIES?**

24 A. The Engineering & Construction division is responsible for planning and executing
25 PWSA's capital projects; therefore, as was the case with the water expenses, the
26 division's costs are allocated based on the composition of the utility's CIP. Unlike the

1 water CIP, all of the wastewater conveyance projects are related to the improvement,
2 repair, replacement, and expansion of the wastewater conveyance and collection system;
3 therefore, all of the Engineering & Construction expenses are allocated to Conveyance &
4 Collection as shown in Schedule HJS-2WW.

5 **Q. HOW ARE CAPITAL COSTS ASSIGNED TO FUNCTIONAL CATEGORIES?**

6 A. PWSA's capital costs consist of three components: (1) Internally Generated
7 Funds/PAYGO funded capital projects; (2) debt service; and (3) contributions to
8 reserves. To properly assign these costs to cost categories, these costs must first be
9 assigned to functional categories. All capital costs are assigned to functions based on the
10 make-up of the fixed assets that currently comprise PWSA's wastewater conveyance
11 system. This process involved assigning each of PWSA's fixed assets to the appropriate
12 functional category and determining the percentage of the total value of the assets that is
13 assigned to each function. These percentages are then applied to the capital costs to
14 determine the appropriate distribution of capital costs across the functional categories.
15 Schedule HJS-2WW shows the break-down of wastewater conveyance fixed assets by
16 functional categories.

17 **Q. WHAT IS THE NEXT STEP IN THE COST ALLOCATION PROCESS?**

18 A. Once costs have been assigned to functional categories, the next step is to allocate the
19 functionalized costs to cost categories.

20 **Q. HOW ARE PWSA'S COSTS ALLOCATED TO THE DIFFERENT COST**
21 **CATEGORIES?**

22 A. O&M and capital costs are assigned to one or more of three cost categories based on how
23 costs are incurred to meet the demands of the entire wastewater conveyance system. The
24 assignment of costs to the cost categories is shown in Schedule HJS-3WW, Allocation to

1 Cost Categories. Since all of the wastewater collected and conveyed by PWSA’s
 2 wastewater conveyance system is treated at ALCOSAN wastewater treatment facilities,
 3 the process of assigning costs to cost categories is greatly simplified because no costs
 4 need to be allocated to any of the treatment related categories addressed in WEF Manual
 5 No. 27.

6 The three cost categories consist of:

- 7 • **Volume** – Volume costs are those costs that are a function of the amount of
 8 wastewater that is collected and conveyed by the system.
- 9 • **Meters** – Meter costs are those costs associated with installing, maintaining,
 10 repairing, and replacing water meters. While the water meters are not used to
 11 measure wastewater flow, the water flow measured by the meters serves as a
 12 proxy for the volume of wastewater discharged by each customer and therefore
 13 the meters serve a vital role in the process of assessing wastewater conveyance
 14 charges to PWSA’s customers.
- 15 • **Billing** – Billing costs are those costs associated with billing PWSA wastewater
 16 conveyance customers for wastewater collection and conveyance.

17 Costs are assigned to cost categories using the allocation factors listed and
 18 described in Schedules HJS 4WW and 5WW. Most of the allocation factors are
 19 developed using system wide demand data and others are developed based on other
 20 analyses.

21 **Q. PLEASE DESCRIBE HOW EACH OF THE ALLOCATION FACTORS SHOWN**
 22 **ON SCHEDULE HJS 4WW WAS DEVELOPED.**

23 A. The Volume allocator (WW-AA) assigns all of the costs to which it is applied to the
 24 Volume cost category in recognition that these costs are driven by the volume of
 25 wastewater collected and conveyed by the wastewater conveyance system.

26 The Customer-Meters allocation factor (WW-BB) allocates all meter-related costs

1 to the meter component of the Minimum Charge.

2 The Customer-Billing allocation factor (WW-CC) allocates all billing-related
3 costs to the Billing component of the Minimum Charge.

4 The Administrative Support allocation factor (WW-DD) is used to allocate costs
5 that do not readily fall into a specific functional category. This allocation factor is based
6 on the percentages of overall costs that are allocated to each of the other cost categories
7 once all other allocations have been performed.

8 The Inflow and Infiltration costs are allocated between volume and billing to
9 reflect that infiltration is linked both to customers' level of flow and number of
10 connections in the system. In this analysis, aligning with the example in WEF Manual
11 No. 27, I&I costs were allocated 1/3rd to volume and 2/3rd to billing.

12 **Q. PLEASE DESCRIBE HOW THE COSTS ARE ALLOCATED TO THE COST**
13 **CATEGORIES.**

14 A. In the cost allocation model, allocation factors are applied to costs in each functional
15 category such that costs are allocated in a way that reflects the type of demand being met
16 by the function to which the costs have been assigned, as shown in Schedule HJS-7WW.
17 For instance, the costs in the Collection & Conveyance function are allocated using
18 Allocation Factor WW-AA, which allocates costs to recognize that all of the costs in this
19 function are dependent upon the volume of wastewater collected and conveyed by the
20 wastewater conveyance system. Approximately seventy percent (78%) of PWSA's
21 wastewater conveyance costs are allocated using the WW-AA allocation factor.

22 **Q. HOW ARE THE COSTS ALLOCATED TO EACH OF PWSA'S CUSTOMER**
23 **CLASSES?**

24 A. As demonstrated in Schedule HJS-7WW, the revenue requirements from each cost
25 category are used to determine the unit cost of providing wastewater collection and

1 conveyance service. For example, approximately \$35.8 million in wastewater
2 conveyance revenue requirements were allocated to the Volume cost category. This
3 amount is reduced by approximately \$0.6 million to reflect revenue from miscellaneous
4 revenue, resulting in approximately \$35.2 million in Volume revenue requirements to be
5 recovered through retail rates. This amount is divided by the FPFTY projected flows
6 (approximately 8.1 million kgal) to arrive at the unit cost of \$4.35 per kgal. This unit
7 cost is then multiplied by each class's projected wastewater flows to arrive at the amount
8 of Volume costs to be recovered from each class, as shown in Schedule HJS-8WW. For
9 example, the Residential class is projected to discharge approximately 3.4 million kgal.
10 This amount is multiplied by the unit cost of \$4.35 to arrive at the total Volume costs to
11 be recovered from the Residential class. This process is repeated for each of the
12 customer classes.

13 **Q. ARE ANY ADJUSTMENTS MADE TO THE CLASS COST OF SERVICE?**

14 A. Yes. Adjustments to class cost of service were based on several factors, including rate
15 case settlement items, negotiated agreements with other entities, bad debt, and customer
16 assistance program forgone revenue.

17 **Q. WHAT ADJUSTMENTS WERE MADE TO THE ALLOCATED WASTEWATER**
18 **CONVEYANCE COST OF SERVICE BY CUSTOMER CLASS?**

19 A. PWSA is required to make three adjustments to the cost of service allocated to each
20 customer class. All three adjustments are shown in Schedule HJS-9WW and the forgone
21 revenue for the CAP customers is derived in HJS-10WW. The adjustments are described
22 below:

- 23 1. **Bad Debt Expense** – The CCROSS introduces Bad Debt Expense with the other
24 adjustments in Schedule HJS-9WW since it must be allocated directly to customer

1 classes. Bad Debt Expense is allocated among the customers based on their historical
 2 responsibility for such costs.

3 2. **Customer Assistance Program** – The cost of the Customer Assistance Program,
 4 derived in Schedule HJS-10WW, is allocated among customer classes in Schedule
 5 HJS-9WW. These costs are allocated to classes based on the unadjusted cost of service.

6 3. **Wholesale Contracts** – While rates that reflect the full cost of service for Wholesale
 7 customers are developed in this rate filing, PWSA currently maintains separate
 8 contracts for wholesale sewer service with each of their existing wholesale customers.
 9 Rates are set per each agreement and are unable to be changed until the contracts expire
 10 or are due for renewal. At this time, PWSA is unable to modify any rates with existing
 11 customers beyond what is legally allowed in the individual agreements. As such, costs
 12 that were allocated to wholesale service that PWSA is unable to recover through
 13 wholesale rates are allocated among retail customers by unadjusted cost of service.

14 **Q. PLEASE EXPLAIN HOW THE FY2020 - FY2022 DATA WAS USED TO**
 15 **DEVELOP THE DEMAND PROJECTIONS.**

16 A. FPFTY demand by class was set equal to the average annual demand exhibited by each
 17 class over the three-year period from 2020-2022, as shown in HJS-17WW.
 18 Modifications were made to the Residential and CAP classes to reflect an estimated
 19 increase of CAP customers to 7,950 based on expanded eligibility in the bill discount
 20 program in 2024. The estimated CAP customers for wastewater conveyance service is
 21 higher than water service because there are more wastewater conveyance customers than
 22 water customers. This difference occurs because PWSA services approximately 30,000
 23 customers that are wastewater conveyance only. Consequently, residential bills and

1 demand are reduced by the corresponding bills and demand associated with the
 2 incremental increase in CAP participation. No other modifications were made.

3VII. WASTEWATER CONVEYANCE RATE DESIGN

4 **Q. PLEASE DESCRIBE PWSA’S EXISTING WASTEWATER CONVEYANCE**
 5 **RATE STRUCTURE.**

6 A. PWSA’s current wastewater conveyance rate structure for retail customers consists of a
 7 monthly Minimum Charge that varies by meter size and a Volume Charge that varies by
 8 customer class. The Minimum Charge is used to recover PWSA’s customer costs and the
 9 cost of a wastewater usage allowance that also varies by meter size.

10 The Volume Charge is designed to recover PWSA’s costs that vary based on customer
 11 demand as well as the portion of PWSA’s fixed costs that are not recovered through the
 12 Minimum Charge. The volumetric rate per thousand gallons (kgal) of wastewater
 13 demand varies by customer class based on the way each class demands service. The
 14 wastewater customer classes are:

- 15 • Residential (which includes Residential CAP),
- 16 • Commercial (which includes Municipal),
- 17 • Industrial, and
- 18 • Health or Education.

19
 20 **Q. IS PWSA PROPOSING TO MAKE ANY CHANGES TO THE EXISTING**
 21 **WASTEWATER CONVEYANCE RATE STRUCTURE?**

22 A. No, PWSA is not proposing to make any changes to the wastewater conveyance rate
 23 structure for rates proposed for FY 2024; however, as discussed previously, PWSA is
 24 proposing to eliminate the Minimum Allowance and to implement two new reconcilable
 25 charges in FY 2025.

1 **Q. HOW ARE THE MINIMUM CHARGES CALCULATED?**

2 A. As shown in Schedule HJS-11WW, the Minimum Charges are comprised of three
3 components: the Meter component; the Billing component; and the Usage component.
4 Additionally, a readiness-to-serve rate design adjustment is made such that 10% of
5 PWSA's wastewater conveyance debt service is recovered through the Minimum Charge.

6 **Q. HOW IS EACH OF THESE COMPONENTS CALCULATED?**

7 A. The Meter component is calculated by dividing all costs allocated to the Meter category
8 by the number of 5/8" equivalent meters in the system to determine a cost per 5/8"
9 equivalent meter. The meter size specific service charges are determined by then
10 multiplying the cost per 5/8" equivalent meter by the appropriate AWWA meter
11 equivalency ratio to determine the appropriate charge for each meter size.
12 The Billing component is calculated by dividing the costs allocated to the Billing
13 category by the total number of bills prepared each year to determine a unit cost per bill.
14 The Usage component is used to recover the costs of providing the volume allowance
15 included in the Minimum Charge. It is calculated, as shown in Schedule HJS-11WW, by
16 multiplying the allowance for each meter size by the retail volumetric unit cost. For
17 example, accounts with a 3/4" meter receive a 2 kgal/month allowance. Therefore, the
18 Usage component for a 3/4" meter is equal to 2 kgal times the volumetric unit cost of
19 \$3.055, or \$6.110.
20 Once each of the three components of the Wastewater Conveyance Minimum Charge are
21 calculated, they are added together and the readiness to serve adjustment is applied to
22 arrive at the Wastewater Conveyance Minimum Charge for each meter size. For
23 example, the proposed Wastewater Conveyance Minimum Charge for an account with a
24 3/4" meter is \$11.43/month. This charge is comprised of a metering component of \$1.32,

1 plus a billing component of \$2.45, plus a usage component of \$6.11. Finally, a
 2 Readiness-to-Serve adjustment of \$1.54 is applied to arrive at the total proposed
 3 Minimum Charge of \$11.43 (rounded).

4 **Q. HOW ARE WASTEWATER CONVEYANCE VOLUME CHARGES**
 5 **CALCULATED?**

6 A. As shown in HJS-11WW, wastewater conveyance Volume Charges are calculated by
 7 dividing the net volumetric revenue requirements for each class by the projected volume
 8 of wastewater discharged by each class. Net volumetric revenue requirements are
 9 determined by first subtracting the revenue generated from Wastewater Conveyance
 10 Minimum Charges by each class from the total adjusted revenue requirements allocated
 11 to each class. The resulting amounts represent the costs that must be recovered from each
 12 class through the volume charge. For example, the rate for the Commercial class is
 13 determined by dividing the net volumetric revenue requirements allocated to the
 14 Commercial class (\$14.5M) by the projected wastewater volume discharged by the
 15 Commercial class (2.5M kgal) to arrive at the volumetric rate of \$5.76 per kgal. The
 16 resulting rates and charges are shown in HJS-12WW.

17 **Q. AT WHAT LEVEL IS THE DSIC BEING INCORPORATED INTO THE RATE**
 18 **PACKAGE?**

19 A. As was the case with the water rates, PWSA is proposing a 7.5% DSIC for FY 2024
 20 through FY 2026. This is included in Schedule HJS-12WW.

21 **Q. HAVE YOU PROVIDED INFORMATION ON WHAT THE CUSTOMER**
 22 **IMPACTS ARE PROJECTED TO BE?**

23 A. Yes, HJS-15WW shows bills under existing and proposed rates and the percentage
 24 impacts that are likely to occur for typical residential, commercial, and industrial
 25 customers. For a typical residential customer using 3 kgal per month, their monthly

1 wastewater conveyance bill increases from \$19.89 to \$21.48, which represents a 8.0%
 2 increase.

3 **Q. WHAT CONSIDERATION HAS BEEN GIVEN AS TO WHETHER THE**
 4 **REVENUES FROM THE WASTEWATER CONVEYANCE RATES AND**
 5 **CHARGES ARE SUFFICIENT TO COVER WASTEWATER CONVEYANCE**
 6 **REVENUE REQUIREMENTS FOR PWSA?**

7 A. HJS-16WW serves as a revenue proof to determine revenue sufficiency of the proposed
 8 rates and charges. The revenues that would be generated under the proposed rate
 9 structure are shown along with the anticipated revenue from the DSIC.

10 **Q. ACCORDING TO THE RATE MODEL, ARE THE RATES AND CHARGES**
 11 **CALCULATED SUFFICIENT TO MEET REVENUE REQUIREMENTS?**

12 A. Yes. As shown in HJS-16WW, the revenues generated by the proposed rates and charges
 13 recover the full adjusted wastewater conveyance system revenue requirements.

IV. STORMWATER COST ALLOCATION

15 **Q. WHAT IS THE LEVEL OF REVENUE REQUIREMENTS TO BE RECOVERED**
 16 **BY STORMWATER RATES AND CHARGES?**

17 A. Mr. Barca’s testimony supports PWSA’s total revenue requirements and HJS-1 and HJS-
 18 2 support the allocation of total revenue requirements for stormwater service. As shown
 19 in HJS-1SW, the total stormwater system revenue requirements for the FPPTY is \$40.0
 20 million.

21 **Q. WHAT ADJUSTMENTS WERE MADE TO THE ALLOCATED STORMWATER**
 22 **COST OF SERVICE BY CUSTOMER CLASS?**

23 A. PWSA has made three adjustments to the cost of service allocated to stormwater, which
 24 are shown in Schedule HJS-5SW. The adjustments are described below:

- 25 1. **Bad Debt Expense** – The CCROSS introduces Bad Debt Expense with the other adjustments
 26 in Schedule HJS-5SW. Bad Debt Expense is allocated among the customers based the
 27 unadjusted cost of service. Please see testimony by Mr. Readling for more information on
 28 how the bad debt expense for stormwater was calculated.

- 1 2. **Customer Assistance Program** – The forgone revenue as a result of the Customer
 2 Assistance program, estimated at approximately \$800,000, is allocated among customer
 3 classes in Schedule HJS-5SW, based on the unadjusted cost of service.
- 4 3. **Credit Program** – The cost of the Stormwater credit program is estimated to be
 5 approximately \$180,500. This cost is allocated among customer classes in Schedule HJS-
 6 5SW. These costs are allocated to classes based on the unadjusted cost of service. Please
 7 see testimony by Mr. Readling for more information about the credits and incentives
 8 program.

9 IX. **STORMWATER RATE DESIGN**

10 **Q. PLEASE DESCRIBE PWSA’S PROPOSED STORMWATER RATE**
 11 **STRUCTURE.**

12 A. The proposed stormwater rate structure and the process used to develop stormwater rates
 13 is addressed in the testimony of PWSA witness Mr. Keith Readling. As discussed in
 14 PWSA’s last rate case, the stormwater rate that would be required to recover all of the
 15 revenue requirements allocated to stormwater would be inordinately high and would most
 16 likely result in a high level of nonpayment of the stormwater bill. As such, PWSA is
 17 proposing to continue to apply gradualism to the stormwater charge such that it does not
 18 pose a financial challenge to customers. The implementation of gradualism for the
 19 stormwater charge requires that the difference in revenue that will be recovered through
 20 the proposed stormwater charge and the revenue that would be recovered through the
 21 fully loaded stormwater charge be recovered through the wastewater conveyance charge.
 22 This adjustment is included in Schedule HJS-5SW. This is accomplished by making a
 23 \$9.5 million downward adjustment to the allocated stormwater cost of service and a
 24 commensurate upward adjustment to the allocated wastewater conveyance cost of
 25 service, as shown in HJS-9WW. The mechanism for affecting gradualism with respect to
 26 the stormwater charge is described below.

1 **X. GRADUALISM ADJUSTMENT IN ADDITION TO STORMWATER**

2 **Q. OTHER THAN THE STORMWATER CHARGE, DO PWSA’S PROPOSED**
 3 **RATES INCORPORATE ANY OTHER INSTANCES OF THE**
 4 **IMPLEMENTATION OF GRADUALISM?**

5 A. Yes, we have made gradualism adjustments to both the wastewater conveyance rate for
 6 the Health or Education class and to the water rate for the Industrial class.

7 **Q. PLEASE DESCRIBE ALL INSTANCES OF THE IMPLEMENTATION OF**
 8 **GRADUALISM.**

9 A. The mechanism for affecting each instance of gradualism is described below.

- 10 • **Stormwater Gradualism Adjustment** – The cost of gradualism between stormwater
 11 and wastewater conveyance (\$9.5 million) is allocated for recovery from all classes of
 12 wastewater conveyance customers as shown in Schedule HJS-9WW. These costs are
 13 allocated to classes based on the unadjusted cost of service for each customer class.
 14
- 15 • **Health or Education Wastewater Conveyance Gradualism Adjustment** – Based on
 16 a long-standing policy decision, wastewater rates for Health or Education have been
 17 set higher than the estimated cost of service for the Health or Education class. Since
 18 PWSA has increased wastewater conveyance rates “across-the-board” in the previous
 19 two filings, the subsidy has not been corrected. For this rate case, PWSA is proposing
 20 to reduce, but not fully remove, this subsidy. The cost of the subsidy is allocated from
 21 Health or Education to Residential as shown in Schedule HJS-9WW.
 22
- 23 • **Industrial Water and Wastewater Conveyance Gradualism Adjustment** – In
 24 PWSA’s 2020 Rate Case, PWSA and the parties agreed to impose gradualism
 25 adjustments for any customer classes experiencing a 1.5x increase above the system
 26 average increase. PWSA has continued this convention here and has made such an
 27 adjustment for Industrial customers. As shown in HJS-10W and HJS-9WW, The
 28 gradualism “costs” are assigned proportionally for recovery to other customer classes
 29 based on unadjusted cost of service for each class.
 30

1 **XI. YEAR TWO RATES**

2 **Q. HOW ARE RATES FOR YEAR TWO OF THE MULTI-YEAR PLAN**
3 **DETERMINED?**

4 A. Water and sewer rates for Year 2 of the rate plan (FY 2025) are based on the cost of
5 service analysis performed for the Year 1 rates. As shown in Schedules HJS-21W and
6 HJS-20WW, the Base Charge (previously Minimum Charge) is calculated as described
7 previously, except that there is no usage component. Therefore, starting in FY 2025, the
8 Base charge is comprised of the Billing component, the Meters/Services component, and
9 adjustments. Costs previously recovered through the Usage component are now
10 recovered through Volume Charges. Each component of the FY 2025 Base Charge is
11 determined by increasing the FY 2024 charge for each component by the percent
12 difference between the Base Charge revenue requirements for FY 2024 and FY 2025
13 (7.94% for water and 4.12% for wastewater).

14 As shown in Schedules HJS-22W and HJS-21WW, Volume Charges are determined by
15 first increasing the total revenue requirements allocated to each customer class in 2024 by
16 the same percent such that the sum of the total revenue requirements allocated to the
17 customer classes is equal to the total revenue requirements for FY 2025. The total
18 revenue requirements are then reduced by the base charge revenue by class and the
19 revenue from the two new reconcilable charges to determine the volumetric revenue
20 requirements by class. The volumetric revenue requirements for each class are then
21 divided by that class's projected FY 2025 demand to arrive at the rate per thousand
22 gallons for the class.

1 **Q. HOW IS THE IIC CALCULATED?**

2 A. The Water, Sewer, and Stormwater IICs are intended to recover the debt service for all
3 PENNVEST and WIFIA loans either awarded (although currently only in the
4 construction drawdown phase) or commencing in or after FY 2025. There is no
5 component in base rates for FY 2025 for these costs as they will be recovered through the
6 IICs as identified in filings to the PaPUC and subsequently approved tariff supplements.
7 The Water IIC and Sewer IIC are calculated by first identifying the annual PENNVEST
8 and WIFIA debt service requirements for each utility and then dividing that amount by
9 the projected demand to arrive at the IIC per thousand gallons. The Stormwater IIC is
10 calculated by dividing the debt service for PENNVEST and WIFIA borrowings used to
11 fund stormwater projects by the total number of stormwater ERUs to arrive at a rate per
12 ERU.

13 **Q. HOW IS THE CAC CALCULATED?**

14 A. The Water, Sewer, and Stormwater CAC are intended to recover the costs incurred to
15 administer the CAP and to recover forgone revenue resulting from discounts provided to
16 customers participating in PWSA's CAP. Like the IICs, the CACs will not go into effect
17 until FY 2025. Therefore, there is no component in base rates for FY 2025 for these
18 costs as they will be recovered through the CACs as identified in filings to the PaPUC
19 and subsequently approved tariff supplements. The Water CAC and Sewer CAC are
20 calculated by first identifying the annual forgone revenue, allocated operations costs,
21 hardship grant funding, and cost of arrearage forgiveness for each utility and then
22 dividing that amount by the projected demand to arrive at the CAC per thousand gallons.
23 The Stormwater CAC is calculated by dividing the annual forgone revenue and allocated
24 operations costs by the total number of stormwater ERUs to arrive at a rate per ERU.

IXII. YEAR THREE RATES**2 Q. HOW ARE RATES FOR FY 2026 DETERMINED?**

3 A. In general, Water, Wastewater Conveyance, and Stormwater rates for FY 2026 are
4 determined by applying an across the board percent increase to the FY 2025 rates such
5 that rate revenue will equal rate revenue requirements. As shown in Schedule HJS-20W,
6 an additional \$33,075,904 in water base rate revenue is required for FY 2026. This
7 requirement represents a 19.66% increase over projected rate revenue in FY 2025;
8 therefore, FY 2026 water rates are determined by multiplying the FY 2025 water rates by
9 1.1966.

10 Similarly, Schedule HJS-19WW shows that an additional \$8,430,029 in wastewater
11 conveyance base rate revenue is required for FY 2026. This requirement represents a
12 16.22% increase over projected rate revenue for FY 2025; therefore, FY 2026 wastewater
13 conveyance rates are determined by multiplying the FY 2025 wastewater conveyance
14 rates by 1.1622.

15 Schedule HJS-10SW shows that an additional \$5,976,273 in stormwater rate revenue is
16 required for FY 2026. This requirement represents a 16.93% increase over projected rate
17 revenue in FY 2025; therefore, FY 2026 stormwater rates are determined by multiplying
18 the FY 2025 stormwater rates by 1.1693.

19 Q. HOW ARE THE IIC AND CAC DETERMINED FOR FY2026?

20 A. The Water, Wastewater Conveyance, and Stormwater IICs and CACs for FY 2026 are
21 determined in the same manner as they were determined for FY 2025. The projected
22 associated costs, as described above, are divided by projected annual demand to arrive at
23 a rate per thousand gallons for the water and wastewater conveyance IIC and CAC and a

1 rate per ERU for the Stormwater IIC and CAC as shown in Schedules HJS-22W, HJS-
2 21WW, and HJS-11SW.

XIII. CONCLUSION

4 **Q. MR. SMITH, DOES THAT CONCLUDE YOUR TESTIMONY?**

5 **A.** Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

VERIFICATION

I, Harold J. Smith, hereby state that: (1) I am a Vice President of Raftelis Financial Consultants, Inc.; (2) I have been retained by The Pittsburgh Water and Sewer Authority (“PWSA”) and am authority to present testimony on its behalf; (3) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 05/03/2023 | 8:03 AM PDT

DocuSigned by:
Harold J. Smith
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Harold J. Smith, Vice President
Raftelis Financial Consultants, Inc.

Consultant to:
The Pittsburgh Water and Sewer Authority

Exhibit HJS-1 to HJS-2
(Combined Utility Schedules)

Pittsburgh Water and Sewer Authority
Revenue Requirements by Utility

	FPFTY 2024			
	Water	Wastewater Conveyance	Stormwater	Total
Base Rate Revenue Requirements				
<u>Operating Expenses</u>				
<u>Direct Operating Expenses</u>				
Administrative Division				
Executive Director	\$ 2,389,920	\$ 460,536	\$ 486,323	\$ 3,336,779
Customer Service	2,726,806	3,452,782	3,398,059	9,577,647
Management Information Systems	5,452,164	1,050,629	1,109,457	7,612,251
Finance	5,355,560	1,032,014	1,089,799	7,477,373
Human Resources	1,744,656	336,194	355,019	2,435,869
Legal	3,019,489	581,854	614,434	4,215,777
Safety & Security	1,676,729	323,105	341,197	2,341,031
Public Affairs	1,362,774	262,606	277,310	1,902,689
Operations Division				
Environmental Compliance	1,623,521	1,507,555	1,507,555	4,638,632
Ops Capital Assets	-	-	-	-
Warehouse	402,980	77,654	82,002	562,637
Water Treatment Plant	27,206,247	-	-	27,206,247
Water Quality (Lab)	2,676,383	-	-	2,676,383
Water Distribution	17,698,299	-	-	17,698,299
Sewer Operations	-	5,387,047	5,970,047	11,357,094
Engineering & Construction Division				
Engineering & Construction	15,757,737	5,623,537	5,741,630	27,122,905
<i>Subtotal: Direct Operating Expenses</i>	<i>\$ 89,093,265</i>	<i>\$ 20,095,515</i>	<i>\$ 20,972,832</i>	<i>\$ 130,161,613</i>
<u>Other Operating Expenses</u>				
Loss / (Gain) on ALCOSAN Billings	\$ -	\$ 2,066,814	\$ -	\$ 2,066,814
City Services	2,449,260	471,972	498,399	3,419,630
Non-City Water Payments	-	-	-	-
Covid Expenses	188,524	74,691	-	263,215
<i>Subtotal: Other Operating Expenses</i>	<i>\$ 2,449,260</i>	<i>\$ 2,538,786</i>	<i>\$ 498,399</i>	<i>\$ 5,486,444</i>
<i>Subtotal: Operating Expenses</i>	<i>\$ 91,731,049</i>	<i>\$ 22,708,992</i>	<i>\$ 21,471,231</i>	<i>\$ 135,911,272</i>
<u>Debt Service</u>				
<u>Existing Debt</u>				
Senior Debt Service	\$ 35,801,303	\$ 11,256,278	\$ 11,256,278	\$ 58,313,859
Subordinate Debt Service	10,748,411	3,379,405	3,379,405	17,507,221
<i>Subtotal: Existing Debt</i>	<i>\$ 46,549,714</i>	<i>\$ 14,635,683</i>	<i>\$ 14,635,683</i>	<i>\$ 75,821,080</i>
<u>Proposed Debt</u>				
Revolving Line of Credit Interest	\$ 2,404,266	\$ 282,652	\$ 313,081	\$ 3,000,000
Revenue Bonds	9,692,885	1,427,885	1,283,462	12,404,232
SRF Loans	4,351,223	853,431	502,660	5,707,313
<i>Subtotal: Proposed Debt</i>	<i>\$ 16,448,374</i>	<i>\$ 2,563,968</i>	<i>\$ 2,099,203</i>	<i>\$ 21,111,546</i>
<i>Subtotal: Debt Service</i>	<i>\$ 62,998,088</i>	<i>\$ 17,199,651</i>	<i>\$ 16,734,886</i>	<i>\$ 96,932,626</i>
<u>Capital Expenditures & Transfers</u>				
Internally Generated Funds / PAYGO	\$ -	\$ -	\$ -	\$ -
Other Transfers to Reserves	640,000	250,000	110,000	1,000,000
Reimbursements from Municipalities	-	-	-	-
Remarketing & Liquidity Charges	-	-	-	-
Bad Debt Expense	3,360,716	1,077,678	1,533,142	5,971,537
DWSL	-	-	-	-
Hardship	-	-	-	-
Arrearage	97,988	142,012	-	240,000
Stormwater Credit Program Cost	-	-	180,489	180,489
<i>Subtotal: Capital Expenditures & Transfers</i>	<i>\$ 4,098,704</i>	<i>\$ 1,469,690</i>	<i>\$ 1,823,631</i>	<i>\$ 7,392,025</i>
Total: Base Rate Revenue Requirements	\$ 158,827,841	\$ 41,378,334	\$ 40,029,748	\$ 240,235,923
DSIC Costs	\$ 11,279,120	\$ 3,759,342	\$ -	\$ 15,038,462
Total System Revenue Requirements	\$ 170,106,961	\$ 45,137,675	\$ 40,029,748	\$ 255,274,385

**Pittsburgh Water and Sewer Authority
Allocation Factors - Between Utilities**

Allocations to Utilities (Revenue Requirements & Assets)				
<i>Code</i>	<i>Description</i>	<i>Water</i>	<i>Sewer</i>	<i>Stormwater</i>
A	Water Only	100.0%	0.0%	0.0%
B	Wastewater Only	0.0%	100.0%	0.0%
C	Stormwater Only	0.0%	0.0%	100.0%
D	Customer Service - Meters	51.3%	48.7%	0.0%
E	Customer Bills	26.4%	34.9%	38.7%
F	Operations Cost	71.6%	13.8%	14.6%
G	Engineering and Construction	80.1%	9.4%	10.4%
H	Environmental Compliance	35.0%	32.5%	32.5%
I	Customer Service - Composite	28.5%	36.1%	35.5%
J	Wastewater - Conveyance	0.0%	50.0%	50.0%
K	Existing Debt Service - Assets	61.4%	19.3%	19.3%

Sewer / Stormwater Allocation Factor Detail

	Sewer	Stormwater
Conveyance	50.0%	50.0%
Debt Service	50.0%	50.0%

Exhibits
HJS-1W – HJS-25W
(Water Schedules)

Pittsburgh Water and Sewer Authority

HJS-1W

FPFTY 2024 COS & Rate Design Model

FPFTY Water Revenue Requirements

	2024 FPFTY Revenue Requirements
Water System Revenue Requirements	
<u>Operating Expenses</u>	
<i>Direct Operating Expenses</i>	
Administrative Division	
Executive Director	\$ 2,389,920
Customer Service	2,726,806
Management Information Systems	5,452,164
Finance	7,804,820
Human Resources	1,744,656
Legal	3,019,489
Safety & Security	1,676,729
Public Affairs	1,362,774
Operations Division	
Environmental Compliance	1,623,521
Ops Capital Assets	-
Warehouse	402,980
Water Treatment Plant	27,206,247
Water Quality (Lab)	2,676,383
Water Distribution	17,698,299
Sewer Operations	-
Engineering & Construction	
Engineering & Construction	15,757,737
<i>Other Operating Expenses</i>	
Loss / (Gain) on ALCOSAN Billings	-
Covid-Related Expenses	188,524
<i>Total Operating Expenses</i>	<u>\$ 91,731,049</u>
<u>Debt Service</u>	
Existing Debt	\$ 46,549,714
Future Debt	16,448,374
<i>Subtotal: Debt Service</i>	<u>\$ 62,998,088</u>
<u>Capital Expenditures & Transfers</u>	
Internally Generated Funds / PAYGO	\$ -
Internally Generated Funds / PAYGO (DSIC)	11,279,120
Other Transfers to Reserves	640,000
Bad Debt Expense	3,360,716
Arrearage	97,988
<i>Subtotal: Capital Expenditures & Transfers</i>	<u>\$ 15,377,824</u>
Total: Water System Revenue Requirements	\$ 170,106,961
<i>Capital Costs to be Recovered through DSIC</i>	\$ (11,279,120)
Total: Water System Revenue Requirement (Excl DSIC)	\$ 158,827,841

Water Operating Expenses	FY 2024	Allocation	Water Functional Categories											
			Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support			
<i>Direct Operating Expenses</i>	<i>FPFTY</i>													
Administrative Division														
Executive Director	\$ 2,389,920	W-H	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,389,920
Customer Service	2,726,806	W-I	-	-	-	-	-	-	932,617	1,794,189	-	-	-	-
Management Information Systems	5,452,164	W-H	-	-	-	-	-	-	-	-	-	-	-	5,452,164
Finance	7,804,820	W-H	-	-	-	-	-	-	-	-	-	-	-	7,804,820
Human Resources	1,744,656	W-H	-	-	-	-	-	-	-	-	-	-	-	1,744,656
Legal	3,019,489	W-H	-	-	-	-	-	-	-	-	-	-	-	3,019,489
Safety & Security	1,676,729	W-H	-	-	-	-	-	-	-	-	-	-	-	1,676,729
Public Affairs	1,362,774	W-H	-	-	-	-	-	-	-	-	-	-	-	1,362,774
Operations Division														
Environmental Compliance	1,623,521	W-H	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,623,521
Ops Capital Assets	-	W-H	-	-	-	-	-	-	-	-	-	-	-	-
Warehouse	402,980	W-H	-	-	-	-	-	-	-	-	-	-	-	402,980
Water Treatment Plant	27,206,247	W-B	-	27,206,247	-	-	-	-	-	-	-	-	-	-
Water Quality (Lab)	2,676,383	W-B	-	2,676,383	-	-	-	-	-	-	-	-	-	-
Water Distribution	17,698,299	W-K	-	-	-	6,103,833	10,412,419	1,182,047	-	-	-	-	-	-
Sewer Operations	-	n/a	-	-	-	-	-	-	-	-	-	-	-	-
Engineering & Construction Division														
Engineering & Construction	15,757,737	W-J	-	1,520,915	6,512,730	7,096,075	-	-	-	-	-	-	-	628,017
Subtotal: Direct Operating Expenses	\$ 91,542,525		\$ -	\$ 31,403,544	\$ 6,512,730	\$ 13,199,908	\$ 10,412,419	\$ 2,114,664	\$ 1,794,189	\$ -	\$ -	\$ -	\$ -	\$ 26,105,071
<i>Other Operating Expenses</i>														
Loss / (Gain) on ALCOSAN Billings	-	n/a	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
Covid-Related Expenses	188,524		-	-	-	-	-	-	-	-	-	-	-	188,524
Subtotal: Other Operating Expenses	\$ 188,524		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 188,524
Allocated Water Operating Costs	\$ 91,731,049		\$ -	\$ 31,403,544	\$ 6,512,730	\$ 13,199,908	\$ 10,412,419	\$ 2,114,664	\$ 1,794,189	\$ -	\$ -	\$ -	\$ -	\$ 26,293,595

Pittsburgh Water and Sewer Authority

HJS-2W

FPPTY 2024 COS & Rate Design Model
Assignment to Functional Categories

Allocated Water Assets			Water Functional Categories									
Row Labels	Allocated Costs	Allocation	Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support	Total
Struc. and Improvements - Source of Supply and Pumping	1,923,948	W-A	100.00%									100.00%
Structures and Improvements - WTP	19,375,200	W-B		100.00%								100.00%
Structures and Improvements - Transmission and Distribution	-	W-D				36.96%	63.04%					100.00%
Pumping Equipment	12,831,813	W-D				36.96%	63.04%					100.00%
Water Treatment Equipment	83,226,122	W-B		100.00%								100.00%
Distribution Reservoirs and Standpipes	53,802,852	W-C			100.00%							100.00%
Transmission and Distribution Mains	373,645,124	W-K				34.49%	58.83%	6.68%				100.00%
Meters and Meter Installations	28,397,821	W-E						100.00%				100.00%
Fire Hydrants	14,090,379	W-G								100.00%		100.00%
Office Furniture and Equipment	75,643	W-H									100.00%	100.00%
Office Furniture and Equipment - Computer Hardware	3,058,783	W-H									100.00%	100.00%
Transportation Equipment	7,286,014	W-H									100.00%	100.00%
Tools, Shop and Garage Equipment	222,622	W-H									100.00%	100.00%
Laboratory Equipment	142,164	W-B		100.00%								100.00%
Collection Sewers - Gravity	-	n/a										0.00%
Manholes	-	n/a										0.00%
Wastewater Plant	-	n/a										0.00%
Power Operated Equipment	-	n/a										0.00%
Total	598,078,484		\$ 1,923,948	\$ 102,743,485	\$ 53,802,852	\$ 133,605,850	\$ 227,915,802	\$ 53,353,106	\$ -	\$ 14,090,379	\$ 10,643,061	\$ 598,078,484

Allocation Factors for Capital Costs	0.32%	17.18%	9.00%	22.34%	38.11%	8.92%	0.00%	2.36%	1.78%	100.00%
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		Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support	Readiness-to-Serve
Allocation of Capital Costs											
Debt Service	\$ 62,998,088	\$ 202,657	\$ 10,822,398	\$ 5,667,278	\$ 14,073,258	\$ 24,007,317	\$ 5,619,904	\$ -	\$ 1,484,198	\$ 1,121,078	\$ -
Internally Generated Funds / PAYGO	-	-	-	-	-	-	-	-	-	-	-
Other Transfers to Reserves	640,000	2,059	109,945	57,574	142,971	243,891	57,093	-	15,078	11,389	-
Bad Debt Expense (1)	-	-	-	-	-	-	-	-	-	-	-
Arrearage	97,988	315	16,833	8,815	21,890	37,341	8,741	-	2,309	1,744	-
Total: Allocated Capital Costs	\$ 63,736,076	\$ 205,031	\$ 10,949,176	\$ 5,733,667	\$ 14,238,119	\$ 24,288,550	\$ 5,685,738	\$ -	\$ 1,501,585	\$ 1,134,211	\$ -

(1) Bad Debt Expense allocated directly to customer classes based on each classes responsibility for historical bad debt and included in the 'adjustments' in Rate Design.

Water Cost Drivers					
Base	Max Day	Peak Hour	Meters / Services	Bills	Fire Protection

Water Revenue Requirement

Functional Categories

	FY 2024	Allocation
	<i>FPFTY</i>	
Supply	\$ 205,031	W-AA
Treatment	42,352,721	W-BB
Storage	12,246,397	W-CC
Transmission	27,438,027	W-BB
Distribution	34,700,968	W-CC
Meters/Services	7,800,402	W-DD
Billing	1,794,189	W-EE
Fire Protection	1,501,585	W-FF
Admin Support	27,427,805	W-GG
Readiness-to-Serve (Debt Service)	-	W-HH
Total: Water Revenue Requirements	\$ 155,467,125	

100.00%					
57.74%	40.66%				1.60%
54.05%	25.41%	12.09%			8.45%
57.74%	40.66%				1.60%
54.05%	25.41%	12.09%			8.45%
			100.00%		
				100.00%	
					100.00%
51.45%	31.48%	4.43%	6.09%	1.40%	5.15%

Water Cost Drivers					
Base	Max Day	Peak Hour	Meters / Services	Bills	Fire Protection

Water Revenue Requirement

Functional Categories

	FY 2024	Allocation
	<i>FPFTY</i>	
Supply	\$ 205,031	W-AA
Treatment	42,352,721	W-BB
Storage	12,246,397	W-CC
Transmission	27,438,027	W-BB
Distribution	34,700,968	W-CC
Meters/Services	7,800,402	W-DD
Billing	1,794,189	W-EE
Fire Protection	1,501,585	W-FF
Admin Support	27,427,805	W-GG
Readiness-to-Serve (Debt Service)	-	W-HH
Total: Water Revenue Requirements	\$ 155,467,125	

\$ 205,031	\$ -	\$ -	\$ -	\$ -	\$ -
24,455,142	17,218,840	-	-	-	678,739
6,618,811	3,111,795	1,480,604	-	-	1,035,186
15,843,158	11,155,151	-	-	-	439,718
18,754,836	8,817,474	4,195,389	-	-	2,933,269
-	-	-	7,800,402	-	-
-	-	-	-	1,794,189	-
-	-	-	-	-	1,501,585
14,111,766	8,633,519	1,215,877	1,670,955	384,340	1,411,348
-	-	-	-	-	-
\$ 79,988,746	\$ 48,936,779	\$ 6,891,870	\$ 9,471,356	\$ 2,178,529	\$ 7,999,844

Costs to Recover from Water Charges

\$155,467,125

\$ 79,988,746	\$ 48,936,779	\$ 6,891,870	\$ 9,471,356	\$ 2,178,529	\$ 7,999,844
51.5%	31.5%	4.4%	6.1%	1.4%	5.1%

Cost Functionalization: Water										
Code	Description	Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support
W-A	Supply Only	100.00%								
W-B	Treatment Only		100.00%							
W-C	Storage Only			100.00%						
W-D	Transmission & Distribution Only				36.96%	63.04%				
W-E	Meters Only						100.00%			
W-F	Billing Only							100.00%		
W-G	Fire Protection Only								100.00%	
W-H	Admin Support Only									100.00%
W-I	Customer Service						34.20%	65.80%		
W-J	Engineering & Construction		9.65%	41.33%	45.03%					3.99%
W-K	Transmission, Distribution and Services				34.49%	58.83%	6.68%			

Allocation to Cost Drivers: Water								
Code	Description	Base	Max Day	Peak Hour	Meters/Services	Bills	Readiness-to-Serve	Fire Protection
W-AA	Base	100.00%						
W-BB	Maximum Day	57.74%	40.66%					1.60%
W-CC	Peak Hour	54.05%	25.41%	12.09%				8.45%
W-DD	Customer - Meters				100.00%			
W-EE	Customer - Billing					100.00%		
W-FF	Fire Protection							100.00%
W-GG	Admin Support (Composite)	51.45%	31.48%	4.43%	6.09%	1.40%	0.00%	5.15%
W-HH	Readiness-to-Serve						100.00%	

Factor Derivations - Allocation to Functional Categories & Cost Components						
<i>Code(s)</i>	<i>Description</i>	<i>Calculations</i>				
W-I	Customer Service	2024 Customer Service Budget				
WW-E	- This factor allocates the 2024 customer service budget between meter- and billing-related costs.	Salaries	\$	5,157,435		
		Benefits		1,815,642		
		Computer & Peripherals		-		
		Annual Software Support		251,722		
		Customer CC Fees		36,200		
		Postage		471,117		
		Equip Rental		1,746		
		Billing Contract		228,960		
		Consultants		47,700		
		Meter Services		799,148		
		Prof Service Other		478,967		
		Water Liens		-		
		Computer Software Supplies		84,800		
		GIS Plotter Xerox		636		
		Office Supplies		2,544		
		TE Items		7,685		
		Capital Asset Reclass		-		
		Customer Refund CSM		(530,000)		
		Customer Refund AP		530,000		
		Education & Outreach		5,300		
	One Call		25,440			
	Publication Subscription		3,816			
	Non.City Water Reimburse		158,788			
	Total		\$ 9,577,647	\$ 3,275,727	\$ 6,301,919	
	<i>Allocation Factors</i>			<i>34.20%</i>	<i>65.80%</i>	

W-D Water Pipe Inventory

- Allocate costs between transmission and distribution functional categories. Assumes Pipes less than or equal to 16" are Distribution-related.

Breakdown		
Distribution	35,490,728	63.0%
Transmission	20,804,915	37.0%
Total	56,295,642	100.0%

W-K Water Pipe Inventory with Service Lines

Allocate Water Distribution costs between Transmission, Distribution, and Service Lines
 *No size records: assumption is all are 1"

Breakdown		
Distribution	35,490,728	58.83%
Transmission	20,804,915	34.49%
Service Lines	4,029,007	6.68%
Total	60,324,649	100.00%

Inch-Foot Analysis		
<i>Diameter (in)</i>	<i>Linear Feet</i>	<i>Inch-Feet</i>
0.75	799	599
1	1,314	1,314
1.5	983	1,474
2	11,004	22,009
2.5	16	39
3	268	803
4	116,991	467,963
6	2,144,789	12,868,735
8	1,181,921	9,455,372
10	81,965	819,651
12	619,567	7,434,805
14	1,296	18,147
15	15,500	232,496
16	260,458	4,167,320
18	468	8,425
20	209,715	4,194,304
24	85,229	2,045,495
28	104	2,911
30	116,456	3,493,670
36	83,180	2,994,494
42	11,013	462,562
42.5	13,261	563,591
48	16,706	801,908
50	23,263	1,163,137
50.25	12,001	603,043
60	54,606	3,276,383
66	1,492	98,501
72	3,626	261,064

Factor Derivations - Allocation to Functional Categories & Cost Components		
Code(s)	Description	Calculations

W-J	Engineering & Construction	<u>2024 Water CIP Costs</u>	<u>\$\$ Amount</u>	<u>Allocation</u>
		Treatment	\$ 26,885,665	9.65%
	- This factor uses the 2022 Water CIP costs to allocate Engineering & Construction costs to the various functional categories.	Storage	115,127,475	41.33%
		Trans. & Distr.	125,439,446	45.03%
		Admin	<u>11,101,650</u>	3.99%
		Total Water CIP	\$ 278,554,236	100.00%

W-BB Maximum Day

- Maximum day costs are allocated using a peak day determined using system daily production records. Fire demands are determined in HJS-7W.

Plant Production Data		
2020-2022 Avg Plant Production	63.88	mgd
2020-2022 Avg. Peak Day	89.85	mgd
Peak Hour Factor (1.6)	102.21	mgd

Base	57.74%	0.710955365
Maximum Day	40.66%	
Fire Protection	1.60%	

W-CC Peak Hour

- Peak hour costs are allocated using an estimated peak hour compared to system average and maximum day processed. Fire demands are determined in HJS-7W.

Plant Production Data		
2020-2022 Avg Plant Production	63.88	mgd
2020-2022 Avg. Peak Day	89.85	mgd
Peak Hour Factor (1.6)	102.21	mgd

Peak Hour / Avg	54.05%
Max Day (Plug)	25.41%
Peak Hr / Peak Day	12.09%
Fire Protection	8.45%

Equivalency Flow Ratios

- Used to escalate metering and readiness-to-serve costs, these ratios are industry standard and obtained from the American Waterworks Association

Equivalency Ratios						
	Flow			Fire Flow		Fire Equip
5/8"	1.00			2.50	1.00	
3/4"	1.50			8.00	6.19	
1"	2.50			25.00	38.32	
1 1/2"	5.00			50.00	111.31	
2"	8.00					
3"	16.00					
4"	25.00					
6"	50.00					
8"	80.00					
10"	115.00					
Unmetered	1.00					

	Collection Factor	FY 2024 Consumption	Allocated Consumption	Average Day	Maximum Day			Peak Hour			Equivalent Meters	Total Bills	Fire Equivalents
					Cap. Factor	Total Cap.	Extra Cap.	Cap. Factor	Total Cap.	Extra Cap.			
Units of Service													
<u>Retail Service</u>													
Residential (1)	100.0%	2,602,278	2,602,278	7,130	140.0%	9,981	2,852	230.0%	16,398	6,417	795,961	741,720	-
Residential - CAP	100.0%	187,825	187,825	515	140.0%	720	206	230.0%	1,184	463	66,975	66,169	-
Commercial (1)	100.0%	2,660,077	2,660,077	7,288	160.0%	11,661	4,373	265.0%	19,313	7,652	367,421	83,843	-
Industrial	100.0%	169,069	169,069	463	200.0%	926	463	265.0%	1,227	301	6,028	371	-
Health or Education	100.0%	1,010,575	1,010,575	2,769	185.0%	5,122	2,353	305.0%	8,445	3,322	76,397	5,266	-
Municipal - Residential	100.0%	1,841	1,841	5.04	140.0%	7	2	230.0%	12	5	309	243	-
Municipal - Commercial	100.0%	237,070	237,070	649.51	160.0%	1,039	390	265.0%	1,721	682	16,261	2,549	-
Private Fire Systems	100.0%	8,988	8,988	25	255.0%	63	38	425.0%	105	42	54,625	16,671	42,055
Public Fire	100.0%	-	-	-	100.0%	-	-	100.0%	-	-	-	-	10,028,669
<i>Subtotal: Retail Service</i>		<u>6,877,722</u>	<u>6,877,722</u>	<u>18,843</u>		<u>29,520</u>	<u>10,677</u>		<u>48,404</u>	<u>18,884</u>	<u>1,383,975</u>	<u>916,832</u>	<u>10,070,724</u>
<u>Wholesale & Bulk</u>													
Wholesale	100.0%	857,599	857,599	2,350	180.0%	4,229	1,880	300.0%	7,049	2,820	-	-	-
Bulk	100.0%	-	-	-	0.0%	-	-	0.0%	-	-	-	-	-
<i>Subtotal: Wholesale & Bulk</i>		<u>857,599</u>	<u>857,599</u>	<u>2,350</u>		<u>4,229</u>	<u>1,880</u>		<u>7,049</u>	<u>2,820</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total: Water Units of Service		<u>7,735,321</u>	<u>7,735,321</u>	<u>21,193</u>		<u>33,749</u>	<u>12,557</u>		<u>55,453</u>	<u>21,703</u>	<u>1,383,975</u>	<u>916,832</u>	<u>10,070,724</u>

(1) Includes unmetered units and equivalent usage.

Class MM/AD	Maximum Day				Peak Hour	
	System MD/MM	Weekly Use Adjustment	MD Peaking Factor (2)	Estimated MH/MD	MH Peaking Factor (2)	
Residential	1.08	1.28	1.00	1.66	2.30	
Commercial	1.24	1.28	1.00	1.66	2.65	
Industrial	1.55	1.28	1.00	1.33	2.65	
Health or Education	1.44	1.28	1.00	1.66	3.05	
Fire System	2.00	1.28	1.00	1.66	4.25	
Wholesale	1.40	1.28	1.00	1.66	3.00	

(1) Peaking factors determined using customer billing information from 2020-2022.

(2) Maximum Day and Maximum Hour peaking factors are rounded.

System Peaking Factor (1)

	2020	2021	2022	Average
Average Day (MGD)	64.35	63.40	63.91	63.88
Average Day of Max Month (MGD) (MM)	70.29	65.78	74.40	70.16
System Maximum Day (MD)	97.33	86.46	85.77	89.85

System MD/MM Peaking Factor

1.38	1.31	1.15	1.28
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(1) System peaking factors determined using plant production information from 2020-2022.

Pittsburgh Water and Sewer Authority

HJS-7W

FPFTY 2024 COS & Rate Design Model

Fire Protection Cost Allocation and Units of Service

Determination of Allocation Factors for Public & Private Fire Costs

Required Fire Flow	6,000	GPM
Required Duration for Fire Flow (Hours)	4	hours
Maximum Day - Fire	1,440,000	gallons
Maximum Day - System	89,854,774	gallons
% of Maximum Day for Fire	1.60%	
Peak Hour - Fire	360,000	gallons
Peak Hour - System	4,258,849	gallons
% of Maximum Day for Fire	8.45%	

Fire Service Units	Connections	Equivalent Factor	Equivalent Units	Percent
<u>Allocation to Public/Private</u>				
Public Hydrants	7,508	111.31	835,722	99.58%
Private Fire				
1" or Less	1,326	1.00	1,326	
1 1/2"-3"	44	6.19	273	
4"	4	38.32	144	
6" or Greater	16	111.31	1,762	
<i>Subtotal: Private Fire</i>	1,389		3,505	0.42%
Total	8,897		839,227	

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 Water Unit Cost of Service

HJS-8W

Development of Unit Costs of Service	FY 2024 FPFTY	Unit Costs							
		Base	Extra Capacity		Meters / Services	Bills	Fire Protection		
			Max Day	Peak Hour					
<u>Units of Service</u>									
Retail		6,877,722	10,677	18,884	1,383,975	916,832	10,070,724		
Wholesale		857,599	1,880	2,820	-	-	-		
Total System Units		7,735,321	12,557	21,703	1,383,975	916,832	10,070,724		
Units		<i>kgal</i>	<i>kgal/day</i>	<i>kgal/day</i>	<i>Eq. Cost Meter</i>	<i>Total Bills</i>	<i>Eq. Fire Cnx</i>		
<u>Allocated Revenue Requirement</u>									
Supply	\$ 205,031	\$ 205,031	\$ -	\$ -	\$ -	\$ -	\$ -		
Treatment	42,352,721	24,455,142	17,218,840	-	-	-	678,739		
Storage	12,246,397	6,618,811	3,111,795	1,480,604	-	-	1,035,186		
Transmission	27,438,027	15,843,158	11,155,151	-	-	-	439,718		
Distribution	34,700,968	18,754,836	8,817,474	4,195,389	-	-	2,933,269		
Meters/Services	7,800,402	-	-	-	7,800,402	-	-		
Billing	1,794,189	-	-	-	-	1,794,189	-		
Fire Protection	1,501,585	-	-	-	-	-	1,501,585		
Admin Support	27,427,805	14,111,766	8,633,519	1,215,877	1,670,955	384,340	1,411,348		
Readiness-to-Serve (Debt Service)	-	-	-	-	-	-	-		
<i>Total: Revenue Requirements</i>	\$ 155,467,125	\$ 79,988,746	\$ 48,936,779	\$ 6,891,870	\$ 9,471,356	\$ 2,178,529	\$ 7,999,844		
Revenue Offsets	(2,171,887)	(1,117,448)	(683,650)	(96,280)	(132,316)	(30,434)	(111,758)		
Total: Costs of Service	\$ 153,295,238	\$ 78,871,297	\$ 48,253,129	\$ 6,795,590	\$ 9,339,041	\$ 2,148,095	\$ 7,888,086		
Gross Unit Cost		\$ 10.20	\$ 3,842.87	\$ 313.11	\$ 6.75	\$ 2.34	\$ 0.78		
<i>Unit Cost - Retail (\$ / Unit) (Includes Distribution)</i>		\$ 10.50	\$ 3,966.50	\$ 341.97	\$ 6.75	\$ 2.34	\$ 0.78		
<i>Unit Cost - Wholesale (\$ / Unit) (Excludes Distribution)</i>		\$ 7.77	\$ 3,140.65	\$ 119.81	\$ 6.75	\$ 2.34	\$ 0.78		

Customer Class Cost of Service

Residential

	Base	Unit Costs		Meters / Services	Bills	Fire Protection	Total
		Max Day	Peak Hour				
Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	2,602,278	2,852	6,417	795,961	741,720	-	
Cost of Service	\$ 27,320,218	\$ 11,311,703	\$ 2,194,302	\$ 5,371,129	\$ 1,737,816	\$ -	\$ 47,935,167

Residential - CAP

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	187,825	206	463	66,975	66,169	-	
Cost of Service	\$ 1,971,892	\$ 816,445	\$ 158,378	\$ 451,946	\$ 155,031	\$ -	\$ 3,553,693

Commercial

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	2,660,077	4,373	7,652	367,421	83,843	-	
Cost of Service	\$ 27,927,025	\$ 17,344,420	\$ 2,616,879	\$ 2,479,351	\$ 196,440	\$ -	\$ 50,564,114

Industrial

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	169,069	463	301	6,028	371	-	
Cost of Service	\$ 1,774,986	\$ 1,837,295	\$ 102,962	\$ 40,673	\$ 869	\$ -	\$ 3,756,786

Health or Education

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	1,010,575	2,353	3,322	76,397	5,266	-	
Cost of Service	\$ 10,609,601	\$ 9,334,732	\$ 1,136,187	\$ 515,522	\$ 12,338	\$ -	\$ 21,608,381

Municipal - Residential

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	1,841	2	5	309	243	-	
Cost of Service	\$ 19,328	\$ 8,003	\$ 1,552	\$ 2,085	\$ 569	\$ -	\$ 31,537

Municipal - Commercial

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	237,070	390	682	16,261	2,549	-	
Cost of Service	\$ 2,488,903	\$ 1,545,764	\$ 233,221	\$ 109,729	\$ 5,972	\$ -	\$ 4,383,588

Private Fire System

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	8,988	38	42	54,625	16,671	42,055	
Cost of Service	\$ 94,357	\$ 151,388	\$ 14,315	\$ 368,605	\$ 39,059	\$ 32,940	\$ 700,665

Public Fire Protection

Unit Costs (\$/unit)	\$ 10.499	\$ 3,966.498	\$ 341.974	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service						10,028,669	
Cost of Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,855,146	\$ 7,855,146

Wholesale

Unit Costs (\$/unit)	\$ 7.772	\$ 3,140.649	\$ 119.806	\$ 6.748	\$ 2.343	\$ 0.783	
Units of Service	857,599	1,880	2,820				
Cost of Service	\$ 6,664,987	\$ 5,903,381	\$ 337,794	\$ -	\$ -	\$ -	\$ 12,906,162

Total: Costs of Service

\$ 78,871,297	\$ 48,253,129	\$ 6,795,590	\$ 9,339,041	\$ 2,148,095	\$ 7,888,086	\$ 153,295,238
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Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Adjustments to Allocated Cost of Service

COS Adjustments		Allocation Method	Residential	Residential - CAP	Commercial	Industrial	Health or Education	Municipal - Residential	Municipal - Commercial	Private Fire System	Public Fire Protection	Wholesale	Total
<u>Adjustments to Cost of Service</u>													
Public Fire (Title 66 § 1328)	Equivalent Meters		57.5%	4.8%	26.5%	0.4%	5.5%	0.0%	1.2%	3.9%			100.0%
Wholesale Contracts	Unadj. COS		36.4%	2.7%	38.4%	2.8%	16.4%	0.0%	3.3%				100.0%
Add: Bad Debt Expense	Class Contribution		84.1%		12.5%	0.2%	1.8%		0.1%	1.2%	0.0%		100.0%
BDP Forgone Revenue	Unadj. COS		37.4%		39.4%	2.9%	16.8%	0.0%	3.4%				100.0%
Gradualism: Industrial Class	Unadj. COS		37.4%	2.8%	39.5%		16.9%	0.0%	3.4%				100.0%
Cost of Service by Class													
Allocated Cost of Service (Unadjusted)		\$	47,935,167	\$ 3,553,693	\$ 50,564,114	\$ 3,756,786	\$ 21,608,381	\$ 31,537	\$ 4,383,588	\$ 700,665	\$ 7,855,146	\$ 12,906,162	\$ 153,295,238
% of COS			31.3%	2.3%	33.0%	2.5%	14.1%	0.0%	2.9%	0.5%	5.1%	8.4%	100.0%
<u>Adjustments to Cost of Service</u>		<u>Adjustment</u>											
Public Fire (Title 66 § 1328)		5,891,359	3,388,276	285,102	1,564,052	25,658	325,208	1,315	69,220	232,528	(5,891,359)	-	(0)
Wholesale Contracts		8,566,911	3,114,967	230,929	3,285,804	244,127	1,404,176	2,049	284,858	-	-	(8,566,911)	-
Add: Bad Debt Expense		3,360,716	2,827,086	-	421,319	6,167	61,583	-	2,746	41,815	-	-	3,360,716
BDP Forgone Revenue		2,411,841	901,250	(2,411,841)	950,678	70,633	406,269	593	82,418	-	-	-	(0)
Gradualism - Industrial (1)		1,030,000	385,498	28,579	406,640	(1,030,000)	173,776	254	35,253	-	-	-	(0)
Total: Adjusted Cost of Service		\$	58,552,244	\$ 1,686,462	\$ 57,192,608	\$ 3,073,371	\$ 23,979,391	\$ 35,749	\$ 4,858,084	\$ 975,008	\$ 1,963,786	\$ 4,339,251	\$ 156,655,955
% of COS			37.4%	1.1%	36.5%	2.0%	15.3%	0.0%	3.1%	0.6%	1.3%	2.8%	100.0%

(1) Gradualism adjusted such that class increase does not exceed 1.5x overall water system increase

Pittsburgh Water and Sewer Authority

HJS-11W

FPFTY 2024 COS & Rate Design Model

Forgone Revenue Cost of the Bill Discount Program

Units		Bills	CAP Usage	CAP - 50FPL Usage
5/8"	0.0%	65,253	107,437	25,925
3/4"	0.0%	550	620	82
1"	0.0%	354	215	264
Unmetered	0.0%	12	n/a	n/a
		<u>66,169</u>	<u>108,272</u>	<u>26,271</u>

Forgone Revenue Cost		Revenue At Full Rates	Revenue at CAP Rates	Difference
Fixed Charges		\$ 2,186,964	\$ -	\$ 2,186,964
Volume Charges		<u>449,754</u>	<u>224,877</u>	<u>224,877</u>
Total Forgone Revenue Cost		2,636,718	224,877	2,411,841

Volume Discount	50.0%
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		COS Rate Build-Up - Test Year: 2024									
Water	Min. Usage <i>Proposed</i>	<i>Meters/Services</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS Rates</i>	<i>Adjustments</i>					
						<i>Public Fire</i>	<i>R. T.S.</i>	<i>CAP-BDP</i>	<i>Proposed Rates</i>		
Minimum Charge											
5/8"	1	\$ 6.75	\$ 2.34	\$ 14.53	\$ 23.62	\$ 4.26	\$ 4.55	\$ -	\$ -	32.43	
3/4"	2	10.12	2.34	29.06	41.52	6.39	6.83	-	-	54.74	
1"	5	16.87	2.34	72.64	91.86	10.64	11.38	-	-	113.88	
1 1/2"	10	33.74	2.34	145.29	181.37	21.28	22.76	-	-	225.41	
2"	17	53.98	2.34	246.99	303.31	34.05	36.42	-	-	373.78	
3"	40	107.97	2.34	581.15	691.46	68.11	72.83	-	-	832.40	
4"	70	168.70	2.34	1,017.01	1,188.05	106.42	113.80	-	-	1,408.27	
6"	175	337.40	2.34	2,542.52	2,882.26	212.84	227.60	-	-	3,322.70	
8"	325	539.84	2.34	4,721.82	5,264.00	340.55	364.16	-	-	5,968.71	
10" & Above	548	776.02	2.34	7,961.72	8,740.08	489.54	523.48	-	-	9,753.09	
Unmetered	1	6.75	2.34	14.53	23.62	4.26	4.55	-	-	32.43	
Residential - CAP											
5/8"	1	\$ 6.75	\$ 2.34	\$ 14.53	\$ 23.62	\$ 4.26	\$ 4.55	\$ (32.43)	\$ -	-	
3/4"	2	10.12	2.34	29.06	41.52	6.39	6.83	(54.74)	-	-	
1"	5	16.87	2.34	72.64	91.86	10.64	11.38	(113.88)	-	-	
Unmetered	1	6.75	2.34	14.53	23.62	4.26	4.55	(32.43)	-	-	
						<i>Adjustments</i>					
Monthly Fire Protection		<i>Meters/Services</i>	<i>Billing</i>	<i>Fire</i>	<i>Total</i>	<i>Public Fire</i>	<i>R. T.S.</i>	<i>CAP-BDP</i>	<i>Proposed Rates</i>		
<i>Public</i>											
Per Hydrant		\$ -	\$ -	\$ 87.19	\$ 87.19	\$ (65.39)	\$ -	\$ -	\$ -	21.80	
<i>Private</i>											
1" or Less		\$ 16.87	\$ 2.34	\$ 0.78	\$ 20.00		\$ 11.38	\$ -	\$ -	31.38	
1 1/2"-3"		53.98	2.34	4.85	61.18		36.42	-	-	97.59	
4"		168.70	2.34	30.01	201.06		113.80	-	-	314.86	
6" or Greater		337.40	2.34	87.19	426.93		227.60	-	-	654.53	

Unadjusted COS-Based Rates					
Unadjusted Revenue Requirement	Fixed Charge Revenue	Total Volumetric Rev Req	Billed Volume	Proposed Rates	
Residential	\$ 47,935,167	\$ 19,826,264	\$ 28,108,903	1,830,332	\$ 15.36
Residential - CAP	3,553,693	1,328,529	2,225,163	134,578	16.53
Commercial	50,564,114	15,037,448	35,526,666	2,046,690	17.36
Industrial	3,756,786	322,571	3,434,215	157,395	21.82
Health or Education	21,608,381	3,657,193	17,951,187	855,292	20.99
Municipal - Residential	31,537	8,451	23,086	1,702	13.56
Municipal - Commercial	4,383,588	719,905	3,663,683	218,440	16.77
Private Fire System	700,665	440,605	260,060	8,988	28.94
Public Fire	7,855,146	7,855,146	-	-	n/a
Wholesale	12,906,162	-	12,906,162	857,599	15.05
Totals	153,295,238	49,196,113	104,099,125	6,111,016	\$ 17.03

Determination of Proposed Rates					
Adjusted Revenue Requirement	Fixed Charge Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates	
Residential + CAP + City Res	\$ 60,274,454	\$ 26,850,154	\$ 33,424,300	1,953,478	\$ 17.12
Commercial + City Com	62,050,692	19,137,165	42,913,527	2,265,129	18.95
Industrial	3,073,371	375,666	2,697,705	157,395	17.14
Health or Education	23,979,391	4,330,146	19,649,245	855,292	22.98
Municipal - Commercial					
Municipal - Residential					
Private Fire System	975,008	689,316	285,692	8,988	31.79
Public Fire	1,963,786	1,964,093	(306)	-	n/a
Wholesale	4,339,251	-	4,339,251	n/a	n/a
Totals	\$ 156,655,955	53,346,541	103,309,414	5,240,282	\$ 19.71

Class Increase	Ratio to Total Increase
22.5%	0.81
31.5%	1.14
40.9%	1.47
38.4%	1.39
47.0%	1.70
48.5%	1.75
18.5%	0.67
27.7%	1.00

Pittsburgh Water and Sewer Authority

HJS-13W

FPFTY 2024 COS & Rate Design Model

Proposed Rates

	2023		2024			
	FTY Prior Tariff Rates		FPFTY Proposed Rates		Percent Difference	Dollar Difference
Existing & Proposed Rates						
<u>Minimum Charge</u>						
5/8"	\$	26.52	\$	32.43	22.3%	\$ 5.91
3/4"		46.47		54.74	17.8%	8.27
1"		102.08		113.88	11.6%	11.80
1 1/2"		201.85		225.41	11.7%	23.56
2"		337.28		373.78	10.8%	36.50
3"		766.42		832.40	8.6%	65.98
4"		1,313.93		1,408.27	7.2%	94.34
6"		3,174.80		3,322.70	4.7%	147.90
8"		5,784.48		5,968.71	3.2%	184.23
10" & Above		9,582.36		9,753.09	1.8%	170.73
<u>Minimum Charge - CAP (1)</u>						
5/8"	\$	-	\$	-	0.0%	\$ -
3/4"		-		-	0.0%	-
1"		-		-	0.0%	-
<u>Fire System Charges</u>						
Private						
1" or Less	\$	15.43	\$	31.38	103.4%	\$ 15.95
1 1/2"-3"		46.28		97.59	110.9%	51.31
4"		152.25		314.86	106.8%	162.61
6" or Greater		325.06		654.53	101.4%	329.47
Public						
Per Hydrant	\$	5.65	\$	21.80	285.7%	\$ 16.15
<u>Volume Charge</u>						
Residential	\$	14.64	\$	17.12	16.9%	\$ 2.48
Residential - CAP		14.64		17.12	16.9%	2.48
Residential - CAP (<50% FPL)		7.32		8.56	16.9%	1.24
Commercial		13.80		18.95	37.3%	5.15
Industrial		12.13		17.14	41.3%	5.01
Health or Education		16.29		22.98	41.1%	6.69
Municipal - Residential (2)		11.71		17.12	46.2%	5.41
Municipal - Commercial (2)		11.04		18.95	71.6%	7.91
Fire System		39.05		31.79	-18.6%	(7.26)
Wholesale		10.89		15.05	38.2%	15.05
<u>Unmetered Charges (per Unit)</u>						
Residential	\$	70.44	\$	83.79	19.0%	\$ 13.35
Residential - CAP		43.95		51.36	16.9%	7.41
Commercial		82.92		108.23	30.5%	25.31
DSIC (Applies to all retail customers)		5.0%		7.5%	n/a	n/a

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers in all years.

(2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

	FPFTY Revenue at Existing Rates	FPFTY Indicated COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 49,025,385	\$ 47,935,167	-2.2%	\$ (1,090,218)
Residential - CAP	1,777,927	3,553,693	99.9%	1,775,766
Commercial	44,921,729	50,564,114	12.6%	5,642,385
Industrial	2,264,992	3,756,786	65.9%	1,491,794
Health or Education	17,976,189	21,608,381	20.2%	3,632,192
Municipal (Residential & Commercial)	3,845,954	4,415,125	14.8%	569,172
Private Fire System	689,507	700,665	1.6%	11,159
Public Fire Protection	1,322,609	7,855,146	100.0%	6,532,536
Wholesale	3,661,855	12,906,162	252.4%	9,244,307
Total: Base Rate Revenues	\$ 125,486,146	\$ 153,295,238	22.2%	\$ 27,809,093

	FPFTY Indicated COS by Customer Class	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 47,935,167	\$ 58,552,244	22.1%	\$ 10,617,078
Residential - CAP	3,553,693	1,686,462	-52.5%	(1,867,231)
Commercial	50,564,114	57,192,608	13.1%	6,628,494
Industrial	3,756,786	3,073,371	-18.2%	(683,415)
Health or Education	21,608,381	23,979,391	11.0%	2,371,011
Municipal (Residential & Commercial)	4,415,125	4,893,833	10.8%	478,707
Private Fire System	700,665	975,008	39.2%	274,343
Public Fire Protection	7,855,146	1,963,786	-75.0%	(5,891,359)
Wholesale	12,906,162	4,339,251	-66.4%	(8,566,911)
Total: Base Rate Revenues	\$ 153,295,238	\$ 156,655,955	2.2%	\$ 3,360,716

	FPFTY Revenue at Existing Rates	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 49,025,385	\$ 58,552,244	19.4%	\$ 9,526,860
Residential - CAP	1,777,927	1,686,462	-5.1%	(91,465)
Commercial	44,921,729	57,192,608	27.3%	12,270,878
Industrial	2,264,992	3,073,371	35.7%	808,380
Health or Education	17,976,189	23,979,391	33.4%	6,003,203
Municipal (Residential & Commercial)	3,845,954	4,893,833	27.2%	1,047,879
Private Fire System	689,507	975,008	41.4%	285,501
Public Fire Protection	1,322,609	1,963,786	100.0%	641,177
Wholesale	3,661,855	4,339,251	18.5%	677,396
Total: Base Rate Revenues	\$ 125,486,146	\$ 156,655,955	24.8%	\$ 31,169,809

	FPFTY Revenue at Existing Rates	FPFTY Revenue at Proposed Rates	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 49,025,385	\$ 58,174,270	18.7%	\$ 9,148,885
Residential - CAP	1,777,927	2,079,105	16.9%	301,178
Commercial	44,921,729	57,058,794	27.0%	12,137,064
Industrial	2,264,992	3,073,423	35.7%	808,431
Health or Education	17,976,189	23,984,749	33.4%	6,008,560
Municipal (Residential & Commercial)	3,845,954	5,042,892	31.1%	1,196,938
Private Fire System	689,507	975,033	41.4%	285,526
Public Fire Protection	1,322,609	1,964,093	100.0%	641,484
Wholesale	3,661,855	4,339,251	18.5%	677,396
Total: Base Rate Revenues	\$ 125,486,146	\$ 156,691,609	24.9%	\$ 31,205,463

Pittsburgh Water and Sewer Authority

FPPTY 2024 COS & Rate Design Model

FPPTY CCOS Comparison - Water

HJS-15W

	Unadjusted COS (1)		Revenue at Existing Rates		Revenue at Proposed Rates		Proposed Increase	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Base Rate Revenues								
Residential	\$ 47,935,167	31.3%	\$ 49,025,385	39.1%	\$ 58,174,270	37.1%	\$ 9,148,885	18.7%
Residential - CAP	3,553,693	2.3%	1,777,927	1.4%	2,079,105	1.3%	301,178	16.9%
Commercial	50,564,114	33.0%	44,921,729	35.8%	57,058,794	36.4%	12,137,064	27.0%
Industrial	3,756,786	2.5%	2,264,992	1.8%	3,073,423	2.0%	808,431	35.7%
Health or Education	21,608,381	14.1%	17,976,189	14.3%	23,984,749	15.3%	6,008,560	33.4%
Municipal - Residential	31,537	0.0%	34,377	0.0%	40,317	0.0%	5,940	17.3%
Municipal - Commercial	4,383,588	2.9%	3,811,577	3.0%	5,002,575	3.2%	1,190,998	31.2%
Private Fire System	700,665	0.5%	689,507	0.5%	975,033	0.6%	285,526	41.4%
Public Fire Protection	7,855,146	5.1%	1,322,609	1.1%	1,964,093	1.3%	641,484	48.5%
Wholesale & Bulk	12,906,162	8.4%	3,661,855	2.9%	4,339,251	2.8%	677,396	18.5%
Subtotal: Base Rate Revenues	\$ 153,295,238	100.0%	\$ 125,486,146	100.0%	\$ 156,691,609	100.0%	\$ 31,205,463	24.9%
DSIC Revenues								
Residential	n/a	n/a	\$ 2,451,269		\$ 4,363,070		\$ 1,911,801	
Residential - CAP	n/a	n/a	88,896		155,933		67,037	
Commercial	n/a	n/a	2,246,086		4,279,410		2,033,323	
Industrial	n/a	n/a	113,250		230,507		117,257	
Health or Education	n/a	n/a	898,809		1,798,856		900,047	
Municipal - Residential	n/a	n/a	1,719		3,024		1,305	
Municipal - Commercial	n/a	n/a	190,579		375,193		184,614	
Private Fire System	n/a	n/a	34,475		73,127		38,652	
Public Fire Protection	n/a	n/a	-		-		-	
Subtotal: DSIC Revenues	n/a	n/a	\$ 6,025,084		\$ 11,279,120		\$ 5,254,036	
Total: User Charge Revenues	\$ 153,295,238		\$ 131,511,230		\$ 167,970,729		\$ 36,459,499	27.7%
Other Revenues								
Miscellaneous Revenues	2,171,887		2,171,887		2,171,887		-	0.0%
Total: Water Revenues	\$ 155,467,125		\$ 133,683,117		\$ 170,142,615		\$ 36,459,499	27.3%

(1) Difference between COS & proposed base rate revenue is attributed to BDE and rounding

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Typical Bill Comparison

HJS-16W

	Customer Usage		FTY Existing Rates		FPFTY Proposed Rates	Percent Difference	Dollar Difference
Customer Impacts (1)							
<u>Residential</u>							
	5/8"	1 kgal	\$ 27.85	\$	34.86	25.2%	\$ 7.02
	5/8"	3 kgal	58.59		71.67	22.3%	13.08
	5/8"	5 kgal	89.33		108.48	21.4%	19.14
	5/8"	7 kgal	120.08		145.29	21.0%	25.21
	5/8"	12 kgal	196.94		237.31	20.5%	40.37
	1"	20 kgal	337.76		398.48	18.0%	60.72
<u>Commercial</u>							
	5/8"	3 kgal	\$ 56.83	\$	75.60	33.0%	\$ 18.78
	5/8"	5 kgal	85.81		116.35	35.6%	30.54
	5/8"	12 kgal	187.24		258.95	38.3%	71.71
	1"	13 kgal	223.10		285.39	27.9%	62.29
	2"	80 kgal	1,267.01		1,685.20	33.0%	418.19
	4"	160 kgal	2,683.73		3,347.30	24.7%	663.58
<u>Industrial</u>							
	1"	30 kgal	\$ 425.60	\$	583.06	37.0%	\$ 157.46
	1"	60 kgal	807.69		1,135.82	40.6%	328.13
	2"	100 kgal	1,411.27		1,931.13	36.8%	519.86
	4"	680 kgal	9,148.89		12,753.45	39.4%	3,604.55
	6"	400 kgal	6,199.25		7,717.64	24.5%	1,518.39
	8"	800 kgal	12,123.54		15,168.48	25.1%	3,044.93
<u>Health or Education</u>							
	5/8"	5 kgal	\$ 96.26	\$	133.68	38.9%	\$ 37.41
	5/8"	10 kgal	181.79		257.19	41.5%	75.41
	1"	40 kgal	705.84		987.04	39.8%	281.20
	2"	50 kgal	918.59		1,217.03	32.5%	298.44
	4"	200 kgal	3,603.21		4,725.35	31.1%	1,122.13
	6"	650 kgal	11,458.18		15,306.07	33.6%	3,847.89

(1) Customer bills at existing rates include a 5% DSIC and proposed rates include a 7.5% DSIC.

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenues									
<u>Minimum Charges</u>									
Residential									
5/8"	682,360	\$ 26.52	\$ 18,096,198	682,360	\$ 23.62	\$ 16,117,094	682,360	\$ 32.43	\$ 22,128,948
3/4"	30,308	46.47	1,408,403	30,308	41.52	1,258,449	30,308	54.74	1,659,049
1"	24,535	102.08	2,504,574	24,535	91.86	2,253,732	24,535	113.88	2,794,091
1 1/2"	452	201.85	91,236	452	181.37	81,979	452	225.41	101,885
2"	68	337.28	22,935	68	303.31	20,625	68	373.78	25,417
Unmetered	3,996	70.44	281,478	3,996	23.62	94,384	3,996	83.79	334,825
<i>Subtotal: Residential</i>	741,720		\$ 22,404,824	741,720		\$ 19,826,264	741,720		\$ 27,044,215
Residential - CAP and CAP - 50FPL									
5/8"	65,253	\$ -	\$ -	65,253	\$ 23.62	\$ 1,541,251	65,253	\$ -	\$ -
3/4"	550	-	-	550	41.52	22,837	550	-	-
1"	354	-	-	354	91.86	32,517	354	-	-
Unmetered	12	43.95	527	12	23.62	283	12	51.36	616
<i>Subtotal: Residential - CAP and CAP - 50FPL</i>	66,169		\$ 527	66,169		\$ 1,596,889	66,169		\$ 616
Commercial									
5/8"	32,509	\$ 26.52	\$ 862,139	32,509	\$ 23.62	\$ 767,850	32,509	\$ 32.43	\$ 1,054,267
3/4"	8,347	46.47	387,885	8,347	41.52	346,587	8,347	54.74	456,915
1"	17,201	102.08	1,755,878	17,201	91.86	1,580,021	17,201	113.88	1,958,850
1 1/2"	10,062	201.85	2,031,015	10,062	181.37	1,824,942	10,062	225.41	2,268,075
2"	9,730	337.28	3,281,734	9,730	303.31	2,951,249	9,730	373.78	3,636,879
3"	2,822	766.42	2,162,837	2,822	691.46	1,951,294	2,822	832.40	2,349,033
4"	2,167	1,313.93	2,847,286	2,167	1,188.05	2,574,505	2,167	1,408.27	3,051,721
6"	918	3,174.80	2,914,466	918	2,882.26	2,645,916	918	3,322.70	3,050,239
8"	75	5,784.48	433,836	75	5,264.00	394,800	75	5,968.71	447,653
10" & Above	-	9,582.36	-	-	8,740.08	-	-	9,753.09	-
Unmetered	12	82.92	995	12	23.62	283	12	108.23	1,299
<i>Subtotal: Commercial</i>	83,843		\$ 16,678,072	83,843		\$ 15,037,448	83,843		\$ 18,274,931
Industrial									
5/8"	84	\$ 26.52	\$ 2,228	84	\$ 23.62	\$ 1,984	84	\$ 32.43	\$ 2,724
3/4"	12	46.47	558	12	41.52	498	12	54.74	657
1"	69	102.08	7,044	69	91.86	6,338	69	113.88	7,858
1 1/2"	-	201.85	-	-	181.37	-	-	225.41	-
2"	60	337.28	20,237	60	303.31	18,199	60	373.78	22,427
3"	33	766.42	25,292	33	691.46	22,818	33	832.40	27,469
4"	65	1,313.93	85,405	65	1,188.05	77,223	65	1,408.27	91,538
6"	24	3,174.80	76,195	24	2,882.26	69,174	24	3,322.70	79,745
8"	24	5,784.48	138,828	24	5,264.00	126,336	24	5,968.71	143,249
10" & Above	-	9,582.36	-	-	8,740.08	-	-	9,753.09	-
<i>Subtotal: Industrial</i>	371		\$ 355,786	371		\$ 322,571	371		\$ 375,666
Health or Education									
5/8"	359	\$ 26.52	\$ 9,521	359	\$ 23.62	\$ 8,479	359	\$ 32.43	\$ 11,642
3/4"	96	46.47	4,461	96	41.52	3,986	96	54.74	5,255
1"	239	102.08	24,397	239	91.86	21,954	239	113.88	27,217
1 1/2"	755	201.85	152,397	755	181.37	136,934	755	225.41	170,185
2"	1,561	337.28	526,494	1,561	303.31	473,474	1,561	373.78	583,471
3"	1,048	766.42	803,208	1,048	691.46	724,648	1,048	832.40	872,355
4"	800	1,313.93	1,051,144	800	1,188.05	950,440	800	1,408.27	1,126,616
6"	368	3,174.80	1,168,326	368	2,882.26	1,060,672	368	3,322.70	1,222,754
8"	21	5,784.48	121,474	21	5,264.00	110,544	21	5,968.71	125,343
10" & Above	19	9,582.36	182,065	19	8,740.08	166,062	19	9,753.09	185,309
<i>Subtotal: Health or Education</i>	5,266		\$ 4,043,487	5,266		\$ 3,657,193	5,266		\$ 4,330,146
Municipal - Residential									
5/8"	219	\$ 26.52	\$ 5,808	219	\$ 23.62	\$ 5,173	219	\$ 32.43	\$ 7,102
3/4"	-	46.47	-	-	41.52	-	-	54.74	-
1"	12	102.08	1,225	12	91.86	1,102	12	113.88	1,367
1 1/2"	12	201.85	2,422	12	181.37	2,176	12	225.41	2,705
<i>Subtotal: Municipal - Residential</i>	243		\$ 9,455	243		\$ 8,451	243		\$ 11,174
Municipal - Commercial									
5/8"	697	\$ 26.52	\$ 18,484	697	\$ 23.62	\$ 16,463	697	\$ 32.43	\$ 22,604
3/4"	77	46.47	3,578	77	41.52	3,197	77	54.74	4,215
1"	517	102.08	52,775	517	91.86	47,490	517	113.88	58,876
1 1/2"	409	201.85	82,557	409	181.37	74,180	409	225.41	92,193
2"	593	337.28	200,007	593	303.31	179,865	593	373.78	221,652
3"	167	766.42	127,992	167	691.46	115,473	167	832.40	139,011
4"	25	1,313.93	32,848	25	1,188.05	29,701	25	1,408.27	35,207
6"	35	3,174.80	111,118	35	2,882.26	100,879	35	3,322.70	116,295
8"	29	5,784.48	167,750	29	5,264.00	152,656	29	5,968.71	173,093
10" & Above	-	9,582.36	-	-	8,740.08	-	-	9,753.09	-
<i>Subtotal: Municipal - Commercial</i>	2,549		\$ 797,110	2,549		\$ 719,905	2,549		\$ 863,144
<i>Subtotal: Minimum Charges</i>			\$ 44,289,262			\$ 41,168,722			\$ 50,899,892

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Fire Protection Charges									
Public (per Hydrant)	90,096	\$ 14.68	\$ 1,322,609	90,096	\$ 87.19	\$ 7,855,146	90,096	\$ 21.80	\$ 1,964,093
Private									
1" or Less	15,907	\$ 15.43	\$ 245,445	15,907	\$ 20.00	\$ 318,079	15,907	\$ 31.38	\$ 499,162
1 1/2"-3"	529	46.28	24,482	529	61.18	32,362	529	97.59	51,625
4"	45	152.25	6,851	45	201.06	9,048	45	314.86	14,169
6" or Greater	190	325.06	61,761	190	426.93	81,116	190	654.53	124,361
<i>Subtotal: Fire Protection Charges</i>			\$ 1,661,149			\$ 8,295,751			\$ 2,653,409
Volume Charge									
Residential	1,818,344	\$ 14.64	\$ 26,620,560	1,818,344	\$ 15.36	\$ 27,929,768	1,818,344	\$ 17.12	\$ 31,130,054
Residential - CAP	108,272	14.64	1,585,098	108,272	16.53	1,789,731	108,272	17.12	1,853,612
Residential - CAP - 50FPL	26,271	7.32	192,301	26,271	17.36	456,059	26,271	8.56	224,877
Commercial	2,046,642	13.80	28,243,658	2,046,642	17.36	35,529,703	2,046,642	18.95	38,783,863
Industrial	157,395	12.13	1,909,206	157,395	21.82	3,434,367	157,395	17.14	2,697,757
Health or Education	855,292	16.29	13,932,701	855,292	20.99	17,952,572	855,292	22.98	19,654,603
Private Fire System	8,988	39.05	350,967	8,988	28.94	260,102	8,988	31.79	285,717
Municipal - Residential	1,702	14.64	24,922	1,702	13.56	23,083	1,702	17.12	29,144
Municipal - Commercial	218,440	13.80	3,014,467	218,440	16.77	3,663,233	218,440	18.95	4,139,431
<i>Subtotal: Volume Charge</i>	5,241,345		\$ 75,873,880			\$ 91,038,618	5,241,345		\$ 98,799,057
Wholesale Revenues (Set by Contract)			\$ 3,661,855	857,599	\$ 15.05	\$ 12,906,865			\$ 4,339,251
Total: Base Rate Revenues			\$ 125,486,146			\$ 153,409,956			\$ 156,691,609
DSIC Revenues									
Residential			\$ 2,451,269			\$ 3,581,702			\$ 4,363,070
Residential - CAP			88,896			253,997			155,933
Commercial			2,246,086			3,792,536			4,279,410
Industrial			113,250			281,770			230,507
Health or Education			898,809			1,620,732			1,798,856
Private Fire System			34,475			52,553			73,127
Municipal - Residential			1,719			2,569			3,024
Municipal - Commercial			190,579			339,478			375,193
Public Fire			-			-			-
Total: DSIC Revenues			\$ 6,025,084			\$ 9,925,339			\$ 11,279,120
Other Revenues									
Other Revenues			2,171,887			2,171,887			2,171,887
Total: System Revenues			\$133,683,117			\$ 165,507,181			\$ 170,142,615
FPPTY Water System Revenue Requirements						\$ 170,106,961			\$ 170,106,961
Difference (1)						\$ (4,599,780)			\$ 35,654

(1) Note difference in COS rates is due to bad debt and different DSIC revenue recovery on COS rates.

Pittsburgh Water and Sewer Authority

HJS-18W

FPFTY 2024 COS & Rate Design Model

Projected Units of Service

	FY 2020	FY 2021	HTY	FTY	FPFTY
	<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	<i>Projected</i>	<i>Projected</i>
Units of Service					
<u>Number of Bills</u>					
Residential	772,422	768,864	758,074	758,074	741,720
Residential - CAP	30,810	32,449	37,174	38,674	55,028
Residential - CAP - 50FPL	-	6,798	10,324	11,141	11,141
Commercial	81,431	83,002	83,843	83,843	83,843
Industrial	492	380	371	371	371
Health or Education	5,688	5,520	5,266	5,266	5,266
Private Fire System	15,757	16,641	16,671	16,671	16,671
Municipal - Residential	635	340	243	243	243
Municipal - Commercial	1,787	2,362	2,549	2,549	2,549
Public Fire Hydrants	90,096	90,096	90,096	90,096	90,096
<i>Total</i>	999,118	1,006,452	1,004,611	1,006,927	1,006,928
<u>Billable Consumption (kgal)</u>					
Residential	1,951,157	1,833,447	1,766,983	1,850,529	1,818,344
Residential - CAP	74,938	73,168	80,155	76,087	108,272
Residential - CAP - 50FPL	-	19,062	26,271	26,271	26,271
Commercial	2,021,812	2,044,982	2,073,132	2,046,642	2,046,642
Industrial	172,720	195,583	103,883	157,395	157,395
Health or Education	832,774	902,028	831,073	855,292	855,292
Private Fire System	14,348	6,888	5,727	8,988	8,988
Municipal - Residential	1,952	1,581	1,574	1,702	1,702
Municipal - Commercial	195,754	249,695	209,870	218,440	218,440
<i>Total</i>	5,265,456	5,326,432	5,098,667	5,241,345	5,241,345
<u>Total Consumption (kgal) (1)</u>					
Residential	2,744,375	2,621,697	2,540,544	2,635,539	2,590,290
Residential - CAP	103,594	103,138	114,183	106,972	152,221
Residential - CAP - 50FPL	-	25,204	35,568	35,568	35,568
Commercial	2,628,340	2,674,754	2,676,992	2,660,029	2,660,029
Industrial	185,785	208,619	112,736	169,069	169,069
Health or Education	989,429	1,061,129	981,167	1,010,575	1,010,575
Private Fire System	15,404	7,975	6,856	10,078	10,078
Municipal - Residential	2,116	1,716	1,691	1,841	1,841
Municipal - Commercial	215,164	263,894	232,154	237,070	237,070
<i>Total</i>	6,884,207	6,968,126	6,701,891	6,866,741	6,866,741
<u>Wholesale & Contract Consumption</u>					
Aspinwall	64,174	114,114	155,301	111,196	111,196
Fox Chapel	671,023	628,708	622,966	640,899	640,899
Hampton	3,346	7	-	-	-
PAWC	-	1,650	2,100	1,250	1,250
RSRV - 10"	92,650	93,323	85,537	90,503	90,501
RSRV - 6"	13,316	13,219	14,723	13,753	13,753
Westview	2,692	2	-	-	-
<i>Total</i>	847,201	851,023	880,627	857,601	857,599

(1) Total consumption represents actual customer usage including the usage captured in minimum allowance.

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
 2025 and 2026 Water Revenue Requirements

HJS-19W

	2025 Revenue Requirements	2026 Revenue Requirements
Water System Revenue Requirements		
<u>Operating Expenses</u>		
<i>Direct Operating Expenses</i>		
Administrative Division		
Executive Director	\$ 2,515,727	\$ 2,674,218
Customer Service	2,918,070	3,128,599
Management Information Systems	5,215,375	5,550,565
Finance	8,248,562	8,758,994
Human Resources	2,141,243	2,268,342
Legal	3,187,938	3,385,720
Safety & Security	1,771,437	1,892,206
Public Affairs	1,598,988	1,699,077
Operations Division		
Environmental Compliance	1,715,959	1,821,700
Ops Capital Assets	-	-
Warehouse	426,371	460,159
Water Treatment Plant	30,467,749	34,393,839
Water Quality (Lab)	2,473,136	2,642,150
Water Distribution	19,290,991	20,663,146
Sewer Operations	-	-
Engineering & Construction		
Engineering & Construction	15,293,623	16,269,615
<i>Other Operating Expenses</i>		
Loss / (Gain) on ALCOSAN Billings	-	-
City Services	-	-
Non-City Water Payments	-	-
Covid-Related Expenses	-	-
<i>Total Operating Expenses</i>	<u>\$ 97,265,168</u>	<u>\$ 105,608,332</u>
<u>Debt Service</u>		
Existing Debt	\$ 47,087,719	\$ 47,779,899
Future Debt	33,928,282	45,551,620
<i>Subtotal: Debt Service</i>	<u>\$ 81,016,002</u>	<u>\$ 93,331,519</u>
<u>Capital Expenditures & Transfers</u>		
Internally Generated Funds / PAYGO	\$ 1,629,433	\$ 9,575,121
Internally Generated Funds / PAYGO (DSIC)	13,461,179	16,045,979
Other Transfers to Reserves	4,480,000	10,880,000
Bad Debt Expense	4,046,940	4,765,631
Hardship	88,320	88,320
Arrearage	97,988	97,988
<i>Subtotal: Capital Expenditures & Transfers</i>	<u>\$ 23,803,861</u>	<u>\$ 41,453,039</u>
Total: Water System Revenue Requirements	\$ 202,085,030	\$ 240,392,889
<i>Capital Costs to be Recovered through DSIC</i>	\$ (13,461,179)	\$ (16,045,979)
Total: Water System Revenue Requirement (Excl DSIC)	\$ 188,623,851	\$ 224,346,911

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Revenue Increase Needed for 2025 and 2026

HJS-20W

	<u>2024</u>	<u>2025</u>	<u>2026</u>
Revenue Requirement	\$ 158,827,841	\$ 188,623,851	\$ 224,346,911
Offsetting Misc Revenue	(2,171,887)	(2,215,325)	(2,259,631)
Net Rate Revenue Requirement	\$ 156,655,955	\$ 186,408,527	\$ 222,087,280
<i>Increase</i>		<i>18.99%</i>	<i>19.14%</i>
Revenue at Existing Rates + New Charges			
Existing Retail Rates	\$ 121,498,414	\$ 152,352,358	\$ 164,550,923
Wholesale	3,661,855	4,339,251	4,629,538
New Charges	-	-	17,268,557
Total	\$ 125,160,269	\$ 156,691,609	\$ 186,449,018
Net Rate Revenue Need	\$ 31,495,685	\$ 29,716,918	\$ 35,638,262
<i>Increase</i>		<i>18.97%</i>	<i>19.12%</i>
Offsetting New Charge Revenue			
Infrastructure Improvement Charge	\$ -	\$ 14,134,186	\$ 16,163,016
Customer Assistance Charge	-	3,134,371	3,667,881
Subtotal New Charge Revenue	\$ -	\$ 17,268,557	\$ 19,830,897
Incremental New Charge Revenue Applied	\$ -	\$ 17,268,557	\$ 2,562,340
Net Retail Base Rate Increase Need	\$ 31,495,685	\$ 12,448,361	\$ 33,075,922
<i>Increase</i>		<i>7.94%</i>	<i>19.66%</i>

		Fixed Charge Build-Up - Test Year: 2025							
Water	Min. Usage <i>Proposed</i>	<i>Meters/Services</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS</i> <i>Rates</i>	<i>Adjustments</i>			
						Public Fire	R. T. S.	CAP-BDP	Proposed Rates
Minimum Charge									
5/8"	0	\$ 7.28	\$ 2.53	\$ -	\$ 9.81	\$ 4.59	\$ 2.41	\$ -	\$ 16.82
3/4"	0	10.93	2.53	-	13.45	6.89	3.62	-	23.96
1"	0	18.21	2.53	-	20.74	11.49	6.03	-	38.25
1 1/2"	0	36.42	2.53	-	38.95	22.97	12.05	-	73.97
2"	0	58.27	2.53	-	60.80	36.76	19.28	-	116.84
3"	0	116.54	2.53	-	119.07	73.52	38.56	-	231.14
4"	0	182.09	2.53	-	184.62	114.87	60.25	-	359.74
6"	0	364.18	2.53	-	366.71	229.74	120.50	-	716.95
8"	0	582.69	2.53	-	585.22	367.58	192.80	-	1,145.60
10" & Above	0	837.61	2.53	-	840.14	528.39	277.15	-	1,645.69
Unmetered	0	7.28	2.53	-	9.81	4.59	2.41	-	16.82
Residential - CAP									
5/8"	0	\$ 7.28	\$ 2.53	\$ -	\$ 9.81	\$ 4.59	\$ 2.41	\$ (16.82)	\$ -
3/4"	0	10.93	2.53	-	13.45	6.89	3.62	(23.96)	-
1"	0	18.21	2.53	-	20.74	11.49	6.03	(38.25)	-
Unmetered	0	7.28	2.53	-	9.81	4.59	2.41	(16.82)	-
Monthly Fire Protection									
<i>Public</i>									
Per Hydrant		\$ -	\$ -	\$ 103.75	\$ 103.75	\$ (77.81)	\$ -	\$ -	\$ 25.94
<i>Private</i>									
1" or Less		\$ 20.07	\$ 2.79	\$ 0.93	\$ 23.79		\$ 6.03	\$ -	\$ 29.82
1 1/2"-3"		64.24	2.79	5.77	72.79		19.28	-	92.07
4"		200.74	2.79	35.71	239.24		60.25	-	299.49
6" or Greater		401.48	2.79	103.75	508.01		120.50	-	628.51

Determination of Proposed Rates for 2025								
2024 Adjusted Revenue Requirement	2025 Adjusted Revenue Requirement	Unrecoverable Wholesale	Fixed Charge Revenue	New Charges Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates	
Volume Charge (per kgal)								
Residential + CAP	\$ 60,274,454	\$ 71,721,980	\$ 215,405	\$ 13,255,561	\$ 6,827,381	\$ 51,854,443	2,778,167	\$ 18.67
Commercial + Municipal	62,050,692	73,835,566	221,753	5,700,782	7,421,287	60,935,251	2,897,159	21.04
Industrial	3,073,371	3,657,076	10,983	87,062	432,817	3,148,180	169,069	18.63
Health or Education	23,979,391	28,533,637	85,696	1,104,905	2,587,072	24,927,357	1,010,575	24.67
Municipal - Residential								
Municipal - Commercial								
Private Fire System	975,008	1,160,185		655,946	-	504,239	10,078	50.04
Public Fire	1,963,786	2,336,755		2,337,090		(335)	-	n/a
Wholesale	4,339,251	5,163,376	(533,838)	-		4,629,538	n/a	n/a
Totals	\$ 156,655,955	\$ 186,408,576	\$ -	23,141,346	17,268,557	145,998,674	6,865,049	\$ 21.27

Infrastructure Improvement Charge

Allocated Debt Service

	2025	2026
Existing PENNVEST	-	-
Future PENNVEST	12,575,098	12,915,676
Future WIFIA	1,732,366	3,457,828
Total PENNVEST Costs	\$ 14,307,465	\$ 16,373,503
Coverage Component	1.00	1.00
Total Charge Recovery	\$ 14,307,465	\$ 16,373,503
Units	6,856,663	6,856,663

Infrastructure Improvement Charge Unit Rate \$ **2.09** \$ **2.39** per kgal

Customer Assistance Charge

Allocated Customer Assistance Program Costs

	2025	2026
Forgone Revenue	\$ 2,699,628	\$ 3,201,468
Operations	244,259	263,270
Hardship	88,320	88,320
Arrearage	97,988	128,000
Total Charge Recovery	\$ 3,130,195	\$ 3,681,058
Units (Less CAP & Private Fire units)	6,668,874	6,668,874

Customer Assistance Charge Unit Rate \$ **0.47** \$ **0.55** per kgal

	2023		2024		2025		2026		Percent Difference		
	FTY Prior Tariff Rates		FPFTY Proposed Rates		Proposed Rates		Proposed Rates		2024	2025	2026
Existing & Proposed Rates											
<u>Minimum Charge</u>											
5/8"	\$	26.52	\$	32.43	\$	16.82	\$	20.13	22.3%	-48.1%	19.7%
3/4"		46.47		54.74		23.96		28.67	17.8%	-56.2%	19.7%
1"		102.08		113.88		38.25		45.77	11.6%	-66.4%	19.7%
1 1/2"		201.85		225.41		73.97		88.51	11.7%	-67.2%	19.7%
2"		337.28		373.78		116.84		139.81	10.8%	-68.7%	19.7%
3"		766.42		832.40		231.14		276.58	8.6%	-72.2%	19.7%
4"		1,313.93		1,408.27		359.74		430.46	7.2%	-74.5%	19.7%
6"		3,174.80		3,322.70		716.95		857.90	4.7%	-78.4%	19.7%
8"		5,784.48		5,968.71		1,145.60		1,370.82	3.2%	-80.8%	19.7%
10" & Above		9,582.36		9,753.09		1,645.69		1,969.22	1.8%	-83.1%	19.7%
<u>Minimum Charge - CAP (1)</u>											
5/8"	\$	-	\$	-	\$	-	\$	-	0.0%	0.0%	0.0%
3/4"		-		-		-		-	0.0%	0.0%	0.0%
1"		-		-		-		-	0.0%	0.0%	0.0%
<u>Fire System Charges</u>											
Private											
1" or Less	\$	15.43	\$	31.38	\$	29.82	\$	35.68	103.4%	-5.0%	19.7%
1 1/2"-3"		46.28		97.59		92.07		110.17	110.9%	-5.7%	19.7%
4"		152.25		314.86		299.49		358.37	106.8%	-4.9%	19.7%
6" or Greater		325.06		654.53		628.51		752.07	101.4%	-4.0%	19.7%
Public											
Per Hydrant (2)	\$	14.68	\$	21.80	\$	25.94	\$	31.04	48.5%	19.0%	19.7%
<u>Volume Charge</u>											
Residential	\$	14.64	\$	17.12	\$	18.67	\$	22.34	16.9%	9.1%	19.7%
Residential - CAP		14.64		17.12		18.67		22.34	16.9%	9.1%	19.7%
Residential - CAP (<50% FPL)		7.32		8.56		9.34		11.17	16.9%	9.1%	19.7%
Commercial		13.80		18.95		21.04		25.18	37.3%	11.0%	19.7%
Industrial		12.13		17.14		18.63		22.29	41.3%	8.7%	19.6%
Health or Education		16.29		22.98		24.67		29.52	41.1%	7.4%	19.7%
Fire System		39.05		31.79		50.04		59.88	-18.6%	57.4%	19.7%
Municipal - Residential (2)		11.71		17.12		18.67		22.34	46.2%	9.1%	19.7%
Municipal - Commercial (2)		11.04		18.95		21.04		25.18	71.6%	11.0%	19.7%
Wholesale		10.89		15.05		16.24		19.43	38.2%	7.9%	19.7%
<u>Unmetered Charges (per Unit)</u>											
Residential	\$	70.44	\$	83.79	\$	91.50	\$	109.49	19.0%	9.2%	19.7%
Residential - CAP		43.95		51.36		74.68		89.36	16.9%	45.4%	19.7%
Commercial		82.92		108.23		122.02		146.03	30.5%	12.7%	19.7%
DSIC (Applies to all retail customers)		5.0%		7.5%		7.5%		7.5%	n/a	n/a	n/a
<u>Infrastructure Improvement Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	2.09	\$	2.39	0.0%	0.0%	14.4%
<u>Customer Assistance Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	0.47	\$	0.55	0.0%	0.0%	17.0%

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers.
(2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenues									
Minimum Charges									
Residential									
5/8"	682,360	\$ 32.43	\$ 22,128,948	682,360	\$ 16.82	\$ 11,477,295	682,360	\$ 20.13	\$ 13,735,907
3/4"	30,308	54.74	1,659,049	30,308	23.96	726,180	30,308	28.67	868,930
1"	24,535	113.88	2,794,091	24,535	38.25	938,464	24,535	45.77	1,122,967
1 1/2"	452	225.41	101,885	452	73.97	33,434	452	88.51	40,007
2"	68	373.78	25,417	68	116.84	7,945	68	139.81	9,507
Unmetered	3,996	83.79	334,825	3,996	91.50	365,634	3,996	109.49	437,522
<i>Subtotal: Residential</i>	741,720		\$ 27,044,215	741,719		\$ 13,548,952	741,719		\$ 16,214,840
Residential - CAP									
5/8"	65,253	\$ -	\$ -	65,253	\$ -	\$ -	65,253	\$ -	\$ -
3/4"	550	-	-	550	-	-	550	-	-
1"	354	-	-	354	-	-	354	-	-
Unmetered	12	51.36	616	12	74.68	896	12	89.36	1,072
<i>Subtotal: Residential - CAP</i>	66,169		\$ 616	66,169		\$ 896	66,169		\$ 1,072
Commercial									
5/8"	32,509	\$ 32.43	\$ 1,054,267	32,509	\$ 16.82	\$ 546,801	32,509	\$ 20.13	\$ 654,406
3/4"	8,347	54.74	456,915	8,347	23.96	199,994	8,347	28.67	239,308
1"	17,201	113.88	1,958,850	17,201	38.25	657,938	17,201	45.77	787,290
1 1/2"	10,062	225.41	2,268,075	10,062	73.97	744,286	10,062	88.51	890,588
2"	9,730	373.78	3,636,879	9,730	116.84	1,136,853	9,730	139.81	1,360,351
3"	2,822	832.40	2,349,033	2,822	231.14	652,277	2,822	276.58	780,509
4"	2,167	1,408.27	3,051,721	2,167	359.74	779,557	2,167	430.46	932,807
6"	918	3,322.70	3,050,239	918	716.95	658,160	918	857.90	787,552
8"	75	5,968.71	447,653	75	1,145.60	85,920	75	1,370.82	102,812
10" & Above	-	9,753.09	-	-	1,645.69	-	-	1,969.22	-
Unmetered	12	108.23	1,299	12	122.02	1,464	12	146.03	1,752
<i>Subtotal: Commercial</i>	83,843		\$ 18,274,931	83,843		\$ 5,463,251	83,843		\$ 6,537,375
Industrial									
5/8"	84	\$ 32.43	\$ 2,724	84	\$ 16.82	\$ 1,413	84	\$ 20.13	\$ 1,691
3/4"	12	54.74	657	12	23.96	288	12	28.67	344
1"	69	113.88	7,858	69	38.25	2,639	69	45.77	3,158
1 1/2"	-	225.41	-	-	73.97	-	-	88.51	-
2"	60	373.78	22,427	60	116.84	7,010	60	139.81	8,389
3"	33	832.40	27,469	33	231.14	7,628	33	276.58	9,127
4"	65	1,408.27	91,538	65	359.74	23,383	65	430.46	27,980
6"	24	3,322.70	79,745	24	716.95	17,207	24	857.90	20,590
8"	24	5,968.71	143,249	24	1,145.60	27,494	24	1,370.82	32,900
10" & Above	-	9,753.09	-	-	1,645.69	-	-	1,969.22	-
<i>Subtotal: Industrial</i>	371		\$ 375,666	371		\$ 87,062	371		\$ 104,178
Health or Education									
5/8"	359	\$ 32.43	\$ 11,642	359	\$ 16.82	\$ 6,038	359	\$ 20.13	\$ 7,227
3/4"	96	54.74	5,255	96	23.96	2,300	96	28.67	2,752
1"	239	113.88	27,217	239	38.25	9,142	239	45.77	10,939
1 1/2"	755	225.41	170,185	755	73.97	55,847	755	88.51	66,825
2"	1,561	373.78	583,471	1,561	116.84	182,387	1,561	139.81	218,243
3"	1,048	832.40	872,355	1,048	231.14	242,235	1,048	276.58	289,856
4"	800	1,408.27	1,126,616	800	359.74	287,792	800	430.46	344,368
6"	368	3,322.70	1,222,754	368	716.95	263,838	368	857.90	315,707
8"	21	5,968.71	125,343	21	1,145.60	24,058	21	1,370.82	28,787
10" & Above	19	9,753.09	185,309	19	1,645.69	31,268	19	1,969.22	37,415
<i>Subtotal: Health or Education</i>	5,266		\$ 4,330,146	5,266		\$ 1,104,905	5,266		\$ 1,322,120
Municipal - Residential									
5/8"	219	\$ 32.43	\$ 7,102	219	\$ 16.82	\$ 3,684	219	\$ 20.13	\$ 4,408
3/4"	-	54.74	-	-	23.96	-	-	28.67	-
1"	12	113.88	1,367	12	38.25	459	12	45.77	549
1 1/2"	12	225.41	2,705	12	73.97	888	12	88.51	1,062
2"	-	373.78	-	-	116.84	-	-	139.81	-
3"	-	832.40	-	-	231.14	-	-	276.58	-
4"	-	1,408.27	-	-	359.74	-	-	430.46	-
6"	-	3,322.70	-	-	716.95	-	-	857.90	-
8"	-	5,968.71	-	-	1,145.60	-	-	1,370.82	-
10" & Above	-	9,753.09	-	-	1,645.69	-	-	1,969.22	-
<i>Subtotal: Municipal - Residential</i>	243		\$ 11,174	243		\$ 5,030	243		\$ 6,020
Municipal - Commercial									
5/8"	697	\$ 32.43	\$ 22,604	697	\$ 16.82	\$ 11,724	697	\$ 20.13	\$ 14,031
3/4"	77	54.74	4,215	77	23.96	1,845	77	28.67	2,208
1"	517	113.88	58,876	517	38.25	19,775	517	45.77	23,663
1 1/2"	409	225.41	92,193	409	73.97	30,254	409	88.51	36,201
2"	593	373.78	221,652	593	116.84	69,286	593	139.81	82,907
3"	167	832.40	139,011	167	231.14	38,600	167	276.58	46,189
4"	25	1,408.27	35,207	25	359.74	8,994	25	430.46	10,762
6"	35	3,322.70	116,295	35	716.95	25,093	35	857.90	30,027
8"	29	5,968.71	173,093	29	1,145.60	33,222	29	1,370.82	39,754
10" & Above	-	9,753.09	-	-	1,645.69	-	-	1,969.22	-
<i>Subtotal: Municipal - Commercial</i>	2,549		\$ 863,144	2,549		\$ 238,793	2,549		\$ 285,740
<i>Subtotal: Minimum Charges</i>			\$ 50,899,892			\$ 20,448,890			\$ 24,471,345

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Fire Protection Charges									
Public (per Hydrant)	90,096	\$ 21.80	\$ 1,964,093	90,096	\$ 25.94	\$ 2,337,090	90,096	\$ 31.04	\$ 2,796,580
Private									
1" or Less	15,907	\$ 31.38	\$ 499,162	15,907	\$ 29.82	\$ 474,347	15,907	\$ 35.68	\$ 567,562
1 1/2"-3"	529	97.59	51,625	529	92.07	48,705	529	110.17	58,280
4"	45	314.86	14,169	45	299.49	13,477	45	358.37	16,127
6" or Greater	190	654.53	124,361	190	628.51	119,417	190	752.07	142,893
<i>Subtotal: Fire Protection Charges</i>			\$ 2,653,409			\$ 2,993,036			\$ 3,581,441
Volume Charge									
Residential	1,818,344	\$ 17.12	\$ 31,130,054	2,590,290	\$ 18.67	\$ 48,360,709	2,590,290	\$ 22.34	\$ 57,867,072
Residential - CAP	108,272	17.12	1,853,612	152,221	18.67	2,841,960	152,221	22.34	3,400,610
Residential - CAP - 50FPL	26,271	8.56	224,877	35,568	9.34	332,027	35,568	11.17	397,295
Commercial	2,046,642	18.95	38,783,863	2,660,029	21.04	55,967,003	2,660,029	25.18	66,979,522
Industrial	157,395	17.14	2,697,757	169,069	18.63	3,149,759	169,069	22.29	3,768,552
Health or Education	855,292	22.98	19,654,603	1,010,575	24.67	24,930,885	1,010,575	29.52	29,832,174
Private Fire System	8,988	31.79	285,717	10,078	50.04	504,320	10,078	59.88	603,491
Municipal - Residential	1,702	17.12	29,144	1,841	18.67	34,371	1,841	22.34	41,128
Municipal - Commercial	218,440	18.95	4,139,431	237,070	21.04	4,987,962	237,070	25.18	5,969,434
<i>Subtotal: Volume Charge</i>	5,241,345		\$ 98,799,057	6,866,741		\$ 141,108,997	6,866,741		\$ 168,859,278
Wholesale Revenues (Set by Contract)	857,599		\$ 4,339,251	857,599		\$ 4,629,538	857,599		\$ 5,353,374
Infrastructure Improvement Charge									
Residential	1,818,344	\$ -	\$ -	2,590,290	\$ 2.09	\$ 5,413,705	2,590,290	\$ 2.39	\$ 6,190,792
Residential - CAP	108,272	-	-	152,221	1.05	159,071	152,221	1.20	181,904
Residential - CAP - 50FPL	26,271	-	-	35,568	1.05	37,169	35,568	1.20	42,504
Commercial	2,046,642	-	-	2,660,029	2.09	5,559,460	2,660,029	2.39	6,357,469
Industrial	157,395	-	-	169,069	2.09	353,355	169,069	2.39	404,075
Health or Education	855,292	-	-	1,010,575	2.09	2,112,102	1,010,575	2.39	2,415,274
Private Fire System	8,988	-	-	10,078	-	-	10,078	-	-
Municipal - Residential	1,702	-	-	1,841	2.09	3,848	1,841	2.39	4,400
Municipal - Commercial	218,440	-	-	237,070	2.09	495,477	237,070	2.39	566,598
<i>Subtotal: Infrastructure Improvement Charge</i>	5,241,345		\$ -	6,866,741		\$ 14,134,186	6,866,741		\$ 16,163,016
Customer Assistance Charge									
Residential	1,818,344	\$ -	\$ -	2,590,290	\$ 0.47	\$ 1,217,436	2,590,290	\$ 0.55	\$ 1,424,659
Residential - CAP	108,272	-	-	152,221	-	-	152,221	-	-
Residential - CAP - 50FPL	26,271	-	-	35,568	-	-	35,568	-	-
Commercial	2,046,642	-	-	2,660,029	0.47	1,250,213	2,660,029	0.55	1,463,016
Industrial	157,395	-	-	169,069	0.47	79,463	169,069	0.55	92,988
Health or Education	855,292	-	-	1,010,575	0.47	474,970	1,010,575	0.55	555,816
Private Fire System	8,988	-	-	10,078	-	-	10,078	-	-
Municipal - Residential	1,702	-	-	1,841	0.47	865	1,841	0.55	1,013
Municipal - Commercial	218,440	-	-	237,070	0.47	111,423	237,070	0.55	130,389
<i>Subtotal: Customer Assistance Charge</i>	5,241,345		\$ -	6,866,741		\$ 3,134,371	6,866,741		\$ 3,667,881
Total: Base Rate Revenues			\$ 156,691,609			\$ 186,449,018			\$ 222,096,335
DSIC Revenues									
Residential			\$ 4,363,070			\$ 5,140,560			\$ 6,127,302
Residential - CAP			155,933			252,834			301,754
Commercial			4,279,410			5,117,995			6,100,304
Industrial			230,507			275,223			327,735
Health or Education			1,798,856			2,146,715			2,559,404
Private Fire System			73,127			87,020			104,126
Municipal - Residential			3,024			3,309			3,942
Municipal - Commercial			375,193			437,524			521,412
Public Fire			-			-			-
Total: DSIC Revenues			\$ 11,279,120			\$ 13,461,179			\$ 16,045,979
Other Revenues									
Other Revenues			2,171,887			2,215,325			2,259,631
Total: System Revenues			\$170,142,615			\$202,125,521			\$240,401,945
Water System Revenue Requirements			\$170,106,961			\$202,085,030			\$240,392,889
Difference			\$ 35,654			\$ 40,491			\$ 9,055

Pittsburgh Water and Sewer Authority

HJS-25W

FPFTY 2024 COS & Rate Design Model

Typical Bill Comparison

	FTY 2023	FPFTY 2024	2025	2026
Customer Impacts				
<u>Residential - 5/8" / 3 Kgal</u>				
Water Base Rates	\$ 55.80	\$ 66.67	\$ 72.83	\$ 87.15
New Water Charges	-	-	7.68	8.82
Water DSIC	2.79	5.00	6.04	7.20
Total Monthly Bill	\$ 58.59	\$ 71.67	\$ 86.55	\$ 103.17
\$ Change		\$ 13.08	\$ 14.88	\$ 16.62
% Change		22.3%	20.8%	19.2%
<u>Commercial - 1" / 13kgal</u>				
Water Base Rates	\$ 212.48	\$ 265.48	\$ 311.77	\$ 373.11
New Water Charges	-	-	33.28	38.22
Water DSIC	10.62	19.91	25.88	30.85
Total Monthly Bill	\$ 223.10	\$ 285.39	\$ 370.93	\$ 442.18
\$ Change		\$ 62.29	\$ 85.54	\$ 71.25
% Change		27.9%	30.0%	19.2%
<u>Industrial - 4" / 680kgal</u>				
Water Base Rates	\$ 8,713.23	\$ 11,863.67	\$ 13,028.14	\$ 15,587.66
New Water Charges	-	-	1,740.80	1,999.20
Water DSIC	435.66	889.78	1,107.67	1,319.01
Total Monthly Bill	\$ 9,148.89	\$ 12,753.45	\$ 15,876.61	\$ 18,905.87
\$ Change		\$ 3,604.55	\$ 3,123.17	\$ 3,029.26
% Change		39.4%	24.5%	19.1%
<u>Health or Education - 2" / 50kgal</u>				
Water Base Rates	\$ 874.85	\$ 1,132.12	\$ 1,350.34	\$ 1,615.81
New Water Charges	-	-	128.00	147.00
Water DSIC	43.74	84.91	110.88	132.21
Total Monthly Bill	\$ 918.59	\$ 1,217.03	\$ 1,589.22	\$ 1,895.02
\$ Change		\$ 298.44	\$ 372.19	\$ 305.81
% Change		32.5%	30.6%	19.2%

Exhibits

HJS -1 WW – HJS-24 WW

(Wastewater Schedules)

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 FPFTY Wastewater Conveyance Revenue Requirements

HJS-1WW

	2024 FPFTY Revenue Requirements
Revenue Requirements	
<u>Operating Expenses</u>	
<i>Direct Operating Expenses</i>	
Administrative Division	
Executive Director	\$ 460,536
Customer Service	3,452,782
Management Information Systems	1,050,629
Finance	1,503,985
Human Resources	336,194
Legal	581,854
Safety & Security	323,105
Public Affairs	262,606
Operations Division	
Environmental Compliance	1,507,555
Ops Capital Assets	-
Warehouse	77,654
Water Treatment Plant	-
Water Quality (Lab)	-
Water Distribution	-
Sewer Operations	5,387,047
Engineering & Construction	
Engineering & Construction	5,623,537
<i>Other Operating Expenses</i>	
Loss / (Gain) on ALCOSAN Billings	2,066,814
Covid-Related Expenses	74,691
<i>Total Operating Expenses</i>	\$ 22,708,992
<u>Debt Service</u>	
Existing Debt	\$ 14,635,683
Future Debt	2,563,968
<i>Subtotal: Debt Service</i>	\$ 17,199,651
<u>Capital Expenditures & Transfers</u>	
Internally Generated Funds / PAYGO	\$ -
Internally Generated Funds / PAYGO (DSIC)	3,759,342
Other Transfers to Reserves	250,000
Bad Debt Expense	1,077,678
Arrearage	142,012
Gradualism - Stormwater	9,500,000
<i>Subtotal: Capital Expenditures & Transfers</i>	\$ 14,729,032
Total: Wastewater Conveyance System Revenue Requirements	\$ 54,637,675
<i>Capital Costs to be Recovered through DSIC</i>	\$ (3,759,342)
Total: Wastewater Conveyance System Base Rate Revenue Requirement	\$ 50,878,333

Wastewater Conveyance Operating Costs	FY 2024	Allocation	Wastewater Conveyance Functional Categories			
			<i>Collection & Conveyance</i>	<i>Meters</i>	<i>Billing</i>	<i>Admin Support</i>
<u>Operating Expenses</u>	<i>FPFTY</i>					
<i>Direct Operating Expenses</i>						
Administrative Division						
Executive Director	\$ 460,536	WW-D				100.0%
Customer Service	3,452,782	WW-E	34.2%	65.8%		
Management Information Systems	1,050,629	WW-D				100.0%
Finance	1,503,985	WW-D				100.0%
Human Resources	336,194	WW-D				100.0%
Legal	581,854	WW-D				100.0%
Safety & Security	323,105	WW-D				100.0%
Public Affairs	262,606	WW-D				100.0%
Operations Division						
Environmental Compliance	1,507,555	WW-D				100.0%
Warehouse	-	WW-D				100.0%
Ops Capital Assets	77,654	WW-D				100.0%
Water Treatment Plant	-	n/a				
Water Quality (Lab)	-	n/a				
Water Distribution	-	n/a				
Sewer Operations	5,387,047	WW-A	100.0%			
Engineering & Construction Division						
Engineering & Construction	5,623,537	WW-A	100.0%			
<i>Subtotal: Direct Operating Expenses</i>	\$ 20,567,486					
<i>Other Operating Expenses</i>						
Loss / (Gain) on ALCOSAN Billings	2,066,814	WW-D				100.0%
Covid-Related Expenses	74,691	WW-D				100.0%
<i>Subtotal: Other Operating Expenses</i>	\$ 2,141,506					
Total: Operating Expenses	\$ 22,708,992					

Wastewater Conveyance Operating Costs	FY 2024 FPFTY	Allocation	Wastewater Conveyance Functional Categories			
			Collection & Conveyance	Meters	Billing	Admin Support
<u>Operating Expenses</u>						
<i>Direct Operating Expenses</i>						
Administrative Division						
Executive Director	\$ 460,536	WW-D	\$ -	\$ -	\$ -	\$ 460,536
Customer Service	3,452,782	WW-E	-	1,180,914	2,271,869	-
Management Information Systems	1,050,629	WW-D	-	-	-	1,050,629
Finance	1,503,985	WW-D	-	-	-	1,503,985
Human Resources	336,194	WW-D	-	-	-	336,194
Legal	581,854	WW-D	-	-	-	581,854
Safety & Security	323,105	WW-D	-	-	-	323,105
Public Affairs	262,606	WW-D	-	-	-	262,606
Operations Division						
Environmental Compliance	1,507,555	WW-D	-	-	-	1,507,555
Warehouse	-	WW-D	-	-	-	-
Ops Capital Assets	77,654	WW-D	-	-	-	77,654
Water Treatment Plant	-	n/a	-	-	-	-
Water Quality (Lab)	-	n/a	-	-	-	-
Water Distribution	-	n/a	-	-	-	-
Sewer Operations	5,387,047	WW-A	5,387,047	-	-	-
Engineering & Construction Division						
Engineering & Construction	5,623,537	WW-A	5,623,537	-	-	-
<i>Subtotal: Direct Operating Expenses</i>	\$ 20,567,486		\$ 5,387,047	\$ 1,180,914	\$ 2,271,869	\$ 6,104,120
<i>Other Operating Expenses</i>						
Loss / (Gain) on ALCOSAN Billings	2,066,814	WW-D	-	-	-	2,066,814
Covid-Related Expenses	74,691	WW-D	-	-	-	74,691
<i>Subtotal: Other Operating Expenses</i>	\$ 2,141,506		\$ -	\$ -	\$ -	\$ 2,066,814
Total: Wastewater Conveyance Operating Costs	\$ 22,708,992		\$ 11,010,584	\$ 1,180,914	\$ 2,271,869	\$ 8,245,625
Allocation Percentage			48.49%	5.20%	10.00%	36.31%

Allocated Wastewater Conveyance Assets			Wastewater Conveyance Functional Categories				
System Fixed Assets	Allocated Costs	Allocation	Collection & Conveyance	Meters	Billing	Admin Support	Readiness-to-Serve
Structures and Improvements - Source of Supply and Pumping	-	n/a					
Structures and Improvements - Water Treatment	-	n/a					
Structures and Improvements - Transmission and Distribution Plant	687,981	WW-A	100.00%				
Pumping Equipment	944,958	WW-A	100.00%				
Water Treatment Equipment	-	n/a					
Distribution Reservoirs and Standpipes	-	n/a					
Transmission and Distribution Mains	-	n/a					
Meters and Meter Installations	-	n/a					
Fire Hydrants	-	n/a					
Office Furniture and Equipment	344,216	WW-D				100.00%	
Office Furniture and Equipment - Computer Hardware	-	n/a					
Transportation Equipment	1,245,292	WW-D				100.00%	
Tools, Shop and Garage Equipment	7,831	WW-D				100.00%	
Laboratory Equipment	-	n/a					
Collection Sewers - Gravity	169,512,610	WW-A	100.00%				
Manholes	10,917,412	WW-A	100.00%				
Wastewater Plant	4,342,979	WW-A	100.00%				
Power Operated Equipment	38,414	WW-D				100.00%	
Total	188,041,693		\$ 186,405,941	\$ -	\$ -	\$ 1,635,752	\$ -

Allocation Factors for Capital Costs	99.13%	0.00%	0.00%	0.87%	0.00%
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Allocation of Capital Costs		Collection & Conveyance	Meters	Billing	Admin Support	Readiness-to-Serve
Debt Service	\$ 17,199,651	\$ 17,050,034	\$ -	\$ -	\$ 149,618	\$ -
Rate-Funded Capital	-	-	-	-	-	-
Other Transfers to Reserves	250,000	247,825	-	-	2,175	-
Arrearage	142,012	140,776	-	-	1,235	-
Total: Allocated Capital Costs	\$ 17,591,663	\$ 17,438,635	\$ -	\$ -	\$ 153,028	\$ -

Pittsburgh Water and Sewer Authority

HJS-3WW

FPPTY 2024 COS & Rate Design Model

Allocation to Cost Categories

		FY 2024	Allocation	Wastewater Conveyance Cost Drivers			
		<i>FPPTY</i>		<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>
Wastewater Conveyance Revenue Requirements							
<u>Functional Categories</u>							
Collection & Conveyance	\$	28,225,978	WW-AA	100.00%			
Meters		1,180,914	WW-BB		100.00%		
Billing		2,271,869	WW-CC			100.00%	
Admin Support		8,398,653	WW-DD	89.10%	3.73%	7.17%	
Infiltration & Inflow Costs		223,242	WW-EE	33.00%		67.00%	
<i>Total: Wastewater Conveyance Revenue Requirements</i>	\$	40,300,655					
		FY 2024	Allocation	<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>
		<i>FPPTY</i>					
Wastewater Conveyance Revenue Requirements							
<u>Functional Categories</u>							
Collection & Conveyance	\$	28,225,978	WW-AA	\$ 28,225,978	\$ -	\$ -	\$ -
Meters		1,180,914	WW-BB	-	1,180,914	-	-
Billing		2,271,869	WW-CC	-	-	2,271,869	-
Admin Support		8,398,653	WW-DD	7,483,253	313,083	602,316	-
Infiltration & Inflow Costs		223,242	WW-EE	73,670	-	149,572	-
<i>Total: Wastewater Conveyance Revenue Requirements</i>	\$	40,300,655		\$ 35,782,901	\$ 1,493,997	\$ 3,023,757	\$ -
Costs to Recover from Wastewater Conveyance Charges		\$ 40,300,655		\$ 35,782,901	\$ 1,493,997	\$ 3,023,757	\$ -
				88.8%	3.7%	7.5%	0.0%

Cost Functionalization: Wastewater Conveyance					
<i>Code</i>	<i>Description</i>	<i>Coll. & Convey.</i>	<i>Meters</i>	<i>Billing</i>	<i>Admin Support</i>
WW-A	Collection & Conveyance Only	100.00%			
WW-B	Meters Only		100.00%		
WW-C	Billing Only			100.00%	
WW-D	Admin Support Only				100.00%
WW-E	Customer Service		34.20%	65.80%	

Allocation to Cost Drivers: Wastewater Conveyance					
<i>Code</i>	<i>Description</i>	<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>
WW-AA	Volume	100.00%			
WW-BB	Customer - Meters		100.00%		
WW-CC	Customer - Billing			100.00%	
WW-DD	Admin Support (Composite)	89.10%	3.73%	7.17%	
WW-EE	Infiltration & Inflow Costs	33.00%		67.00%	
WW-FF	Readiness-to-Serve				0.00%

Factor Derivations - Allocation to Functional Categories & Cost Components						
<i>Code(s)</i>	<i>Description</i>	<i>Calculations</i>				
W-I	Customer Service	2024 Customer Service Budget				
WW-E	- This factor allocates the 2024 customer service budget between meter- and billing-related costs.	Salaries	\$	5,157,435	28.60%	71.40%
		Benefits		1,815,642	28.60%	71.40%
		Computer & Peripherals		-	100.00%	0.00%
		Annual Software Support		251,722	50.00%	50.00%
		Customer CC Fees		36,200	0.00%	100.00%
		Postage		471,117	0.00%	100.00%
		Equip Rental		1,746	100.00%	0.00%
		Billing Contract		228,960	0.00%	100.00%
		Consultants		47,700	20.00%	80.00%
		Meter Services		799,148	100.00%	0.00%
		Prof Service Other		478,967	20.00%	80.00%
		Water Liens		-	50.00%	50.00%
		Computer Software Supplies		84,800	100.00%	0.00%
		GIS Plotter Xerox		636	100.00%	0.00%
		Office Supplies		2,544	50.00%	50.00%
		TE Items		7,685	50.00%	50.00%
		Capital Asset Reclaim		-	0.00%	0.00%
		Customer Refund CSM		(530,000)	0.00%	100.00%
		Customer Refund AP		530,000	0.00%	100.00%
		Education & Outreach		5,300	0.00%	100.00%
	One Call		25,440	0.00%	100.00%	
	Publication Subscription		3,816	0.00%	100.00%	
	Non.City Water Reimburse		158,788	100.00%	0.00%	
	Total		\$ 9,577,647	\$ 3,275,727	\$ 6,301,919	
	<i>Allocation Factors</i>			<i>34.20%</i>	<i>65.80%</i>	

W-D Water Pipe Inventory

- Allocate costs between transmission and distribution functional categories. Assumes Pipes less than or equal to 16" are Distribution-related.

Breakdown		
Distribution	35,490,728	63.0%
Transmission	20,804,915	37.0%
Total	56,295,642	100.0%

W-K Water Pipe Inventory with Service Lines

Allocate Water Distribution costs between Transmission, Distribution, and Service Lines
 *No size records: assumption is all are 1"

Breakdown		
Distribution	35,490,728	58.83%
Transmission	20,804,915	34.49%
Service Lines	4,029,007	6.68%
Total	60,324,649	100.00%

Inch-Foot Analysis		
<i>Diameter (in)</i>	<i>Linear Feet</i>	<i>Inch-Feet</i>
0.75	799	599
1	1,314	1,314
1.5	983	1,474
2	11,004	22,009
2.5	16	39
3	268	803
4	116,991	467,963
6	2,144,789	12,868,735
8	1,181,921	9,455,372
10	81,965	819,651
12	619,567	7,434,805
14	1,296	18,147
15	15,500	232,496
16	260,458	4,167,320
18	468	8,425
20	209,715	4,194,304
24	85,229	2,045,495
28	104	2,911
30	116,456	3,493,670
36	83,180	2,994,494
42	11,013	462,562
42.5	13,261	563,591
48	16,706	801,908
50	23,263	1,163,137
50.25	12,001	603,043
60	54,606	3,276,383
66	1,492	98,501
72	3,626	261,064

Factor Derivations - Allocation to Functional Categories & Cost Components		
Code(s)	Description	Calculations

W-J	Engineering & Construction	2024 Water CIP Costs	\$\$ Amount	Allocation
		Treatment	\$ 26,885,665	9.65%
	- This factor uses the 2022 Water CIP costs to allocate Engineering & Construction costs to the various functional categories.	Storage	115,127,475	41.33%
		Trans. & Distr.	125,439,446	45.03%
		Admin	<u>11,101,650</u>	3.99%
		Total Water CIP	\$ 278,554,236	100.00%

W-BB Maximum Day

- Maximum day costs are allocated using a peak day determined using system daily production records. Fire demands are determined in HJS-7W.

Plant Production Data		
2020-2022 Avg Plant Production	63.88	mgd
2020-2022 Avg. Peak Day	89.85	mgd
Peak Hour Factor (1.6)	102.21	mgd

Base	57.74%	0.710955365
Maximum Day	40.66%	
Fire Protection	1.60%	

W-CC Peak Hour

- Peak hour costs are allocated using an estimated peak hour compared to system average and maximum day processed. Fire demands are determined in HJS-7W.

Plant Production Data		
2020-2022 Avg Plant Production	63.88	mgd
2020-2022 Avg. Peak Day	89.85	mgd
Peak Hour Factor (1.6)	102.21	mgd

Peak Hour / Avg	54.05%	
Max Day (Plug)	25.41%	
Peak Hr / Peak Day	12.09%	
Fire Protection	8.45%	

Equivalency Flow Ratios

- Used to escalate metering and readiness-to-serve costs, these ratios are industry standard and obtained from the American Waterworks Association

Equivalency Ratios						
	Flow			Fire Flow		Fire Equip
5/8"	1.00			2.50	1.00	
3/4"	1.50			8.00	6.19	
1"	2.50			25.00	38.32	
1 1/2"	5.00			50.00	111.31	
2"	8.00					
3"	16.00					
4"	25.00					
6"	50.00					
8"	80.00					
10"	115.00					
Unmetered	1.00					

Pittsburgh Water and Sewer Authority

HJS-6WW

FPPTY 2024 COS & Rate Design Model

Wastewater Conveyance Units of Service

	<u>Collection Factor</u>	FY 2024 Consumption	Allocated Consumption	Average Day	Equivalent Meters	Total Bills
Retail Units of Service						
Residential (1)	100.0%	3,415,730	3,415,730	9,358	1,062,056	1,006,062
Residential - CAP (1)	100.0%	258,808	258,808	709	96,319	95,382
Commercial (1)	100.0%	2,964,032	2,964,032	8,121	410,991	102,150
Industrial	100.0%	177,980	177,980	488	6,528	408
Health or Education	100.0%	1,014,670	1,014,670	2,780	76,631	5,269
Municipal - Residential	100.0%	1,908	1,908	5	465	399
Municipal - Commercial	100.0%	234,199	234,199	642	17,177	2,736
NRG	100.0%	15,986	15,986	-	-	-
Total: Wastewater Conveyance Units of Service		8,083,312	8,083,312	22,102	1,670,166	1,212,406

(1) Includes unmetered units and equivalent usage.

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
Wastewater Conveyance Unit Cost of Service

HJS-7WW

	FY 2024	Unit Costs				Total
		<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>	
Development of Unit Costs of Service	<i>FPPTY</i>					
<u>Units of Service</u>						
Total System Units		8,083,312	1,670,166	1,212,406	1,670,166	
Units		<i>kgal</i>	<i>Eq. Cost Meters</i>	<i>Total Bills</i>	<i>Eq. Flow Meters</i>	
<u>Revenue Requirements</u>						
Collection & Conveyance	\$ 28,225,978	\$ 28,225,978	\$ -	\$ -	\$ -	\$ 28,225,978
Meters	1,180,914	-	1,180,914	-	-	1,180,914
Billing	2,271,869	-	-	2,271,869	-	2,271,869
Admin Support	8,398,653	7,483,253	313,083	602,316	-	8,398,653
Infiltration & Inflow Costs	223,242	73,670	-	149,572	-	223,242
Readiness-to-Serve (Debt Service)	-	-	-	-	-	-
<i>Total: Revenue Requirements</i>	\$ 40,300,655	\$ 35,782,901	\$ 1,493,997	\$ 3,023,757	\$ -	\$ 40,300,655
Revenue Requirement Unit Costs (\$/unit)		\$ 4.4268	\$ 0.8945	\$ 2.4940	\$ -	
<u>Revenue Offsets</u>						
Wastewater Miscellaneous Revenue	(696,014)	(617,990)	(25,802)	(52,222)	-	(696,014)
<i>Total: Revenue Offsets</i>	\$ (696,014)	\$ (617,990)	\$ (25,802)	\$ (52,222)	\$ -	\$ (696,014)
Offset Unit Costs (\$/unit)		\$ (0.0765)	\$ (0.0154)	\$ (0.0431)	\$ -	
Total Unit Costs (\$/unit)		\$ 4.35	\$ 0.88	\$ 2.45	\$ -	
Total: Costs of Service		\$ 35,164,911	\$ 1,468,195	\$ 2,971,536	\$ -	\$ 39,604,641

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Cost Distribution to Customer Classes

HJS-8WW

	Unit Costs				Total
	Volume	Meter	Billing	Readiness-to-Serve	
Customer Class Cost of Service					
<u>Residential</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	3,415,730	1,062,056	1,006,062	1,062,056	
Cost of Service	\$ 14,859,484	\$ 933,623	\$ 2,465,799	\$ -	\$ 18,258,905
<u>Residential - CAP</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	258,808	96,319	95,382	96,319	
Cost of Service	\$ 1,125,895	\$ 84,671	\$ 233,776	\$ -	\$ 1,444,342
<u>Commercial</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	2,964,032	410,991	102,150	410,991	
Cost of Service	\$ 12,894,456	\$ 361,290	\$ 250,364	\$ -	\$ 13,506,110
<u>Industrial</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	177,980	6,528	408	6,528	
Cost of Service	\$ 774,268	\$ 5,738	\$ 1,000	\$ -	\$ 781,006
<u>Health or Education</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	1,014,670	76,631	5,269	76,631	
Cost of Service	\$ 4,414,127	\$ 67,364	\$ 12,914	\$ -	\$ 4,494,405
<u>Municipal - Residential</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	1,908	465	399	465	
Cost of Service	\$ 8,300	\$ 409	\$ 978	\$ -	\$ 9,687
<u>Municipal - Commercial</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	234,199	17,177	2,736	17,177	
Cost of Service	\$ 1,018,837	\$ 15,100	\$ 6,706	\$ -	\$ 1,040,643
<u>NRG</u>					
Unit Costs (\$/unit)	\$ 4.350	\$ 0.879	\$ 2.451	\$ -	
Units of Service	15,986				
Cost of Service	\$ 69,544	\$ -	\$ -	\$ -	\$ 69,544
Total: Wastewater Cost of Service	\$ 35,164,911	\$ 1,468,195	\$ 2,971,536	\$ -	\$ 39,604,641

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
 Adjustments to Allocated Cost of Service

HJS-9WW

COS Adjustments		Allocation Method	Residential	Residential - CAP	Commercial	Industrial	Health or Education	Municipal - Residential	Municipal - Commercial	NRG (Contract)	Total
<u>Adjustments to Cost of Service</u>											
Wholesale/Contract Adjustment	Unadj. COS		46.2%	3.7%	34.2%	2.0%	11.4%	0.0%	2.6%		100.0%
Add: Bad Debt Expense	Class Contribution		85.2%		12.7%	0.2%	1.9%		0.1%		100.0%
BDP Forgone Revenue	Unadj. COS		47.9%		35.5%	2.1%	11.8%	0.0%	2.7%		100.0%
Gradualism - Residential (1)	Unadj. COS						100.0%				100.0%
Gradualism - Industrial (2)	Unadj. COS		48.9%		36.2%		12.0%	0.0%	2.8%		100.0%
Gradualism - Stormwater (3)	Unadj. COS		47.9%		35.5%	2.1%	11.8%	0.0%	2.7%		100.0%
Cost of Service by Class											
Allocated Cost of Service (Unadjusted)			\$ 18,258,905	\$ 1,444,342	\$ 13,506,110	\$ 781,006	\$ 4,494,405	\$ 9,687	\$ 1,040,643	\$ 69,544	\$ 39,604,641
% of COS			46.1%	3.6%	34.1%	2.0%	11.3%	0.0%	2.6%	0.2%	99.8%
<u>Adjustments to Cost of Service</u>											
	<u>Adjustment</u>										
Wholesale/Contract Adjustment	\$ 4,465	\$ 2,062	\$ 163	\$ 1,525	\$ 88	\$ 508	\$ 1	\$ 118	\$ (4,465)	\$ -	
Add: Bad Debt Expense	1,077,678	917,981	-	136,806	2,003	19,996	-	892	-	1,077,678	
BDP Forgone Revenue	816,700	391,488	(816,700)	289,583	16,745	96,364	208	22,312	-	(0)	
Gradualism - Residential (1)	520,000	(520,000)	-	-	-	520,000	-	-	-	-	
Gradualism - Industrial (2)	3,000	1,468	-	1,086	(3,000)	361	1	84	-	(0)	
Gradualism - Stormwater (3)	9,500,000	4,553,850	-	3,368,483	194,786	1,120,924	2,416	259,541	-	9,500,000	
Total: Adjusted Cost of Service			\$ 23,605,755	\$ 627,804	\$ 17,303,594	\$ 991,628	\$ 6,252,558	\$ 12,312	\$ 1,323,588	\$ 65,079	\$ 50,182,319
% of COS			47.0%	1.3%	34.5%	2.0%	12.5%	0.0%	2.6%		100.0%

- (1) Gradualism adjustment to Residential as Health & Education subsidy is phased out
- (2) Gradualism adjusted such that class increase does not exceed 1.5x overall wastewater system increase
- (3) Transfer from Stormwater to Wastewater such that new Stormwater fee is phased in

Pittsburgh Water and Sewer Authority

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FPFTY 2024 COS & Rate Design Model

Forgone Revenue Cost of the Bill Discount Program

Units

5/8"
3/4"
1"
Unmetered

0.0%
0.0%
0.0%
0.0%

Bills	CAP Usage	CAP - 50FPL Usage
94,312	161,366	31,665
680	656	82
390	217	184
12	n/a	n/a
<u>95,394</u>	<u>162,239</u>	<u>31,931</u>

Forgone Revenue Cost

Fixed Charges
Volume Charges
Total Forgone Revenue Cost

Revenue At Full Rates	Revenue at CAP Rates	Difference
\$ 716,431	\$ -	\$ 716,431
<u>200,538</u>	<u>100,269</u>	<u>100,269</u>
916,969	100,269	816,700

Volume Discount

50.0%

	Min. Usage <i>Existing</i>	COS Rate Build-Up - Test Year: 2024								
		<i>Meter</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS Rates</i>	<i>Adjustments</i>		<i>Proposed Rates</i>		
						<i>R.T.S</i>	<i>CAP-BDP</i>			
Wastewater Conveyance										
<u>Minimum Charge</u>										
5/8"	1	\$ 0.88	\$ 2.45	\$ 3.06	\$ 6.39	\$ 1.03	\$ -	\$ -	\$ 7.42	
3/4"	2	1.32	2.45	6.11	9.88	1.54	-	-	11.43	
1"	5	2.20	2.45	15.28	19.93	2.57	-	-	22.50	
1 1/2"	10	4.40	2.45	30.56	37.41	5.15	-	-	42.56	
2"	17	7.03	2.45	51.95	61.44	8.24	-	-	69.68	
3"	40	14.07	2.45	122.24	138.76	16.48	-	-	155.24	
4"	70	21.98	2.45	213.93	238.36	25.75	-	-	264.10	
6"	175	43.95	2.45	534.82	581.22	51.49	-	-	632.71	
8"	325	70.33	2.45	993.23	1,066.01	82.39	-	-	1,148.40	
10" & Above	548	101.09	2.45	1,674.75	1,778.29	118.43	-	-	1,896.72	
Unmetered	1	0.88	2.45	3.06	6.39	1.03	-	-	7.42	
<u>Residential - CAP</u>										
5/8"	1	\$ 0.88	\$ 2.45	\$ 3.06	\$ 6.39	\$ 1.03	(7.42)	\$ -	-	
3/4"	2	1.32	2.45	6.11	9.88	1.54	(11.43)	-	-	
1"	5	2.20	2.45	15.28	19.93	2.57	(22.50)	-	-	
Unmetered	1	0.88	2.45	3.06	6.39	1.03	(7.42)	-	-	

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 Volume Charge Calculation

Unadjusted COS-Based Rates					
Unadjusted Revenue Requirement	Fixed Charge Revenue	Total Vol Revenue Requirement	Billed Volume	Proposed Rates	
Residential	\$ 18,258,905	\$ 6,894,822	\$ 11,364,084	2,407,557	\$ 4.72
Residential - CAP	1,444,342	510,514	933,828	194,206	4.81
Commercial	13,506,110	3,486,299	10,019,811	2,306,945	4.34
Industrial	781,006	69,718	711,287	167,004	4.26
Health or Education	4,494,405	741,102	3,753,303	858,874	4.37
Municipal - Residential	9,687	3,083	6,604	1,763	3.75
Municipal - Commercial	1,040,643	156,916	883,727	218,108	4.05
Totals	\$ 39,535,097	\$ 11,862,454	\$ 27,672,643	6,154,458	4.50

Determination of Proposed Rates					
Adjusted Revenue Requirement	Fixed Charge Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates	
Residential + CAP + City Res	\$ 24,245,871	\$ 7,995,989	\$ 16,249,882	2,587,561	6.28
Commercial + City Com	18,627,182	4,084,383	14,542,799	2,525,053	5.76
Industrial	991,628	76,441	915,187	167,004	5.49
Health or Education	6,252,558	820,029	5,432,529	858,874	6.33
Municipal - Commercial					
Municipal - Residential					
Totals	50,117,240	12,976,842	37,140,398	6,138,492	\$ 6.05

Class Increase	Ratio to Total Increase (1)
8.1%	1.25
7.2%	1.12
9.8%	1.51
0.0%	0.01
6.5%	1.00

Pittsburgh Water and Sewer Authority

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FPFTY 2024 COS & Rate Design Model

Proposed Rates

	2023 FTY Prior Tariff Rates	2024 FPFTY Proposed Rates	Percent Difference	Dollar Difference
Existing & Proposed Rates				
<u>Minimum Charge</u>				
5/8"	\$ 7.32	\$ 7.42	1.4%	\$ 0.10
3/4"	11.70	11.43	-2.3%	(0.27)
1"	24.27	22.50	-7.3%	(1.77)
1 1/2"	46.19	42.56	-7.9%	(3.63)
2"	76.29	69.68	-8.7%	(6.61)
3"	173.03	155.24	-10.3%	(17.79)
4"	297.52	264.10	-11.2%	(33.42)
6"	725.62	632.71	-12.8%	(92.91)
8"	1,330.48	1,148.40	-13.7%	(182.08)
10" & Above	2,218.44	1,896.72	-14.5%	(321.72)
<u>Minimum Charge - CAP (1)</u>				
5/8"	\$ -	\$ -	0.0%	\$ -
3/4"	-	-	0.0%	-
1"	-	-	0.0%	-
<u>Volume Charge</u>				
Residential	\$ 5.81	\$ 6.28	8.1%	\$ 0.47
Residential - CAP	5.81	6.28	8.1%	0.47
Residential - CAP (<50% FPL)	2.91	3.14	8.1%	0.24
Commercial	5.28	5.76	9.1%	0.48
Industrial	5.05	5.49	8.7%	0.44
Health or Education	6.38	6.33	-0.8%	(0.05)
Municipal - Residential (2)	4.65	6.28	35.1%	1.63
Municipal - Commercial (2)	4.22	5.76	36.4%	1.54
<u>Unmetered Charges (per Unit)</u>				
Residential	\$ 24.75	\$ 26.26	6.1%	\$ 1.51
Residential - CAP	17.43	18.84	8.1%	1.41
Commercial	28.44	30.46	7.1%	2.02
DSIC (Applies to all retail customers)	5.0%	7.5%	n/a	n/a

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers in all years.

(2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

Comparison of Base Rate Revenues by Customer Class

	FPFTY Revenue at Existing Rates	FPFTY Indicated COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 21,940,695	\$ 18,258,905	-16.8%	\$ (3,681,789)
Residential - CAP	1,035,580	1,444,342	39.5%	408,762
Commercial	16,474,903	13,506,110	-18.0%	(2,968,793)
Industrial	930,249	781,006	-16.0%	(149,243)
Health or Education	6,403,078	4,494,405	-29.8%	(1,908,673)
Municipal - Residential	13,834	9,687	-30.0%	(4,147)
Municipal - Commercial	1,346,083	1,040,643	-22.7%	(305,440)
NRG Contract	65,079	69,544	6.9%	4,465
Total: Base Rate Revenues	\$ 48,209,500	\$ 39,604,641	-17.8%	\$ (8,604,859)

	FPFTY Indicated COS by Customer Class	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 18,258,905	\$ 23,605,755	29.3%	\$ 5,346,849
Residential - CAP	1,444,342	627,804	-56.5%	(816,537)
Commercial	13,506,110	17,303,594	28.1%	3,797,483
Industrial	781,006	991,628	27.0%	210,623
Health or Education	4,494,405	6,252,558	39.1%	1,758,154
Municipal - Residential	9,687	12,312	27.1%	2,625
Municipal - Commercial	1,040,643	1,323,588	27.2%	282,946
NRG Contract	69,544	65,079	-6.4%	(4,465)
Total: Base Rate Revenues	\$ 39,604,641	\$ 50,182,319	26.7%	\$ 10,577,678

	FPFTY Revenue at Existing Rates	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 21,940,695	\$ 23,605,755	7.6%	\$ 1,665,060
Residential - CAP	1,035,580	627,804	-39.4%	(407,775)
Commercial	16,474,903	17,303,594	5.0%	828,690
Industrial	930,249	991,628	6.6%	61,380
Health or Education	6,403,078	6,252,558	-2.4%	(150,519)
Municipal - Residential	13,834	12,312	-11.0%	(1,522)
Municipal - Commercial	1,346,083	1,323,588	-1.7%	(22,494)
NRG Contract	65,079	65,079	0.0%	-
Total: Base Rate Revenues	\$ 48,209,500	\$ 50,182,319	4.1%	\$ 1,972,819

	FPFTY Revenue at Existing Rates	FPFTY Revenue at Proposed Rates	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 21,940,695	\$ 23,111,883	5.3%	\$ 1,171,188
Residential - CAP	1,035,580	1,119,353	8.1%	83,773
Commercial	16,474,903	17,197,777	4.4%	722,874
Industrial	930,249	993,291	6.8%	63,043
Health or Education	6,403,078	6,256,703	-2.3%	(146,374)
Municipal - Residential	13,834	14,635	5.8%	801
Municipal - Commercial	1,346,083	1,430,914	6.3%	84,831
NRG Contract	65,079	65,079	0.0%	-
Total: Base Rate Revenues	\$ 48,209,500	\$ 50,189,636	4.1%	\$ 1,980,136

	Unadjusted COS (1)		Revenue at Existing Rates		Revenue at Proposed Rates		Proposed Increase	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Base Rate Revenues								
Residential	\$ 18,258,905	46.1%	\$ 21,940,695	45.5%	\$ 23,111,883	46.0%	\$ 1,171,188	5.3%
Residential - CAP	1,444,342	3.6%	1,035,580	2.1%	1,119,353	2.2%	83,773	8.1%
Commercial	13,506,110	34.1%	16,474,903	34.2%	17,197,777	34.3%	722,874	4.4%
Industrial	781,006	2.0%	930,249	1.9%	993,291	2.0%	63,043	6.8%
Health or Education	4,494,405	11.3%	6,403,078	13.3%	6,256,703	12.5%	(146,374)	-2.3%
Municipal - Residential	9,687	0.0%	13,834	0.0%	14,635	0.0%	801	5.8%
Municipal - Commercial	1,040,643	2.6%	1,346,083	2.8%	1,430,914	2.9%	84,831	6.3%
Wholesale & Bulk	69,544	0.2%	65,079	0.1%	65,079	0.1%	-	0.0%
Subtotal: Base Rate Revenues	\$ 39,604,641	100.0%	\$ 48,209,500	100.0%	\$ 50,189,636	100.0%	\$ 1,980,136	4.1%
DSIC Revenues								
Residential	n/a	n/a	\$ 1,097,035	45.6%	\$ 1,733,391	46.1%	\$ 636,356	
Residential - CAP	n/a	n/a	51,779	2.2%	83,951	2.2%	32,172	
Commercial	n/a	n/a	823,745	34.2%	1,289,833	34.3%	466,088	
Industrial	n/a	n/a	46,512	1.9%	74,497	2.0%	27,984	
Health or Education	n/a	n/a	320,154	13.3%	469,253	12.5%	149,099	
Municipal - Residential	n/a	n/a	692	0.0%	1,098	0.0%	406	
Municipal - Commercial	n/a	n/a	67,304	2.8%	107,319	2.9%	40,014	
Subtotal: DSIC Revenues	n/a	n/a	\$ 2,407,221	100.0%	\$ 3,759,342	100.0%	\$ 1,352,121	
Total: User Charge Revenues	\$ 39,604,641		\$ 50,616,721		\$ 53,948,977		\$ 3,332,256	6.6%
Other Revenues								
Miscellaneous Revenues	696,014		696,014		696,014		-	0.0%
Total: Wastewater Conveyance Revenues	\$ 40,300,655		\$ 51,312,735		\$ 54,644,992		\$ 3,332,256	6.5%

(1) Difference between COS & proposed base rate revenue is attributed to BDE, stormwater gradualism, and rounding.

Pittsburgh Water and Sewer Authority

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FPFTY 2024 COS & Rate Design Model

Typical Bill Comparison

	Customer Usage		FTY Existing Rates		FPFTY Proposed Rates	Percent Difference	Dollar Difference
Customer Impacts (1)							
<u>Residential</u>							
	5/8"	1 kgal	\$ 7.69	\$	7.98	3.8%	\$ 0.29
	5/8"	3 kgal	19.89		21.48	8.0%	1.59
	5/8"	5 kgal	32.09		34.98	9.0%	2.89
	5/8"	7 kgal	44.29		48.48	9.5%	4.19
	5/8"	12 kgal	74.79		82.24	10.0%	7.45
	1"	20 kgal	116.99		125.45	7.2%	8.46
<u>Commercial</u>							
	5/8"	3 kgal	\$ 18.77	\$	20.36	8.5%	\$ 1.59
	5/8"	5 kgal	29.86		32.74	9.7%	2.88
	5/8"	12 kgal	68.67		76.09	10.8%	7.42
	1"	13 kgal	69.84		73.72	5.6%	3.89
	2"	80 kgal	429.38		465.00	8.3%	35.63
	4"	160 kgal	811.36		841.19	3.7%	29.83
<u>Industrial</u>							
	1"	30 kgal	\$ 158.05	\$	171.73	8.7%	\$ 13.69
	1"	60 kgal	317.12		348.78	10.0%	31.66
	2"	100 kgal	520.21		564.75	8.6%	44.54
	4"	680 kgal	3,546.92		3,883.98	9.5%	337.05
	6"	400 kgal	1,954.96		2,008.06	2.7%	53.09
	8"	800 kgal	3,915.69		4,037.86	3.1%	122.17
<u>Health or Education</u>							
	5/8"	5 kgal	\$ 34.48	\$	35.20	2.1%	\$ 0.71
	5/8"	10 kgal	67.98		69.22	1.8%	1.24
	1"	40 kgal	259.95		262.35	0.9%	2.41
	2"	50 kgal	301.17		299.46	-0.6%	(1.71)
	4"	200 kgal	1,183.27		1,168.53	-1.2%	(14.74)
	6"	650 kgal	3,943.93		3,912.42	-0.8%	(31.51)

(1) Customer bills at existing rates include a 5% DSIC and proposed rates include a 7.5% DSIC.

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenues									
Minimum Charges									
Residential									
5/8"	945,171	\$ 7.32	\$ 6,918,652	945,171	\$ 6.39	\$ 6,035,972	945,171	\$ 7.42	\$ 7,013,169
3/4"	31,308	11.70	366,304	31,308	9.88	309,378	31,308	11.43	357,850
1"	24,933	24.27	605,124	24,933	19.93	496,893	24,933	22.50	560,993
1 1/2"	546	46.19	25,220	546	37.41	20,424	546	42.56	23,238
2"	108	76.29	8,239	108	61.44	6,635	108	69.68	7,525
Unmetered	3,996	24.75	98,901	3,996	6.39	25,519	3,996	26.26	104,935
Subtotal: Residential	1,006,062		\$ 8,022,439	1,006,062		\$ 6,894,822	1,006,062		\$ 8,067,710
Residential - CAP									
5/8"	77,884	\$ -	\$ -	77,884	\$ 6.39	\$ 497,376	77,884	\$ -	\$ -
3/4"	632	-	-	632	9.88	6,245	632	-	-
1"	342	-	-	342	19.93	6,816	342	-	-
Unmetered	12	17.43	209	12	-	-	12	18.84	226
Subtotal: Residential - CAP	78,870		\$ 209	78,870		\$ 510,437	78,870		\$ 226
Commercial									
5/8"	44,741	\$ 7.32	\$ 327,504	44,741	\$ 6.39	\$ 285,721	44,741	\$ 7.42	\$ 331,978
3/4"	9,787	11.70	114,508	9,787	9.88	96,713	9,787	11.43	111,865
1"	20,095	24.27	487,706	20,095	19.93	400,476	20,095	22.50	452,138
1 1/2"	10,506	46.19	485,272	10,506	37.41	393,002	10,506	42.56	447,135
2"	10,736	76.29	819,049	10,736	61.44	659,591	10,736	69.68	748,084
3"	2,797	173.03	483,965	2,797	138.76	388,112	2,797	155.24	434,206
4"	2,316	297.52	689,056	2,316	238.36	552,030	2,316	264.10	611,656
6"	1,085	725.62	787,298	1,085	581.22	630,627	1,085	632.71	686,490
8"	75	1,330.48	99,786	75	1,066.01	79,951	75	1,148.40	86,130
10" & Above	-	2,218.44	-	-	1,778.29	-	-	1,896.72	-
Unmetered	12	28.44	341	12	6.39	77	12	30.46	366
Subtotal: Commercial	102,150		\$ 4,294,485	102,150		\$ 3,486,299	102,150		\$ 3,910,049
Industrial									
5/8"	84	\$ 7.32	\$ 615	84	\$ 6.39	\$ 536	84	\$ 7.42	\$ 623
3/4"	12	11.70	140	12	9.88	119	12	11.43	137
1"	69	24.27	1,675	69	19.93	1,375	69	22.50	1,553
1 1/2"	-	46.19	-	-	37.41	-	-	42.56	-
2"	85	76.29	6,485	85	61.44	5,222	85	69.68	5,923
3"	33	173.03	5,710	33	138.76	4,579	33	155.24	5,123
4"	77	297.52	22,909	77	238.36	18,353	77	264.10	20,336
6"	24	725.62	17,415	24	581.22	13,949	24	632.71	15,185
8"	24	1,330.48	31,932	24	1,066.01	25,584	24	1,148.40	27,562
10" & Above	-	2,218.44	-	-	1,778.29	-	-	1,896.72	-
Subtotal: Industrial	408		\$ 86,880	408		\$ 69,718	408		\$ 76,441
Health or Education									
5/8"	359	\$ 7.32	\$ 2,628	359	\$ 6.39	\$ 2,293	359	\$ 7.42	\$ 2,664
3/4"	96	11.70	1,123	96	9.88	949	96	11.43	1,097
1"	239	24.27	5,801	239	19.93	4,763	239	22.50	5,378
1 1/2"	755	46.19	34,873	755	37.41	28,243	755	42.56	32,133
2"	1,559	76.29	118,936	1,559	61.44	95,781	1,559	69.68	108,631
3"	1,048	173.03	181,335	1,048	138.76	145,421	1,048	155.24	162,692
4"	800	297.52	238,016	800	238.36	190,684	800	264.10	211,280
6"	373	725.62	270,656	373	581.22	216,796	373	632.71	236,001
8"	21	1,330.48	27,940	21	1,066.01	22,386	21	1,148.40	24,116
10" & Above	19	2,218.44	42,150	19	1,778.29	33,787	19	1,896.72	36,038
Subtotal: Health or Education	5,269		\$ 923,459	5,269		\$ 741,102	5,269		\$ 820,029
Municipal - Residential									
5/8"	375	\$ 7.32	\$ 2,745	375	\$ 6.39	\$ 2,393	375	\$ 7.42	\$ 2,783
3/4"	-	11.70	-	-	6.39	-	-	11.43	-
1"	12	24.27	291	12	-	-	12	22.50	270
1 1/2"	12	46.19	554	12	-	-	12	42.56	511
2"	-	76.29	-	-	-	-	-	69.68	-
3"	-	173.03	-	-	-	-	-	155.24	-
4"	-	297.52	-	-	6.39	-	-	264.10	-
6"	-	725.62	-	-	9.88	-	-	632.71	-
8"	-	1,330.48	-	-	19.93	-	-	1,148.40	-
10" & Above	-	2,218.44	-	-	-	-	-	1,896.72	-
Subtotal: Municipal - Residential	399		\$ 3,591	399		\$ 23,039	399		\$ 3,563
Municipal - Commercial									
5/8"	803	\$ 7.32	\$ 5,878	803	\$ 6.39	\$ 5,128	803	\$ 7.42	\$ 5,958
3/4"	89	11.70	1,041	89	9.88	879	89	11.43	1,017
1"	565	24.27	13,713	565	19.93	11,260	565	22.50	12,713
1 1/2"	409	46.19	18,892	409	37.41	15,300	409	42.56	17,407
2"	602	76.29	45,927	602	61.44	36,985	602	69.68	41,947
3"	167	173.03	28,896	167	138.76	23,173	167	155.24	25,925
4"	25	297.52	7,438	25	238.36	5,959	25	264.10	6,603
6"	47	725.62	34,104	47	581.22	27,317	47	632.71	29,737
8"	29	1,330.48	38,584	29	1,066.01	30,914	29	1,148.40	33,304
10" & Above	-	2,218.44	-	-	1,778.29	-	-	1,896.72	-
Subtotal: Municipal - Commercial	2,736		\$ 194,472	2,736		\$ 156,916	2,736		\$ 174,611
Subtotal: Minimum Charges			\$ 13,525,536			\$ 11,882,334			\$ 13,052,629

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Volume Charge									
Residential	2,395,569	\$ 5.81	\$ 13,918,255	2,395,569	\$ 4.72	\$ 11,307,085	2,395,569	\$ 6.28	\$ 15,044,173
Residential - CAP	162,239	5.81	942,611	162,239	4.81	780,372	162,239	6.28	1,018,864
Residential - CAP - 50FPL	31,931	2.91	92,760	31,931	4.34	138,580	31,931	3.14	100,263
Commercial	2,306,897	5.28	12,180,418	2,306,897	4.34	10,011,934	2,306,897	5.76	13,287,729
Industrial	167,004	5.05	843,369	167,004	4.26	711,436	167,004	5.49	916,850
Health or Education	858,874	6.38	5,479,618	858,874	4.37	3,753,281	858,874	6.33	5,436,675
Municipal - Residential	1,763	5.81	10,243	1,763	3.75	6,612	1,763	6.28	11,072
Municipal - Commercial	218,108	5.28	1,151,611	218,108	4.05	883,338	218,108	5.76	1,256,303
Subtotal: Volume Charge	6,142,386		\$ 34,618,885			\$ 27,592,638	6,142,386		\$ 37,071,928
Wholesale and Contract Revenues			\$ 65,079			\$ 69,544			\$ 65,079
Total: Base Rate Revenues			\$ 48,209,500			\$ 39,544,515			\$ 50,189,636
DSIC Revenues									
Residential			1,097,035			\$ 1,365,143			\$ 1,733,391
Residential - CAP			51,779			96,811			83,951
Commercial			823,745			1,012,368			1,289,833
Industrial			46,512			58,587			74,497
Health or Education			320,154			337,079			469,253
Municipal - Residential			692			727			1,098
Municipal - Commercial			67,304			78,019			107,319
Total: DSIC Revenues			\$ 2,407,221			\$ 2,948,733			\$ 3,759,342
Other Revenues									
Other Revenues			696,014			696,014			696,014
Total: System Revenues			\$ 51,312,735			\$ 43,189,262			\$ 54,644,992
FPPTY Wastewater Conveyance Revenue Requirements						\$ 54,637,675			\$ 54,637,675
Difference						\$ (11,448,413)			\$ 7,317

(1) Note difference in COS rates is combination of bad debt, DSIC, and Stormwater gradualism.

Pittsburgh Water and Sewer Authority

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FPFTY 2024 COS & Rate Design Model

Projected Units of Service

	FY 2020 <i>Actual</i>	FY 2021 <i>Actual</i>	HTY FY 2022 <i>Actual</i>	FTY FY 2023 <i>Projected</i>	FPFTY FY 2024 <i>Projected</i>
Units of Service					
<u>Number of Bills</u>					
Residential	1,035,309	1,033,432	1,029,504	1,029,504	1,006,062
Residential - CAP	43,155	53,677	64,440	71,940	95,382
Commercial	99,481	101,018	102,150	102,150	102,150
Industrial	524	416	408	408	408
Health or Education	5,688	5,520	5,269	5,269	5,269
Municipal	2,579	2,940	3,135	3,135	3,135
<i>Total</i>	<u>1,186,736</u>	<u>1,197,003</u>	<u>1,204,906</u>	<u>1,212,406</u>	<u>1,212,406</u>
<u>Billable Consumption (kgal)</u>					
Residential	2,592,137	2,435,500	2,303,751	2,443,796	2,395,569
Residential - CAP	110,800	136,746	146,068	145,943	194,170
Commercial	2,293,724	2,318,856	2,308,112	2,306,897	2,306,897
Industrial	184,338	206,245	110,428	167,004	167,004
Health or Education	832,652	911,462	832,509	858,874	858,874
Municipal	200,073	248,852	210,688	219,871	219,871
<i>Total</i>	<u>6,213,724</u>	<u>6,257,661</u>	<u>5,911,557</u>	<u>6,142,386</u>	<u>6,142,386</u>
<u>Total Consumption (kgal) (1)</u>					
Residential	3,628,227	3,463,346	3,312,153	3,467,909	3,403,742
Residential - CAP	149,128	173,561	201,247	194,606	258,772
Commercial	2,947,520	2,989,247	2,955,185	2,963,984	2,963,984
Industrial	195,819	217,775	120,345	177,980	177,980
Health or Education	989,429	1,071,055	983,525	1,014,670	1,014,670
Municipal	212,065	263,122	233,133	236,107	236,107
<i>Total</i>	<u>8,122,187</u>	<u>8,178,107</u>	<u>7,805,587</u>	<u>8,055,254</u>	<u>8,055,254</u>
<u>Wholesale & Contract Consumption</u>					
NRG	109,255	15,986	15,794	15,794	15,794

(1) Total consumption represents actual customer usage including the usage captured in minimum allowance.

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
 2025 and 2026 Wastewater Conveyance Revenue Requirements

HJS-18WW

	2025	2026
	Revenue Requirements	Revenue Requirements
Revenue Requirements		
<u>Operating Expenses</u>		
<i>Direct Operating Expenses</i>		
Administrative Division		
Executive Director	\$ 484,779	\$ 515,321
Customer Service	3,696,522	3,965,186
Management Information Systems	1,005,000	1,069,591
Finance	1,589,494	1,687,854
Human Resources	412,617	437,108
Legal	614,314	652,427
Safety & Security	341,355	364,627
Public Affairs	308,124	327,411
Operations Division		
Environmental Compliance	1,593,390	1,691,579
Ops Capital Assets	-	-
Warehouse	82,162	88,672
Water Treatment Plant	-	-
Water Quality (Lab)	-	-
Water Distribution	-	-
Sewer Operations	6,593,741	8,169,281
Engineering & Construction		
Engineering & Construction	5,795,235	6,149,812
<i>Other Operating Expenses</i>		
Loss / (Gain) on ALCOSAN Billings	2,400,861	2,771,926
City Services	-	-
Non-City Water Payments	-	-
<i>Total Operating Expenses</i>	<u>\$ 24,917,595</u>	<u>\$ 27,890,795</u>
<u>Debt Service</u>		
Existing Debt	\$ 14,804,837	\$ 15,022,465
Future Debt	5,304,097	6,925,693
<i>Subtotal: Debt Service</i>	<u>\$ 20,108,934</u>	<u>\$ 21,948,158</u>
<u>Capital Expenditures & Transfers</u>		
Internally Generated Funds / PAYGO	\$ 161,291	\$ 1,407,658
Internally Generated Funds / PAYGO (DSIC)	4,238,190	4,896,878
Other Transfers to Reserves	1,750,000	4,250,000
Bad Debt Expense	1,297,729	1,528,191
DWSL	250,000	250,000
Hardship	128,000	128,000
Arrearage	142,012	142,012
<i>Subtotal: Capital Expenditures & Transfers</i>	<u>\$ 7,967,222</u>	<u>\$ 12,602,739</u>
Total: Wastewater Conveyance System Revenue Requirements	\$ 52,993,750	\$ 62,441,692
<i>Capital Costs to be Recovered through DSIC</i>	\$ (4,238,190)	\$ (4,896,878)
Total: Wastewater Conveyance System Base Rate Revenue Requirement	\$ 48,755,561	\$ 57,544,814

Pittsburgh Water and Sewer Authority

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FPFTY 2024 COS & Rate Design Model

Revenue Increase Needed for 2025 and 2026

	<u>2024</u>	<u>2025</u>	<u>2026</u>
Revenue Requirement	\$ 41,378,333	\$ 48,755,561	\$ 57,544,814
Stormwater Gradualism	9,500,000	8,500,000	8,500,000
Offsetting Misc Revenue	(696,014)	(709,934)	(724,133)
Contract Revenue	(65,079)	(65,405)	(65,731)
Net Rate Revenue Requirement	\$ 50,117,240	\$ 56,480,222	\$ 65,254,949
<i>Increase</i>		<i>12.70%</i>	<i>15.54%</i>
Revenue at Existing Rates + New Charges			
Existing Retail Rates	\$ 48,046,585	\$ 50,124,557	\$ 52,216,572
New Charges	-	-	4,292,623
Total	\$ 48,046,585	\$ 50,124,557	\$ 56,509,195
Net Rate Revenue Need	\$ 2,070,655	\$ 6,355,665	\$ 8,745,754
<i>Increase</i>		<i>12.68%</i>	<i>15.48%</i>
Offsetting New Charge Revenue			
Infrastructure Improvement Charge	\$ -	\$ 2,956,313	\$ 3,036,213
Customer Assistance Charge	-	1,336,310	1,572,130
Subtotal New Charge Revenue	\$ -	\$ 4,292,623	\$ 4,608,343
Incremental New Charge Revenue Applied	\$ -	\$ 4,292,623	\$ 315,720
Net Retail Base Rate Increase Need	\$ 2,070,655	\$ 2,063,042	\$ 8,430,034
<i>Increase</i>		<i>4.12%</i>	<i>16.22%</i>

Pittsburgh Water and Sewer Authority
 FPPTY 2024 COS & Rate Design Model
 2025 Minimum Charge Calculation

HJS-20WW

	Min. Usage <i>Proposed</i>	COS Rate Build-Up - Test Year: 2025								
		<i>Meter</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS Rates</i>	<i>Adjustments</i>		<i>Proposed Rates</i>		
						<i>R.T.S</i>	<i>CAP-BDP</i>			
Wastewater Conveyance										
<u>Minimum Charge</u>										
5/8"	0	\$ 0.92	\$ 2.55	\$ -	\$ 3.47	\$ 0.51	\$ -	\$ -	\$ 3.98	
3/4"	0	1.37	2.55	-	3.92	0.77	-	-	4.69	
1"	0	2.29	2.55	-	4.84	1.28	-	-	6.12	
1 1/2"	0	4.58	2.55	-	7.13	2.57	-	-	9.69	
2"	0	7.32	2.55	-	9.87	4.11	-	-	13.98	
3"	0	14.64	2.55	-	17.20	8.21	-	-	25.41	
4"	0	22.88	2.55	-	25.43	12.83	-	-	38.26	
6"	0	45.76	2.55	-	48.31	25.66	-	-	73.97	
8"	0	73.22	2.55	-	75.77	41.06	-	-	116.83	
10" & Above	0	105.25	2.55	-	107.81	59.02	-	-	166.82	
Unmetered	0	0.92	2.55	-	3.47	0.51	-	-	3.98	
<u>Residential - CAP</u>										
5/8"	0	\$ 0.92	\$ 2.55	\$ -	\$ 3.47	\$ 0.51	(3.98)	\$ -	-	
3/4"	0	1.37	2.55	-	3.92	0.77	(4.69)	-	-	
1"	0	2.29	2.55	-	4.84	1.28	(6.12)	-	-	
Unmetered	0	0.92	2.55	-	3.47	0.51	(3.98)	-	-	

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 2025 Volume Charge Calculation

HJS-21WW

Determination of Proposed Rates							
	2024 Adjusted Revenue Requirement	2025 Adjusted Revenue Requirement	Fixed Charge Revenue	New Charges Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates
<u>Volume Charge (per kgal)</u>							
Residential + CAP	\$ 24,245,871	\$ 27,324,176	\$ 4,085,592	\$ 1,920,543	\$ 21,318,041	3,723,164	\$ 5.73
Commercial + Municipal	18,627,182	20,992,127	879,108	1,728,049	18,384,970	3,198,243	5.75
Industrial	991,628	1,117,527	10,365	96,109	1,011,053	177,980	5.69
Health or Education	6,252,558	7,046,396	122,904	547,922	6,375,570	1,014,670	6.29
Municipal - Metered							
Municipal - Unmetered							
<i>Totals</i>	50,117,240	56,480,227	5,097,969	4,292,623	47,089,635	8,114,056	\$ 5.80

Infrastructure Improvement Charge

Allocated Debt Service

	<u>2025</u>	<u>2026</u>
Existing PENNVEST	\$ -	\$ -
Future PENNVEST	2,966,541	3,046,886
Future WIFIA	-	-
Total PENNVEST Costs	\$ 2,966,541	\$ 3,046,886
Coverage Component	1.00	1.00
Total Charge Recovery	\$ 2,966,541	\$ 3,046,886
Units	8,119,421	8,119,421
Infrastructure Improvement Charge Unit Rate	\$ 0.37	\$ 0.38
	per kgal	per kgal

Incorporated Unit Rate \$ **0.37** \$ **0.38** per Kgal

Customer Assistance Charge

Allocated Customer Assistance Program Costs

Forgone Revenue	\$ 995,637	\$ 1,174,453
Operations	82,711	89,149
Hardship	128,000	128,000
Arrearage	142,012	142,012
Total Charge Recovery	\$ 1,348,360	\$ 1,533,614
Units (Less CAP units)	7,860,649	7,860,649
Customer Assistance Charge Unit Rate	\$ 0.17	\$ 0.20
	per kgal	per kgal

Incorporated Unit Rate \$ **0.17** \$ **0.20** per Kgal

	2023		2024		2025		2026		Percent Difference		
	FTY Prior Tariff Rates		FPFTY Proposed Rates		Proposed Rates		Proposed Rates		2024	2025	2026
	Existing & Proposed Rates										
<u>Minimum Charge</u>											
5/8"	\$	7.32	\$	7.42	\$	3.98	\$	4.63	1.4%	-46.4%	16.3%
3/4"		11.70		11.43		4.69		5.45	-2.3%	-59.0%	16.2%
1"		24.27		22.50		6.12		7.11	-7.3%	-72.8%	16.2%
1 1/2"		46.19		42.56		9.69		11.26	-7.9%	-77.2%	16.2%
2"		76.29		69.68		13.98		16.25	-8.7%	-79.9%	16.2%
3"		173.03		155.24		25.41		29.53	-10.3%	-83.6%	16.2%
4"		297.52		264.10		38.26		44.47	-11.2%	-85.5%	16.2%
6"		725.62		632.71		73.97		85.97	-12.8%	-88.3%	16.2%
8"		1,330.48		1,148.40		116.83		135.78	-13.7%	-89.8%	16.2%
10" & Above		2,218.44		1,896.72		166.82		193.88	-14.5%	-91.2%	16.2%
<u>Minimum Charge - CAP (1)</u>											
5/8"	\$	-	\$	-	\$	-	\$	-	0.0%	0.0%	0.0%
3/4"		-		-		-		-	0.0%	0.0%	0.0%
1"		-		-		-		-	0.0%	0.0%	0.0%
<u>Volume Charge</u>											
Residential	\$	5.81	\$	6.28	\$	5.73	\$	6.66	8.1%	-8.8%	16.2%
Residential - CAP		5.81		6.28		5.73		6.66	8.1%	-8.8%	16.2%
Residential - CAP - 50FPL		2.91		3.14		2.87		3.33	8.1%	-8.8%	16.2%
Commercial		5.28		5.76		5.75		6.68	9.1%	-0.2%	16.2%
Industrial		5.05		5.49		5.69		6.61	8.7%	3.6%	16.2%
Health or Education		6.38		6.33		6.29		7.31	-0.8%	-0.6%	16.2%
Municipal - Residential (2)		4.65		6.28		5.73		6.66	35.1%	-8.8%	16.2%
Municipal - Commercial (2)		4.22		5.76		5.75		6.68	36.4%	-0.2%	16.2%
<u>Unmetered Charges (per Unit)</u>											
Residential	\$	24.75	\$	26.26	\$	26.90	\$	31.27	6.1%	2.4%	16.2%
Residential - CAP		17.43		18.84		22.92		26.64	8.1%	21.7%	16.2%
Commercial		28.44		30.46		32.73		38.03	7.1%	7.5%	16.2%
<u>Infrastructure Improvement Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	0.37	\$	0.38	0.0%	0.0%	2.7%
<u>Customer Assistance Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	0.17	\$	0.20	0.0%	0.0%	17.6%
DSIC (Applies to all retail customers)		5.0%		7.5%		7.5%		7.5%			

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers.
 (2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenues									
<u>Minimum Charges</u>									
<i>Residential</i>									
5/8"	945,171	\$ 7.42	\$ 7,013,169	945,171	\$ 3.98	\$ 3,761,781	945,171	\$ 4.63	\$ 4,376,142
3/4"	31,308	11.43	357,850	31,308	4.69	146,835	31,308	5.45	170,629
1"	24,933	22.50	560,993	24,933	6.12	152,590	24,933	7.11	177,274
1 1/2"	546	42.56	23,238	546	9.69	5,291	546	11.26	6,148
2"	108	69.68	7,525	108	13.98	1,510	108	16.25	1,755
Unmetered	3,996	26.26	104,935	3,996	26.90	107,492	3,996	31.27	124,955
<i>Subtotal: Residential</i>	1,006,062		\$ 8,067,710	1,006,062		\$ 4,175,498	1,006,062		\$ 4,856,902
<i>Residential - CAP</i>									
5/8"	77,884	\$ -	\$ -	77,884	\$ -	\$ -	77,884	\$ -	\$ -
3/4"	632	-	-	632	-	-	632	-	-
1"	342	-	-	342	-	-	342	-	-
Unmetered	12	18.84	226	12	22.92	275	12	26.64	320
<i>Subtotal: Residential - CAP</i>	78,870		\$ 226	78,870		\$ 275	78,870		\$ 320
<i>Commercial</i>									
5/8"	44,741	\$ 7.42	\$ 331,978	44,741	\$ 3.98	\$ 178,069	44,741	\$ 4.63	\$ 207,151
3/4"	9,787	11.43	111,865	9,787	4.69	45,901	9,787	5.45	53,339
1"	20,095	22.50	452,138	20,095	6.12	122,981	20,095	7.11	142,875
1 1/2"	10,506	42.56	447,135	10,506	9.69	101,803	10,506	11.26	118,298
2"	10,736	69.68	748,084	10,736	13.98	150,089	10,736	16.25	174,460
3"	2,797	155.24	434,206	2,797	25.41	71,072	2,797	29.53	82,595
4"	2,316	264.10	611,656	2,316	38.26	88,610	2,316	44.47	102,993
6"	1,085	632.71	686,490	1,085	73.97	80,257	1,085	85.97	93,277
8"	75	1,148.40	86,130	75	116.83	8,762	75	135.78	10,184
10" & Above	-	1,896.72	-	-	166.82	-	-	193.88	-
Unmetered	12	30.46	366	12	32.73	393	12	38.03	456
<i>Subtotal: Commercial</i>	102,150		\$ 3,910,049	102,150		\$ 847,938	102,150		\$ 985,628
<i>Industrial</i>									
5/8"	84	\$ 7.42	\$ 623	84	\$ 3.98	\$ 334	84	\$ 4.63	\$ 389
3/4"	12	11.43	137	12	4.69	56	12	5.45	65
1"	69	22.50	1,553	69	6.12	422	69	7.11	491
1 1/2"	-	42.56	-	-	9.69	-	-	11.26	-
2"	85	69.68	5,923	85	13.98	1,188	85	16.25	1,381
3"	33	155.24	5,123	33	25.41	839	33	29.53	974
4"	77	264.10	20,336	77	38.26	2,946	77	44.47	3,424
6"	24	632.71	15,185	24	73.97	1,775	24	85.97	2,063
8"	24	1,148.40	27,562	24	116.83	2,804	24	135.78	3,259
10" & Above	-	1,896.72	-	-	166.82	-	-	193.88	-
<i>Subtotal: Industrial</i>	408		\$ 76,441	408		\$ 10,365	408		\$ 12,047
<i>Health or Education</i>									
5/8"	359	\$ 7.42	\$ 2,664	359	\$ 3.98	\$ 1,429	359	\$ 4.63	\$ 1,662
3/4"	96	11.43	1,097	96	4.69	450	96	5.45	523
1"	239	22.50	5,378	239	6.12	1,463	239	7.11	1,699
1 1/2"	755	42.56	32,133	755	9.69	7,316	755	11.26	8,501
2"	1,559	69.68	108,631	1,559	13.98	21,795	1,559	16.25	25,334
3"	1,048	155.24	162,692	1,048	25.41	26,630	1,048	29.53	30,947
4"	800	264.10	211,280	800	38.26	30,608	800	44.47	35,576
6"	373	632.71	236,001	373	73.97	27,591	373	85.97	32,067
8"	21	1,148.40	24,116	21	116.83	2,453	21	135.78	2,851
10" & Above	19	1,896.72	36,038	19	166.82	3,170	19	193.88	3,684
<i>Subtotal: Health or Education</i>	5,269		\$ 820,029	5,269		\$ 122,904	5,269		\$ 142,845
<i>Municipal - Residential</i>									
5/8"	375	\$ 7.42	\$ 2,783	375	\$ 3.98	\$ 1,493	375	\$ 4.63	\$ 1,736
3/4"	-	11.43	-	-	4.69	-	-	5.45	-
1"	12	22.50	270	12	6.12	73	12	7.11	85
1 1/2"	12	42.56	511	12	9.69	116	12	11.26	135
<i>Subtotal: Municipal - Residential</i>	399		\$ 3,563	399		\$ 1,682	399		\$ 1,957
<i>Municipal - Commercial</i>									
5/8"	803	\$ 7.42	\$ 5,958	803	\$ 3.98	\$ 3,196	803	\$ 4.63	\$ 3,718
3/4"	89	11.43	1,017	89	4.69	417	89	5.45	485
1"	565	22.50	12,713	565	6.12	3,458	565	7.11	4,017
1 1/2"	409	42.56	17,407	409	9.69	3,963	409	11.26	4,605
2"	602	69.68	41,947	602	13.98	8,416	602	16.25	9,783
3"	167	155.24	25,925	167	25.41	4,243	167	29.53	4,932
4"	25	264.10	6,603	25	38.26	957	25	44.47	1,112
6"	47	632.71	29,737	47	73.97	3,477	47	85.97	4,041
8"	29	1,148.40	33,304	29	116.83	3,388	29	135.78	3,938
10" & Above	-	1,896.72	-	-	166.82	-	-	193.88	-
<i>Subtotal: Municipal - Commercial</i>	2,736		\$ 174,611	2,736		\$ 31,515	2,736		\$ 36,629
<i>Subtotal: Minimum Charges</i>			\$ 13,052,629			\$ 5,190,178			\$ 6,036,328

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Volume Charge									
Residential	2,395,569	\$ 6.28	\$ 15,044,173	3,467,909	\$ 5.73	\$ 19,871,116	3,467,909	\$ 6.66	\$ 23,096,271
Residential - CAP	162,239	6.28	1,018,864	215,859	5.73	1,236,874	215,859	6.66	1,437,623
Residential - CAP - 50FPL	31,931	3.14	100,263	42,913	2.87	122,945	42,913	3.33	142,899
Commercial	2,306,897	5.76	13,287,729	2,963,984	5.75	17,042,907	2,963,984	6.68	19,799,413
Industrial	167,004	5.49	916,850	177,980	5.69	1,012,706	177,980	6.61	1,176,447
Health or Education	858,874	6.33	5,436,675	1,014,670	6.29	6,382,272	1,014,670	7.31	7,417,235
Municipal - Residential	1,763	6.28	11,072	1,908	5.73	10,932	1,908	6.66	12,706
Municipal - Commercial	218,108	5.76	1,256,303	234,199	5.75	1,346,643	234,199	6.68	1,564,447
Subtotal: Volume Charge	6,142,386		\$ 37,071,928	8,119,421		\$ 47,026,394			\$ 54,647,042
Wholesale and Contract Revenues			\$ 65,079			\$ 65,405			\$ 65,731
Infrastructure Improvement Charge									
Residential	2,395,569	\$ -	\$ -	3,467,909	\$ 0.37	\$ 1,283,126	3,467,909	\$ 0.38	\$ 1,317,805
Residential - CAP	162,239	-	-	215,859	0.19	39,934	215,859	0.19	41,013
Residential - CAP - 50FPL	31,931	-	-	42,913	0.19	7,939	42,913	0.19	8,153
Commercial	2,306,897	-	-	2,963,984	0.37	1,096,674	2,963,984	0.38	1,126,314
Industrial	167,004	-	-	177,980	0.37	65,853	177,980	0.38	67,632
Health or Education	858,874	-	-	1,014,670	0.37	375,428	1,014,670	0.38	385,574
Municipal - Residential	1,763	-	-	1,908	0.37	706	1,908	0.38	725
Municipal - Commercial	218,108	-	-	234,199	0.37	86,654	234,199	0.38	88,996
Subtotal: Infrastructure Improvement Charge	6,142,386		\$ -	8,119,421		\$ 2,956,313			\$ 3,036,213
Customer Assistance Charge									
Residential	2,395,569	\$ -	\$ -	3,467,909	\$ 0.17	\$ 589,544	3,467,909	\$ 0.20	\$ 693,582
Residential - CAP	162,239	-	-	215,859	-	-	215,859	-	-
Residential - CAP - 50FPL	31,931	-	-	42,913	-	-	42,913	-	-
Commercial	2,306,897	-	-	2,963,984	0.17	503,877	2,963,984	0.20	592,797
Industrial	167,004	-	-	177,980	0.17	30,257	177,980	0.20	35,596
Health or Education	858,874	-	-	1,014,670	0.17	172,494	1,014,670	0.20	202,934
Municipal - Residential	1,763	-	-	1,908	0.17	324	1,908	0.20	382
Municipal - Commercial	218,108	-	-	234,199	0.17	39,814	234,199	0.20	46,840
Subtotal: Customer Assistance Charge	6,142,386		\$ -	8,119,421		\$ 1,336,310			\$ 1,572,130
Total: Base Rate Revenues			\$ 50,189,636			\$ 56,574,600			\$ 65,357,444
DSIC Revenues									
Residential			\$ 1,733,391			\$ 1,943,946			\$ 2,247,342
Residential - CAP			83,951			105,597			122,251
Commercial			1,289,833			1,461,855			1,687,811
Industrial			74,497			83,938			96,879
Health or Education			469,253			528,982			611,144
Municipal - Residential			1,098			1,023			1,183
Municipal - Commercial			107,319			112,847			130,268
Total: DSIC Revenues			\$ 3,759,342			\$ 4,238,190			\$ 4,896,878
Other Revenues									
Other Revenues			696,014			709,934			724,133
Total: System Revenues			\$ 54,644,992			\$ 61,522,724			\$ 70,978,455
FPPTY Wastewater Conveyance Revenue Requirements						\$ 61,493,750	\$ 70,941,692		
Difference						\$ 28,973	\$ 36,763		

(1) Note difference in COS rates is combination of bad debt and DSIC.

Pittsburgh Water and Sewer Authority

HJS-24WW

FPFTY 2024 COS & Rate Design Model

Typical Bill Comparison

	FTY 2023	FPFTY 2024	2025	2026
Customer Impacts				
<u>Residential - 5/8" / 3 Kgal</u>				
Sewer Base Rates	\$ 18.94	\$ 19.98	\$ 21.17	\$ 24.61
New Sewer Charges	-	-	1.62	1.74
Sewer DSIC	0.95	1.50	1.71	1.98
Total Monthly Bill	\$ 19.89	\$ 21.48	\$ 24.50	\$ 28.33
\$ Change		\$ 1.59	\$ 3.02	\$ 3.83
% Change		<i>8.0%</i>	<i>14.1%</i>	<i>15.6%</i>
<u>Commercial - 1" / 13kgal</u>				
Sewer Base Rates	\$ 66.51	\$ 68.58	\$ 80.87	\$ 93.95
New Sewer Charges	-	-	7.02	7.54
Sewer DSIC	3.33	5.14	6.59	7.61
Total Monthly Bill	\$ 69.84	\$ 73.72	\$ 94.48	\$ 109.10
\$ Change		\$ 3.89	\$ 20.76	\$ 14.62
% Change		<i>5.6%</i>	<i>28.2%</i>	<i>15.5%</i>
<u>Industrial - 4" / 680kgal</u>				
Sewer Base Rates	\$ 3,378.02	\$ 3,613.00	\$ 3,907.46	\$ 4,539.27
New Sewer Charges	-	-	367.20	394.40
Sewer DSIC	168.90	270.98	320.60	370.03
Total Monthly Bill	\$ 3,546.92	\$ 3,883.98	\$ 4,595.26	\$ 5,303.70
\$ Change		\$ 337.05	\$ 711.28	\$ 708.44
% Change		<i>9.5%</i>	<i>18.3%</i>	<i>15.4%</i>
<u>Health or Education - 2" / 50kgal</u>				
Sewer Base Rates	\$ 286.83	\$ 278.57	\$ 328.48	\$ 381.75
New Sewer Charges	-	-	27.00	29.00
Sewer DSIC	14.34	20.89	26.66	30.81
Total Monthly Bill	\$ 301.17	\$ 299.46	\$ 382.14	\$ 441.56
\$ Change		\$ (1.71)	\$ 82.68	\$ 59.42
% Change		<i>-0.6%</i>	<i>27.6%</i>	<i>15.5%</i>

Exhibits
HJS-1SW to HJS-13SW
(Stormwater Schedules)

Pittsburgh Water and Sewer Authority
 FPPTY 2024 COS & Rate Design Model
 FPPTY Stormwater Revenue Requirements

HJS-1SW

	2024 FPPTY Revenue Requirements
Stormwater Revenue Requirements	
<u>Operating Expenses</u>	
<i>Direct Operating Expenses</i>	
Administrative Division	
Executive Director	\$ 486,323
Customer Service	3,398,059
Management Information Systems	1,109,457
Finance	1,588,198
Procurement	-
Human Resources	355,019
Legal	614,434
Safety & Security	341,197
Public Affairs	277,310
Operations Division	
Environmental Compliance	1,507,555
Ops Capital Assets	-
Warehouse	82,002
Water Treatment Plant	-
Water Quality (Lab)	-
Water Distribution	-
Sewer Operations	5,970,047
Engineering & Construction Division	
Engineering & Construction	5,741,630
<i>Subtotal: Direct Operating Expenses</i>	\$ 21,471,231
<i>Other Operating Expenses</i>	
Loss / (Gain) on ALCOSAN Billings	\$ -
<i>Subtotal: Other Operating Expenses</i>	\$ -
<i>Subtotal: Operating Expenses</i>	\$ 21,471,231
<u>Debt Service</u>	
Existing Debt	14,635,683
Proposed Debt	2,099,203
<i>Subtotal: Debt Service</i>	\$ 16,734,886
<u>Capital Expenditures & Transfers</u>	
Internally Generated Funds / PAYGO	\$ -
Internally Generated Funds / PAYGO - DSIC	-
Other Transfers to Reserves	110,000
Bad Debt Expense	1,533,142
Stormwater Credit Program Cost	180,489
<i>Subtotal: Capital Expenditures & Transfers</i>	\$ 1,643,142
Total: Stormwater Revenue Requirements	\$ 40,029,748
<i>Capital Costs to be Recovered through DSIC</i>	-
Total: Stormwater System Base Rate Revenue Requirement	\$ 40,029,748

Pittsburgh Water and Sewer Authority

HJS-2SW

FPFTY 2024 COS & Rate Design Model

Net Revenue Requirements

FY 2024

Proposed

Determination of Revenue Requirement

Operating Expenses \$ 21,471,231

Debt Service

Existing \$ 14,635,683

Proposed 2,099,203

Subtotal: Debt Service \$ 16,734,886

Other Capital Costs

Internally Generated Funds / PAYGO \$ -

Internally Generated Funds / PAYGO - DSIC -

Other Transfers to Reserves 110,000

Bad Debt Expense (1) 1,533,142

Stormwater Credit Program Cost (1) 180,489

Subtotal: Other Capital Costs \$ 1,823,631

Total: Revenue Requirements **\$ 40,029,748**

Revenue Offsets

Allocated Offsets \$ (698,179)

Less: Gradualism Adjustment (9,500,000)

Total: Net Revenue Requirements for Ratemaking **\$ 29,831,569**

(1) Varies based on level of revenue requirement and fee.

Pittsburgh Water and Sewer Authority

HJS-3SW

FPPTY 2024 COS & Rate Design Model

Stormwater Units of Service

Units of Service

<u>Billable Units - Non Stormwater Only</u>	<u>Parcels</u>	<u>Equivalencies</u>	<u>Equivalent Units</u>
Residential Rate (per ERU)			
Tier 1	11,231	0.5	5,615
Tier 2	58,537	1.0	58,537
Tier 3	12,782	2.0	25,564
Other	-	1.0	-
<i>Subtotal: Residential Units</i>	<u>82,550</u>		<u>89,716</u>
Residential - CAP			
Tier 1	1,457	0.5	729
Tier 2	5,658	1.0	5,658
Tier 3	669	2.0	1,338
Other	-	1.0	-
<i>Subtotal: Residential - CAP Units</i>	<u>7,784</u>		<u>7,725</u>
Commercial	15,670	1.0	71,110
Industrial	76	1.0	1,512
Health or Education	1,049	1.0	11,595
Municipal	967	1.0	6,021
Other	22,464	1.0	28,126
<i>Subtotal: Billable Units - Non Stormwater Only</i>	<u>130,560</u>		<u>215,805</u>
<u>Stormwater Only</u>			
Residential - SW Only			
Tier 1	407	0.5	204
Tier 2	599	1.0	599
Tier 3	121	2.0	242
Other	-	1.0	-
<i>Subtotal: Residential - SW Only</i>	<u>1,127</u>		<u>1,045</u>
Non-Residential	<u>10,730</u>	1.0	<u>32,026</u>
<i>Subtotal: Stormwater Only</i>	<u>11,857</u>		<u>33,071</u>
<i>Total: Billable Units</i>	142,417		248,876

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Stormwater COS by Customer Class

HJS-4SW

	<u>FY 2024</u>
Unit Cost Determination	COS
Stormwater Revenue Requirements	\$ 40,029,748
Less: Allocated Offsets	(698,179)
<i>Net Stormwater Revenue Requirements</i>	<u>\$ 39,331,569</u>
Stormwater ERUs	<u>248,876</u>
Annual Stormwater Cost per ERU	\$ 158.04

Customer Class Cost of Service	ERUs	Full COS Rate		COS by Class	% by Class
		Unit Rate	Unit Rate (Monthly)		
Residential	90,761	\$ 158.04	\$ 13.17	\$ 14,343,579	36.5%
Residential - CAP	7,725	158.04	13.17	1,220,834	3.1%
Commercial	103,136	158.04	13.17	16,299,284	41.4%
Industrial	1,512	158.04	13.17	238,952	0.6%
Health or Education	11,595	158.04	13.17	1,832,437	4.7%
Municipal	6,021	158.04	13.17	951,540	2.4%
Other	28,126	158.04	13.17	4,444,943	11.3%
	<u>248,876</u>			<u>\$ 39,331,569</u>	<u>100.0%</u>

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
 Adjustments to Cost of Service - Stormwater

HJS-5SW

COS Adjustments		Allocation Method	Residential	Residential - CAP	Commercial	Industrial	Health or Education	Municipal	Other	Total
Adjustments to Cost of Service										
Gradualism - Between WW/Storm	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Add: Bad Debt Expense	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Add: Bad Debt Expense (SWO)	Unadj. COS (Weighted by SWO)		2.9%	0.2%	66.4%	1.0%	7.5%	3.9%	18.1%	100.0%
Add: Cost of Credits and Incentives	Unadj. COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
BDP Forgone Revenue	Unadj. COS		37.6%		42.8%	0.6%	4.8%	2.5%	11.7%	100.0%
Cost of Service by Class										
Allocated Cost of Service (Unadjusted)			\$ 14,343,579	\$ 1,220,834	\$ 16,299,284	\$ 238,952	\$ 1,832,437	\$ 951,540	\$ 4,444,943	\$ 39,331,569
Exclude: Bad Debt & Credit Program			(624,933)	(53,190)	(710,141)	(10,411)	(79,837)	(41,457)	(193,661)	(1,713,631)
Net Cost of Service (1)			\$ 13,718,646	\$ 1,167,644	\$ 15,589,143	\$ 228,541	\$ 1,752,600	\$ 910,082	\$ 4,251,282	\$ 37,617,938
<i>% of COS</i>			36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Adjustments to Cost of Service										
Gradualism - Between WW/Storm	Adjustment	\$ (9,500,000)	\$ (3,464,494)	\$ (294,876)	\$ (3,936,868)	\$ (57,715)	\$ (442,600)	\$ (229,831)	\$ (1,073,615)	\$ (9,500,000)
Add: Bad Debt Expense (NSWO)		573,351	209,092	17,797	237,601	3,483	26,712	13,871	64,796	573,351
Add: Bad Debt Expense (SWO)		959,791	27,949	2,379	637,417	9,345	71,661	37,212	173,829	959,791
Add: Cost of Credits and Incentives		180,489	65,821	5,602	74,796	1,097	8,409	4,367	20,397	180,489
BDP Forgone Revenue		808,292	304,213	(808,292)	345,692	5,068	38,864	20,181	94,273	-
Total: Adjusted Cost of Service			\$10,861,227	\$ 90,254	\$12,947,780	\$ 189,818	\$ 1,455,646	\$ 755,881	\$ 3,530,962	\$ 29,831,569
<i>% of COS</i>			36.4%	0.3%	43.4%	0.6%	4.9%	2.5%	11.8%	100.0%

(1) Net Cost of Service excludes Bad Debt Expense and Cost of Credits and Incentives since these costs vary based on the amount of the Stormwater fee.

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 Stormwater Rate Design

HJS-6SW

Unit Cost for Ratemaking

FY 2024

Net Stormwater Revenue Requirements	\$ 29,831,569
Add: Cost of BDP Forgone Revenue	808,292
Net Costs to Recover for Ratemaking	<u>\$ 30,639,860</u>
Stormwater ERUs	<u>248,876</u>
Annual Stormwater Cost per ERU for Ratemaking	\$ 123.11
Monthly Stormwater Charge per ERU	\$ 10.26

Monthly Stormwater Rates

	Units	Proposed Rate (\$/ERU)	Revenues	Class COS	Difference (\$)	Difference (%)
<u>Residential</u>						
Tier 1	11,638	\$ 5.13	\$ 716,435			
Tier 2	59,136	10.26	7,280,824			
Tier 3	12,903	20.52	3,177,235			
Other	-	10.26	-			
<i>Subtotal: Residential</i>	<u>83,677</u>		<u>11,174,494</u>	\$ 10,861,227	\$ 313,267	2.8%
<u>Residential - CAP</u>						
Tier 1	1,457	\$ 0.77	\$ 13,463			
Tier 2	5,658	1.54	104,560			
Tier 3	669	3.08	24,726			
Other	-	1.54	-			
<i>Subtotal: Residential - CAP</i>	<u>7,784</u>		<u>142,749</u>	\$ 90,254	\$ 52,494	36.8%
<u>Non-Residential</u>						
Commercial	103,136	\$ 10.26	\$ 12,698,104			
Industrial	1,512	10.26	186,157			
Health or Education	11,595	10.26	1,427,576			
Municipal	6,021	10.26	741,306			
Other	28,126	10.26	3,462,873			
<i>Subtotal: Non-Residential</i>	<u>150,390</u>		<u>18,516,017</u>	\$ 18,880,087	\$ (364,071)	-2.0%
<i>Total Stormwater</i>	<u>241,851</u>		<u>29,833,260</u>	\$ 29,831,569	\$ 1,691	0.0%

	Unadjusted COS		Revenue at Existing Rates		Revenue at Proposed Rates		Proposed Increase	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Base Rate Revenues								
Residential	\$ 14,343,579	36.5%	\$ 8,659,298	37.5%	\$ 11,174,494	37.5%	\$ 2,515,197	29.0%
Residential - CAP	1,220,834	3.1%	111,233	0.5%	142,749	0.5%	31,516	28.3%
Commercial	16,299,284	41.4%	9,839,174	42.6%	12,698,104	42.6%	2,858,930	29.1%
Industrial	238,952	0.6%	144,245	0.6%	186,157	0.6%	41,913	29.1%
Health or Education	1,832,437	4.7%	1,106,163	4.8%	1,427,576	4.8%	321,413	29.1%
Municipal	951,540	2.4%	574,403	2.5%	741,306	2.5%	166,902	29.1%
Other	4,444,943	11.3%	2,683,220	11.6%	3,462,873	11.6%	779,653	29.1%
Subtotal: Base Rate Revenues	\$ 39,331,569	100.0%	\$ 23,117,736	100.0%	\$ 29,833,260	100.0%	\$ 6,715,523	29.0%
DSIC Revenues								
Residential	n/a	n/a	\$ -	0.0%	\$ -	0.0%	-	0.0%
Residential - CAP	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Commercial	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Industrial	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Health or Education	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Municipal	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Subtotal: DSIC revenues	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
Total: User Charge Revenues	\$ 39,331,569		\$ 23,117,736		\$ 29,833,260		\$ 6,715,523	100.0%
Other Revenues	698,179		698,179		698,179		-	0.0%
Total: Stormwater Conveyance Revenues	\$ 40,029,748		\$ 23,815,916		\$ 30,531,439		\$ 6,715,523	100.0%

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenue									
Non-Stormwater Only									
<i>Residential</i>									
Tier 1	11,231	\$ 3.98	\$ 536,393	11,231	\$ 6.58	\$ 887,456	11,231	\$ 5.13	\$ 691,380
Tier 2	58,537	7.95	5,584,430	58,537	13.17	9,251,001	58,537	10.26	7,207,075
Tier 3	12,782	15.90	2,438,806	12,782	26.34	4,040,053	12,782	20.52	3,147,440
Other	-	7.95	-	-	13.17	-	-	10.26	-
<i>Subtotal: Residential</i>	82,550		\$ 8,559,628	82,550		\$ 14,178,509	82,550		\$ 11,045,895
<i>Residential - CAP</i>									
Tier 1	1,457	\$ 0.60	\$ 10,490	1,457	\$ 6.58	\$ 115,130	1,457	\$ 0.77	\$ 13,463
Tier 2	5,658	1.20	81,475	5,658	13.17	894,172	5,658	1.54	104,560
Tier 3	669	2.40	19,267	669	26.34	211,453	669	3.08	24,726
Other	-	1.20	-	-	13.17	-	-	1.54	-
<i>Subtotal: Residential - CAP</i>	7,784		\$ 111,233	7,784		\$ 1,220,755	7,784		\$ 142,749
<i>Non-Residential</i>									
Commercial	71,110	\$ 7.95	\$ 6,783,894	71,110	\$ 13.17	\$ 11,237,997	71,110	\$ 10.26	\$ 8,755,063
Industrial	1,512	7.95	144,245	1,512	13.17	238,952	1,512	10.26	186,157
Health or Education	11,595	7.95	1,106,163	11,595	13.17	1,832,437	11,595	10.26	1,427,576
Municipal	6,021	7.95	574,403	6,021	13.17	951,540	6,021	10.26	741,306
Other	28,126	7.95	2,683,220	28,126	13.17	4,444,943	28,126	10.26	3,462,873
<i>Subtotal: Non-Residential</i>	118,364		\$ 11,291,926			\$ 18,705,869	118,364		\$ 14,572,976
<i>Subtotal: Non-Stormwater Only</i>			\$ 19,962,786			\$ 34,105,133			\$ 25,761,620
Stormwater Only									
<i>Residential - SW Only</i>									
Tier 1	407	\$ 3.98	\$ 19,438	407	\$ 6.58	\$ 32,160	407	\$ 5.13	\$ 25,055
Tier 2	599	7.95	57,145	599	13.17	94,664	599	10.26	73,749
Tier 3	121	15.90	23,087	121	26.34	38,245	121	20.52	29,795
Other	-	7.95	-	-	13.17	-	-	10.26	-
<i>Subtotal: Residential - SW Only</i>	1,127		\$ 99,670	1,127		\$ 165,069	1,127		\$ 128,599
Non-Residential	32,026	7.95	3,055,280	32,026	13.17	5,061,287	32,026	10.26	3,943,041
<i>Subtotal: Stormwater Only</i>			\$ 3,154,950			\$ 5,226,356			\$ 4,071,640
Stormwater User Charge Revenue			\$ 23,117,736			\$ 39,331,490			\$ 29,833,260
DSIC Revenues									
Residential			\$ -			\$ -			\$ -
Non-Residential			-			-			-
<i>Subtotal: DSIC Revenues</i>			\$ -			\$ -			\$ -
Other Revenues									
Other Revenues			698,179			698,179			698,179
Total: System Revenues			\$ 23,815,916			\$ 40,029,669			\$ 30,531,439
FPPTY Stormwater Revenue Requirements						\$ 40,029,748			\$ 30,529,748
Difference						\$ (79)			\$ 1,691

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 2025 and 2026 Stormwater Revenue Requirements

HJS-9SW

	2025	2026
	Revenue Requirements	Revenue Requirements
Stormwater Revenue Requirements		
<u>Operating Expenses</u>		
<i>Direct Operating Expenses</i>		
Administrative Division		
Executive Director	\$ 511,924	\$ 544,175
Customer Service	3,642,506	3,913,045
Management Information Systems	1,061,273	1,129,481
Finance	1,678,494	1,782,362
Procurement	-	-
Human Resources	435,720	461,583
Legal	648,711	688,958
Safety & Security	360,469	385,044
Public Affairs	325,377	345,744
Operations Division		
Environmental Compliance	1,593,390	1,691,579
Ops Capital Assets	-	-
Warehouse	86,762	93,637
Water Treatment Plant	-	-
Water Quality (Lab)	-	-
Water Distribution	-	-
Sewer Operations	7,211,721	8,824,340
Engineering & Construction Division		
Engineering & Construction	5,902,574	6,264,330
<i>Subtotal: Direct Operating Expenses</i>	\$ 23,458,921	\$ 26,124,277
<i>Other Operating Expenses</i>		
Loss / (Gain) on ALCOSAN Billings	\$ -	\$ -
City Services	-	-
Non-City Water Payments	-	-
<i>Subtotal: Other Operating Expenses</i>	\$ -	\$ -
<i>Subtotal: Operating Expenses</i>	\$ 23,458,921	\$ 26,124,277
<u>Debt Service</u>		
Existing Debt	14,804,837	15,022,465
Proposed Debt	4,247,298	5,268,314
<i>Subtotal: Debt Service</i>	\$ 19,052,135	\$ 20,290,779
<u>Capital Expenditures & Transfers</u>		
Internally Generated Funds / PAYGO	\$ 209,276	\$ 1,017,221
Internally Generated Funds / PAYGO - DSIC	-	-
Other Transfers to Reserves	770,000	1,870,000
Bad Debt Expense	1,846,195	2,174,058
Stormwater Credit Program Cost	212,102	241,305
<i>Subtotal: Capital Expenditures & Transfers</i>	\$ 2,825,471	\$ 5,061,279
Total: Stormwater Revenue Requirements	\$ 45,548,629	\$ 51,717,641

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Revenue Increase Needed for 2025 and 2026

HJS-10SW

	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
Revenue Requirement	\$ 40,029,748	\$ 45,548,629	\$ 51,717,641
Stormwater Gradualism	(9,500,000)	(8,500,000)	(8,500,000)
Offsetting Misc Revenue	(698,179)	(712,143)	(726,386)
	<hr/>	<hr/>	<hr/>
Net Rate Revenue Requirement	\$ 29,831,569	\$ 36,336,487	\$ 42,491,255
<i>Increase</i>		<i>21.81%</i>	<i>16.94%</i>
Revenue at Existing Rates	\$ 23,303,779	\$ 29,833,260	\$ 36,341,353
Net Rate Revenue Need	\$ 6,527,790	\$ 6,503,227	\$ 6,149,902
<i>Increase</i>	<i>28.01%</i>	<i>21.80%</i>	<i>16.92%</i>
Offsetting New Charge Revenue			
Infrastructure Improvement Charge	\$ -	\$ -	\$ -
Customer Assistance Charge	\$ -	\$ 1,041,772	\$ 1,215,401
	<hr/>	<hr/>	<hr/>
Subtotal New Charge Revenue	\$ -	\$ 1,041,772	\$ 1,215,401
Incremental Revenue Applied	\$ -	\$ 1,041,772	\$ 173,629
Net Retail Base Rate Increase Nee	\$ 6,527,790	\$ 5,461,454	\$ 5,976,273
<i>Increase</i>	<i>28.01%</i>	<i>18.31%</i>	<i>16.93%</i>

Unit Cost for Ratemaking	<u>FY 2025</u>	<u>FY 2026</u>
Net Stormwater Revenue Requirements	\$ 36,336,383	\$ 42,491,275
Add: Cost of BDP Forgone Revenue	-	-
Less: Cost of CAP Program (Recovered thru New Charge)	(81,860)	(88,231)
Net Costs to Recover for Ratemaking	\$ 36,254,523	\$ 42,403,045
Stormwater ERUs	248,876	248,876
Annual Stormwater Cost per ERU for Ratemaking	\$ 145.67	\$ 170.38
Monthly Stormwater Charge per ERU	\$ 12.14	\$ 14.20

Monthly Stormwater Rates

Residential

	Units	Proposed Rate (\$/ERU)	Revenues
Tier 1	11,638	\$ 6.07	\$ 847,712
Tier 2	59,136	12.14	8,614,932
Tier 3	12,903	24.28	3,759,418
Other	-	12.14	-

Subtotal: Residential 83,677 13,222,062

Residential - CAP

Tier 1	85%	1,457	\$ 0.91	\$ 15,910
Tier 2	85%	5,658	1.82	123,571
Tier 3	85%	669	3.64	29,222
Other	85%	-	1.82	-

Subtotal: Residential - CAP 7,784 168,703

Non-Residential

Commercial	103,136	\$ 12.14	\$ 15,024,852
Industrial	1,512	12.14	220,268
Health or Education	11,595	12.14	1,689,160
Municipal	6,021	12.14	877,139
Other	28,126	12.14	4,097,396

Subtotal: Non-Residential 150,390 21,908,815

Total Stormwater 241,851 35,299,581

Customer Assistance Charge	<u>2025</u>	<u>2026</u>
<u>Allocated Customer Assistance Program Costs</u>		
Forgone Revenue	\$ 956,602	\$ 1,118,904
Operations	81,860	88,231
Total Charge Recovery	\$ 1,038,462	\$ 1,207,135
Units (Less CAP units)	241,151	241,151
Customer Assistance Charge Unit Rate	\$ 0.36	\$ 0.42
	per ERU / Mo	per ERU / Mo
Incorporated New Charge Unit Rate		
Tier 1	\$ 0.18	\$ 0.21
Tier 2	0.36	0.42
Tier 3	0.72	0.84
All Other	0.36	0.42

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenue									
<u>Non-Stormwater Only</u>									
Residential									
Tier 1	11,231	\$ 5.13	\$ 691,380	11,231	\$ 6.07	\$ 818,066	11,231	\$ 7.10	\$ 956,881
Tier 2	58,537	10.26	7,207,075	58,537	12.14	8,527,670	58,537	14.20	9,974,705
Tier 3	12,782	20.52	3,147,440	12,782	24.28	3,724,164	12,782	28.40	4,356,106
Other	-	10.26	-	-	12.14	-	-	14.20	-
<i>Subtotal: Residential</i>	82,550		\$ 11,045,895	82,550		\$ 13,069,900	82,550		\$ 15,287,692
Residential - CAP									
Tier 1	1,457	\$ 0.77	\$ 13,463	1,457	\$ 0.91	\$ 15,910	1,457	\$ 1.06	\$ 18,533
Tier 2	5,658	1.54	104,560	5,658	1.82	123,571	5,658	2.13	144,618
Tier 3	669	3.08	24,726	669	3.64	29,222	669	4.26	34,199
Other	-	1.54	-	-	1.82	-	-	2.13	-
<i>Subtotal: Residential - CAP</i>	7,784		\$ 142,749	7,784		\$ 168,703	7,784		\$ 197,351
Non-Residential									
Commercial	71,110	\$ 10.26	\$ 8,755,063	71,110	\$ 12.14	\$ 10,359,305	71,110	\$ 14.20	\$ 12,117,144
Industrial	1,512	10.26	186,157	1,512	12.14	220,268	1,512	14.20	257,645
Health or Education	11,595	10.26	1,427,576	11,595	12.14	1,689,160	11,595	14.20	1,975,788
Municipal	6,021	10.26	741,306	6,021	12.14	877,139	6,021	14.20	1,025,978
Other	28,126	10.26	3,462,873	28,126	12.14	4,097,396	28,126	14.20	4,792,670
<i>Subtotal: Non-Residential</i>	118,364		\$ 14,572,976	118,364		\$ 17,243,268			\$ 20,169,226
<i>Subtotal: Non-Stormwater Only</i>			\$ 25,761,620			\$ 30,481,870			\$ 35,654,268
<u>Stormwater Only</u>									
Residential - SW Only									
Tier 1	407	\$ 5.13	\$ 25,055	407	\$ 6.07	\$ 29,646	407	\$ 7.10	\$ 34,676
Tier 2	599	10.26	73,749	599	12.14	87,262	599	14.20	102,070
Tier 3	121	20.52	29,795	121	24.28	35,255	121	28.40	41,237
Other	-	10.26	-	-	12.14	-	-	14.20	-
<i>Subtotal: Residential - SW Only</i>	1,127		\$ 128,599	1,127		\$ 152,163	1,127		\$ 177,983
Non-Residential	32,026	10.26	\$ 3,943,041	32,026	12.14	4,665,548	32,026	14.20	5,457,230
<i>Subtotal: Stormwater Only</i>			\$ 4,071,640			\$ 4,817,710			\$ 5,635,213
<u>Customer Assistance Charge</u>									
Residential	90,761	\$ -	\$ -	90,761	\$ 0.36	\$ 392,088	90,761	\$ 0.42	\$ 457,435
Residential - CAP	7,725	-	-	7,725	-	-	7,725	-	-
Commercial	103,136	-	-	103,136	0.36	445,548	103,136	0.42	519,805
Industrial	1,512	-	-	1,512	0.36	6,532	1,512	0.42	7,620
Health or Education	11,595	-	-	11,595	0.36	50,090	11,595	0.42	58,439
Municipal	6,021	-	-	6,021	0.36	26,011	6,021	0.42	30,346
Other	28,126	-	-	28,126	0.36	121,504	28,126	0.42	141,755
<i>Subtotal: Customer Assistance Charge</i>	248,876		\$ -	248,876		\$ 1,041,772			\$ 1,215,401
Stormwater User Charge Revenue			\$ 29,833,260			\$ 36,341,353			\$ 42,504,882
DSIC Revenues									
Residential			\$ -			\$ -			\$ -
Non-Residential			-			-			-
<i>Subtotal: DSIC Revenues</i>			\$ -			\$ -			\$ -
Other Revenues									
Other Revenues			698,179			712,143			726,386
Total: System Revenues			\$ 30,531,439			\$ 37,053,496			\$ 43,231,268
FPPTY Stormwater Revenue Requirements			\$ -			\$ 37,048,629			\$ 43,217,641
Difference						\$ 4,866			\$ 13,627

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Typical Bill Comparison

HJS-13SW

	FTY 2023	FPFTY 2024	2025	2026
Customer Impacts				
<u>Residential - 1 ERU</u>				
Stormwater Base Rates	\$ 7.95	\$ 10.26	\$ 12.14	\$ 14.20
New Stormwater Charges	-	-	0.36	0.42
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 7.95	\$ 10.26	\$ 12.50	\$ 14.62
\$ Change		\$ 2.31	\$ 2.24	\$ 2.12
% Change		29.1%	21.8%	17.0%
<u>Commercial - 8 ERU</u>				
Stormwater Base Rates	\$ 63.60	\$ 82.08	\$ 97.12	\$ 113.60
New Stormwater Charges	-	-	2.88	3.36
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 63.60	\$ 82.08	\$ 100.00	\$ 116.96
\$ Change		\$ 18.48	\$ 17.92	\$ 16.96
% Change		29.1%	21.8%	17.0%
<u>Industrial - 30 ERU</u>				
Stormwater Base Rates	\$ 238.50	\$ 307.80	\$ 364.20	\$ 426.00
New Stormwater Charges	-	-	10.80	12.60
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 238.50	\$ 307.80	\$ 375.00	\$ 438.60
\$ Change		\$ 69.30	\$ 67.20	\$ 63.60
% Change		29.1%	21.8%	17.0%
<u>Health or Education - 32 ERU</u>				
Stormwater Base Rates	\$ 254.40	\$ 328.32	\$ 388.48	\$ 454.40
New Stormwater Charges	-	-	11.52	13.44
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 254.40	\$ 328.32	\$ 400.00	\$ 467.84
\$ Change		\$ 73.92	\$ 71.68	\$ 67.84
% Change		29.1%	21.8%	17.0%

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

KEITH READLING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Stormwater Program Revenue Requirements
Identifying Impervious Area
Stormwater Fee Structure, Stormwater Fee Billing,
Stormwater Credit Program

May 9, 2023

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TABLE OF EXHIBITS

Appendix A	Resume of K. Reading
Exhibit KR-1	Technical Memorandum #4 – Revenue Requirements, prepared by Black & Veatch for PWSA, dated August 1, 2013
Exhibit KR-2	Stormwater Fee Credit Manual Proposed Revisions to be Effective 2/8/24

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Keith Readling. My business address is 807 E Main Street, Suite 6-050,
4 Durham NC 27701.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A. I am Executive Vice President of Raftelis Financial Consultants, Inc. (Raftelis), a
7 consulting firm specializing in the areas of water and wastewater finance and pricing.
8 Raftelis was established in 1993 in Charlotte, North Carolina, by George A. Raftelis to
9 provide financial and management consulting services to public and private sector clients.
10 Raftelis is a national leader in the development of water, wastewater, and stormwater
11 rates.

12 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK**
13 **EXPERIENCE.**

14 A. I obtained a Bachelor of Science degree in Civil Engineering from North Carolina State
15 University in 1985 and am a registered Professional Engineer in North Carolina. My
16 engineering license is inactive as I do not practice engineering. I have more than 35
17 years of experience in municipal stormwater management and civil engineering. As an
18 executive and leader of Raftelis' Stormwater Management Consulting Division, I work
19 with entities across the United States with a focus on stormwater utility development and
20 implementation, as well as stormwater program and financial planning. I have consulted
21 with many of the largest and most complex stormwater utilities in the country and have
22 assisted with the establishment of about 50 stormwater utilities in at least 16 different
23 states, serving as lead consultant for many of those projects. Additionally, I have
24 managed the development of more than 30 stormwater utility impervious area or intensity

1 of development databases and utility billing and collections or integration systems to
2 support the connectivity of geographic billing data to legacy account-based billing
3 systems.

4 A complete description of my background and experience is set forth in Appendix
5 A to this testimony.

6 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA**
7 **PUBLIC UTILITY COMMISSION (“PUC” OR “COMMISSION”)?**

8 A. Yes. I presented written Direct, Supplemental Direct, Rebuttal and Rejoinder testimony
9 in support of PWSA’s most recent rate case at Docket Numbers R-2021-3024773 (water),
10 R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater). I also presented
11 written Direct Testimony in support of PWSA’s Compliance Plan Stage 2 Stormwater
12 Proceeding at Docket Nos. M-2018-2640802 and M-2018-2640803.

13 **Q. PLEASE DESCRIBE YOUR WORK WITH THE PITTSBURGH WATER AND**
14 **SEWER AUTHORITY (“PWSA”).**

15 A. Initially and up through the original tariff filing, I assisted PWSA with developing its
16 stormwater rates. This has included reviewing the development of stormwater revenue
17 requirements, working with PWSA staff to plan rate structures, billing policies and
18 procedures, data development, and overseeing stormwater billing information and
19 software development. Since the fee went into place, I have assisted PWSA staff with
20 technical matters relating to customer service and inquiry response, evaluation of the
21 credits program, quality control review of billing data, and related matters.

22 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

23 A. The purpose of my testimony is to describe PWSA’s existing stormwater fee, how it was
24 developed, some minor modifications to the credits program, and answer some technical
25 questions.

1 **Q. HOW DOES YOUR TESTIMONY RELATE TO THAT OF OTHER PWSA**
2 **WITNESSES?**

3 A. Mr. Igwe describes PWSA's stormwater system and provides an overview of PWSA's
4 original stormwater fee proposal. Mr. Smith's testimony describes how the stormwater
5 revenue requirements were determined and also addresses proposed adjustments to arrive
6 at the proposed stormwater fee. Ms. Mechling's testimony provides information related
7 to stormwater and customer service issues and she sponsors the proposed Stormwater
8 Tariff Supplement No. 3 which sets forth the new proposed rates, the proposed
9 Infrastructure Improvement Charge (IIC) and Customer Assistance Charge (CAC) and
10 updates the tariff text regarding the credits program as I will discuss later. My testimony
11 describes how PWSA developed the stormwater fee and provides other details as to how
12 it was implemented and how changes to the credit program are proposed.

13 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

14 A. Yes. Exhibit KR-1 is a technical memorandum on revenue requirements, prepared by
15 Black & Veatch for PWSA dated August 1, 2013. Exhibit KR-2 is an updated version of
16 the PWSA Credit Manual.¹ I also assisted with the development of information
17 reflecting units of service, credit program costs and gradualism.

18

¹ PWSA Exhs. JAM-15 (clean) and JAM-16 (red-lined) sponsored by Ms. Mechling set forth these proposals in the tariffs.

1 **II. STORMWATER PROGRAM REVENUE REQUIREMENTS**

2 **Q. WHAT ARE THE REVENUE REQUIREMENTS THAT FORM THE BASIS FOR**
 3 **THE STORMWATER RATE CALCULATION?**

4 A. The stormwater program revenue requirements are the total costs associated with
 5 stormwater management, including flood control, strategic planning, and water quality
 6 related regulatory compliance. The way in which the stormwater revenue requirements
 7 were determined is described in the testimony of Harold Smith. As shown on HJS-1SW,
 8 the revenue requirements for FY2024 total approximately \$40.0 million. This figure
 9 includes:

- 10 • Costs associated with control of combined sewer overflows;
- 11 • Costs associated with separate storm sewer operation and maintenance;
- 12 • Rate-funded stormwater capital projects;
- 13 • 50% of costs associated with combined wastewater system maintenance and
 14 existing debt service;
- 15 • Future debt service based on stormwater capital projects in the CIP; and
- 16 • Administrative costs shared between water, wastewater, and stormwater.

17 **Q. HOW WERE CONVEYANCE AND DEBT SERVICE COSTS ALLOCATED**
 18 **BETWEEN STORMWATER AND WASTEWATER RATES?**

19 A. We looked at several methods for allocating conveyance and debt service costs between
 20 stormwater and wastewater rates. We considered the relationship of stormwater peak
 21 flow and total volume of stormwater to the volume of all flows in combined systems. For
 22 the peak flow method, I reviewed work performed by Black & Veatch for PWSA in
 23 2013² wherein the three largest storms during a “typical year” for the Pittsburgh region
 24 were considered in terms of what portion of flows within combined sewers on those days
 25 was stormwater. These three largest storms of the year suggest that during those storms,

² Exhibit KR-1 – Technical Memorandum #4 – Revenue Requirements, prepared by Black & Veatch for PWSA, dated August 1, 2013.

1 stormwater accounted for about 70% of the total flow. Using this as the rationale for
2 allocating O&M and debt service costs, 70% of the costs would be attributable to
3 stormwater. We also approached the issue using a total volume method wherein we
4 evaluated the total volume of stormwater contributed to the system based upon rainfall
5 totals in a “typical year” and a “wet year.” Under this method, stormwater accounts for
6 less than 20% of the flow, and thus less than 20% of costs would be allocated to
7 stormwater.

8 During smaller rainfall events and dry weather, stormwater is a smaller fraction of
9 the total flow, and during large (but rare) storm events, stormwater is a large portion of
10 the flow. To balance the demand placed on the system by stormwater over time, I
11 recommended allocating O&M and debt service costs for shared infrastructure evenly
12 between the two services. An even split balances the peak flow and total flow allocation
13 methodologies. Calculated rates are driven by the 50-50 split between sewer and
14 stormwater for these shared infrastructure costs, which include gravity collection sewers,
15 manholes, and power operated equipment.

16 **Q. DID PWSA ANTICIPATE THAT STORMWATER BILLS WOULD INITIALLY**
17 **HAVE A HIGHER NON-PAYMENT RATE THAN WATER OR WASTEWATER**
18 **SERVICE?**

19 A. Yes. We anticipated that stormwater-only bills (those on accounts without an existing
20 water and/or wastewater service and, therefore, new PWSA customers) would have a
21 higher non-payment rate than existing PWSA customers with water/wastewater bills.
22 When impervious area fees were implemented by the Northeast Ohio Regional Sewer
23 District and by the Philadelphia Water Department the collection rate for stormwater-
24 only customers was significantly lower than for customers who also were already water
25 and wastewater customers. Initially the collection rate for stormwater-only customers

1 averaged about 60% for these two utilities. There are a number of reasons for this. Many
2 of these properties are economically stressed, and essentially all have absentee owners. In
3 addition, PWSA has comparatively little leverage to collect on stormwater fees sent to
4 these properties in the near-term. For stormwater fees being added onto existing
5 water/wastewater bills, we continue to anticipate PWSA will have the same collection
6 rate as for water/wastewater bills.

7 **Q. HOW DID YOU ACCOUNT FOR HIGHER RATES OF NON-PAYMENT FROM**
8 **STORMWATER ONLY CUSTOMERS?**

9 A. In the initial rate case the Bad Debt Expense shown on HJS-2SW reflected a 40% rate of
10 non-payment from stormwater only customers while the non-payment rate for existing
11 water and wastewater customer was set at 2%. As of April 2023, the collection rate for
12 stormwater only customers has increased to 70%, and this is anticipated to marginally
13 improve to 75%, as reflected in the updated bad debt expense for the rate case.

14 **Q. WILL PWSA'S PROPOSED STORMWATER RATES RECOVER ALL OF THE**
15 **REVENUE REQUIREMENTS ALLOCATED TO STORMWATER?**

16 A. No. The proposed rates will generate about 3/4 of the needed revenue to fund the full
17 \$40.0 million stormwater program as described.

18 The under recovery of the total revenue requirement for stormwater through the
19 stormwater fee is intentional and consistent with PWSA's use of the "gradualism"
20 ratemaking practice. Gradualism is the easing of full stormwater costs in the stormwater
21 rate in a measured way. As explained more by Ms. Mechling, gradualism is viewed by
22 PWSA as a rate mitigation feature is an important feature of the overall rate request.
23 Gradualism provides another benefit; it accounts for the fact that PWSA does not plan to
24 dramatically expand its stormwater program in the near term; costs that were previously

1 recovered through the wastewater fee are shifting to the stormwater fee. Based on my
2 experience implementing new stormwater rates, customers expect to see new projects or
3 initiatives when charged a substantially higher overall fee. As PWSA is not dramatically
4 enhancing its stormwater program, I did not advise PWSA to pursue full recovery of
5 revenue requirements from the stormwater fee in the first year and I support the
6 continued easing of the shift of costs from wastewater conveyance to stormwater as
7 proposed in this filing.

8 **III. IDENTIFYING IMPERVIOUS AREA**

9 **Q. WHAT IS IMPERVIOUS AREA?**

10 A. Impervious area is a hard surface that prevents or significantly impedes precipitation or
11 snowmelt from soaking into the ground. When precipitation falls on an impervious area,
12 it runs off the property rather than being absorbed into the ground. Impervious surfaces
13 include areas such as rooftops and paved areas.

14 **Q. WHY IS IMPERVIOUS AREA IMPORTANT TO THE DEVELOPMENT OF A** 15 **STORMWATER FEE?**

16 A. Impervious surface area is the most commonly used metric across the United States to
17 charge for costs related to stormwater services like flood control and water quality
18 management. Impervious surfaces, like sidewalks, rooftops and driveways, impede
19 water's ability to infiltrate into the ground. Therefore, the more impervious area on a
20 property, the more runoff the property generates and the greater the demand for the
21 utility's stormwater conveyance, flood control and water quality management services.

22 **Q. DID PWSA BASE ITS STORMWATER FEE ON IMPERVIOUS AREA?**

23 A. Yes. PWSA's stormwater fee is based on a property's impervious area.

1 **Q. WHAT IS AN EQUIVALENT RESIDENTIAL UNIT?**

2 A. An Equivalent Residential Unit (“ERU”) is the amount of impervious area found on a
3 typical residential property in the service area. Based on parcel, land use, and existing
4 water and wastewater account characteristics, properties that are classified as single
5 family residential (“SFR”) in PWSA’s service territory include townhouses, row houses,
6 mobile homes, single family homes, and two-, three- and four-family homes. These types
7 of properties are substantially similar in their impervious area amounts, so it is reasonable
8 to treat them similarly under the proposed residential rate structure. Under this definition,
9 there are about 92,000 SFR parcels in Pittsburgh.

10 Using measured impervious area data, Raftelis performed a statistical analysis on
11 the impervious area values for properties classified as SFR. The Raftelis team found that
12 the median impervious area found on these SFR parcels is about 1,650 square feet, and
13 this is the current ERU value.

14 The ERU is also the billing unit that is used to calculate the stormwater fee for
15 other (non-SFR) properties.

16 **Q. HAS PWSA CALCULATED IMPERVIOUS AREA FOR ALL PARCELS IN ITS**
17 **SERVICE TERRITORY?**

18 A. No. PWSA engaged Michael Baker International (“Michael Baker”) to capture
19 impervious area on parcels containing impervious features that were visible in 2017
20 Allegheny County imagery. While all currently mapped parcels were reviewed as part of
21 this effort, not all parcels have impervious area and therefore impervious area was not
22 determined for all parcels. During 2022 PWSA systematically updated the impervious
23 areas based on newer aerial imagery and is now using building permits to identify parcels
24 where changes may have been made in terms of constructed impervious features. The

1 Authority also updated the parcel polygons from Allegheny County. Updating
2 impervious features and parcel polygons will be an ongoing effort by PWSA.

3 **Q. HOW DOES PWSA IDENTIFY AND CALCULATE IMPERVIOUS AREA?**

4 A. Initially, using ArcGIS mapping software, impervious area polygons were created on
5 properties containing impervious features that were visible in 2017 Allegheny County
6 imagery. This software and other similar software allow users to look at multiple layers
7 of geographic data at once, for example, parcel polygons and aerial photos, then draw
8 features that are seen in the overlay. The creation of impervious area polygons is done by
9 humans who look at impervious features they see in the photos, like parking lots or
10 buildings, and draw the outlines of these features with a mouse or other input device to
11 create closed polygons. Later these polygons can be intersected topologically with parcel
12 polygons to measure the area of features that fall on any given parcel.

13 These features had to meet PWSA's definition of 'impervious' – which includes
14 sidewalks, rooftops and driveways – that prevent or impede water's ability to infiltrate
15 into the ground. Excluded are public roadways and railroad ballast.

16 Michael Baker captured impervious surface features in separate geographic layer
17 files based on feature type. Michael Baker and PWSA have completed quality
18 assurance/quality checks ("QA/QC") on the data. Raftelis received the impervious area
19 data from PWSA on October 16, 2020. Raftelis performed limited QA/QC on the data.

20 Also using ArcGIS, Raftelis merged the separate geographic layer files into one
21 impervious feature layer, excluding the features described above. This impervious area
22 layer was intersected with the current parcel layer to determine the impervious area on a
23 per parcel basis. The impervious area and its relationship to parcel polygons undergo

1 ongoing QA/QC and are updated when new parcel polygons, new aerial imagery, or
 2 customer research shows new or changed features.

3 **Q. IN CALCULATING IMPERVIOUS AREA, HAS PWSA IDENTIFIED PARCELS**
 4 **THAT DO NOT CURRENTLY RECEIVE WATER OR WASTEWATER**
 5 **SERVICE FROM PWSA THAT WILL BE CHARGED FOR STORMWATER**
 6 **SERVICE?**

7 A. Yes. As part of this process, PWSA has identified parcels with impervious area that
 8 cannot be associated with an existing PWSA water or wastewater account. These are
 9 commonly called “stormwater-only” parcels as they first became PWSA customers with
 10 the implementation of the stormwater fee in 2022 and are billed only for stormwater
 11 service. There are approximately 6,000 stormwater-only parcels.

12
 13 **IV. STORMWATER FEE STRUCTURE**

14 **Q. PLEASE PROVIDE AN OVERVIEW OF PWSA’S PROPOSED STORMWATER**
 15 **FEE.**

16 A. As described above, PWSA is not proposing any changes to the current rate structure for
 17 the stormwater fee and it will continue to be based on the amount of impervious area on a
 18 property. Impervious surface area is the most common rate structure among those
 19 communities with stormwater fees because it is a good surrogate for directly measuring a
 20 ratepayer’s demand on the stormwater system. For residential customers, PWSA
 21 implemented a three-tiered rate structure which is described in further detail below. For
 22 non-residential customers, PWSA bills per ERU of impervious area.

23 **Q. PLEASE DESCRIBE THE STORMWATER FEE FOR SINGLE FAMILY**
 24 **RESIDENTIAL CUSTOMERS.**

25 A. PWSA implemented a three-tiered rate structure for SFR customers. Statistical analysis
 26 was performed by Raftelis to analyze and determine the most appropriate residential

1 tiering structure. Of the tiering structures considered, PWSA decided on a structure in
 2 which the middle tier contains 70% of all the SFR properties, making it by far the largest
 3 group. Properties with less than 1,015 square feet of impervious area are considered the
 4 low tier and are billed for the median amount of impervious area found on parcels in that
 5 tier, which is about 830 square feet of impervious area, or 0.5 ERUs. Properties in the
 6 middle tier are billed for 1 ERU. Those properties with 2,710 square feet or more of
 7 impervious area fall into the high tier and are billed for the median amount of impervious
 8 area found on parcels in that tier, which is about 3,355 square feet of impervious area, or
 9 2 ERUs.

10 **Q. WHAT TYPES OF PROPERTIES ARE CLASSIFIED AS “SINGLE FAMILY**
 11 **RESIDENTIAL”?**

12 A. For purposes of the stormwater fee, residential customers include single family homes,
 13 townhouses, rowhouses, mobile homes, and two-, three-, or four-family buildings.

14 **Q. WHY IS PWSA CONTINUING TO MAINTAIN A TIERED STORMWATER FEE**
 15 **FOR SINGLE FAMILY RESIDENTIAL CUSTOMERS?**

16 A. The impervious area found on a residential lot in Pittsburgh varies from about 400 square
 17 feet to more than 4,000 square feet. Using tiers instead of one flat rate allows PWSA to
 18 differentiate among SFR ratepayers and maintain an equitable approach across the
 19 various types of development and homes.

20 **Q. HOW DID PWSA DETERMINE THE APPROPRIATE BREAKPOINTS**
 21 **BETWEEN THESE TIERS?**

22 A. We considered three tiering alternatives, where the middle tiers encompassed 50%, 60%
 23 and 70% of the SFR properties, respectively. The 70% middle tier option was selected
 24 because it recognized similarity among parcels within the center of the impervious area
 25 frequency histogram with only significantly smaller and larger properties being included

1 in Tier 1 and Tier 3, respectively. A summary of the parcels and ERUs by tier is
 2 presented on HJS-3SW.

3 **Q. WHAT TYPES OF PROPERTIES ARE CLASSIFIED AS “NON-SINGLE**
 4 **FAMILY RESIDENTIAL”?**

5 A. Non-single-family residential properties are any properties not included in the definition
 6 of single-family residential property described above. This includes apartment buildings,
 7 commercial properties, industrial properties, condominiums, schools, and railroad
 8 properties. Specifically, these properties are customers in the existing Commercial,
 9 Industrial, and Health and Education Classes. City parcels are mostly non-residential
 10 with the exception of those existing accounts already classified as Residential.

11 **Q. FOR NON-SINGLE-FAMILY RESIDENTIAL CUSTOMERS, HOW IS THE**
 12 **TOTAL ERU DETERMINED?**

13 A. The ERUs for non-single-family residential customers are calculated by dividing the
 14 impervious area on the property (in square feet) by the ERU value of 1,650 square feet.
 15 This number is then rounded up to the nearest integer to provide their total ERU. A
 16 summary of the parcels and ERUs is presented on HJS-3SW. To calculate a monthly
 17 charge, the total ERU is multiplied by the per ERU fee to calculate the total monthly
 18 stormwater charge.

19 **Q. WHY DOES PWSA CONTINUE TO SUPPORT THIS APPROACH FOR NON-**
 20 **SINGLE-FAMILY RESIDENTIAL CUSTOMERS?**

21 A. This approach for non-single-family customers strikes a balance between fairness and
 22 technical simplicity. While SFR properties are fairly similar in size and composition,
 23 non-single-family properties can vary greatly among those categories and encompass a
 24 wide range of customer classifications. A flat rate or tiered rate such as used with SFR
 25 properties is not equitable across such a wide range of classifications.

1 **Q. HOW IS THE MONTHLY STORMWATER RATE DETERMINED?**

2 A. The process for calculating the stormwater rate to be assessed to all customers follows a
3 similar process as the water and wastewater conveyance CCOSS presented in the Direct
4 Testimony of PWSA witness, Mr. Smith.

5 First, the unadjusted cost of service rate is determined so that stormwater costs
6 can be assigned to customer classes. The determination of cost of service by customer
7 class is presented in HJS-4SW. Once the unadjusted cost of service by customer class is
8 determined, appropriate adjustments are made to determine the adjusted cost of service
9 by customer class, as presented on HJS-5SW. The adjustments, which are described
10 throughout this testimony and the testimony of Mr. Smith, include:

- 11 • **Gradualism Between Sewer and Stormwater** – This adjustment reduces the
12 total revenue requirement by \$9.5 million which helps mitigate customer
13 impacts.
- 14 • **Bad Debt Expense** – Bad debt expense for stormwater-only and non-
15 stormwater-only customers.
- 16 • **Cost of Credits and Incentives** – The credit program results in forgone
17 revenue that must be recovered from all customer classes.
- 18 • **Cost of Bill Discount Program Forgone Revenue** – As specified in the
19 Direct Testimony of Ms. Mechling, PWSA is continuing a 85% discount on
20 the stormwater fee for enrolled CAP-BDP customers.

21 Once costs had been appropriately allocated to customer classes, Raftelis
22 designed rates to recover the adjusted net stormwater revenue requirement. PWSA is
23 proposing a uniform stormwater rate per ERU. The proposed rate is \$10.26 per ERU for
24 the FPFTY. The rate design process and proposed rates for residential and non-residential
25 customers are shown in HJS-6SW.

1 **Q. HOW ARE STORMWATER FEES DEVELOPED FOR YEARS TWO AND**
2 **THREE OF THE MULTI-YEAR PLAN?**

3 A. Stormwater rates to recover the revenue requirements for FY 2025 and FY 2026 shown
4 on Schedule HJS-9SW were developed in a manner similar to the way in which water
5 and wastewater conveyance rates were developed for FY 2025 and FY 2026 as described
6 in the testimony of Mr. Smith.

7 As shown on Schedule HJS-10SW, rate revenue requirements are determined by first
8 making a stormwater gradualism adjustment and then subtracting the miscellaneous
9 revenue.

10 As is the case with water and wastewater conveyance, a stormwater CAC and IIC are
11 being introduced in FY 2025 to shift recovery of the costs of PENNVEST and WIFIA
12 loans utilized for stormwater projects as well as PWSA's low income customer assistance
13 programs from base rates to the new reconcilable charges. Therefore, the next step in the
14 process is to adjust revenue requirements to reflect the revenue from these charges. It
15 should be noted that the stormwater IIC in FY 2024 is set at \$0 because PWSA is not
16 proposing to implement the new reconcilable charges until 2025. As part of the proposed
17 semi-annual filings and reconciliation, described more fully by Ms. Mechling and set
18 forth in the proposed tariffs, the amount of the charges will be adjusted.

19 Lastly, stormwater rates per ERU for FY 2025 and FY 2026 are determined by dividing
20 the net revenue requirements to be recovered through stormwater fees by the projected
21 number of ERUs as shown on HJS-11SW.

1 **Q. IS THERE A MINIMUM STORMWATER FEE?**

2 A. Yes. A property is not charged a stormwater fee if the impervious area on the property is
3 less than 400 square feet. The minimum stormwater fee that can be charged for SFR
4 properties with impervious area greater than or equal to 400 square feet is for those
5 properties that fall into Tier 1 and are billed for 0.5 ERU. The minimum stormwater fee
6 for non-single-family residential properties with impervious area greater than or equal to
7 400 square feet is 1 ERU.

8 **Q. IF A CUSTOMER BELIEVES THEIR IMPERVIOUS AREA CALCULATION**
9 **OR RESIDENTIAL TIER ASSIGNMENT IS INACCURATE, WILL A PROCESS**
10 **BE AVAILABLE TO QUESTION THE IMPERVIOUS AREA?**

11 A. Yes. Consistent with current practices, PWSA will process customer disputes related to
12 stormwater charges in the same manner as it currently processes disputes related to its
13 other charges. PWSA's stormwater dispute process includes a further evaluation
14 regarding the measured impervious area.

15 **V. STORMWATER FEE BILLING**

16 **Q. IS PWSA PROPOSING TO MAKE ANY CHANGE TO HOW STORMWATER, A**
17 **NON-METERED SERVICE, BE ADDED TO EXISTING PWSA BILLS?**

18 A. No. The stormwater fee will be added to bills for existing PWSA accounts or will be the
19 sole fee on bills for stormwater-only accounts. Stormwater fees are calculated on a per
20 parcel basis, and the fee for a parcel (or multiple aggregated parcels) will be billed to one
21 or more of the accounts associated with the parcel(s). PWSA maintains a parcel number
22 as a characteristic of an account. These data have been reviewed for accuracy and
23 updated where necessary by Raftelis. PWSA uses software to manage the parcel-account
24 relationship, parcel aggregations, and other stormwater billing information that influence
25 the stormwater fees billed.

1 **Q. HOW IS STORMWATER BILLING DATA KEPT UP TO DATE?**

2 A. PWSA staff updates stormwater billing source data – impervious surface area data and
3 parcel boundary data – in response to customer inquiries and event triggers indicating
4 new or changed development (such as development permits, Certificates of Occupancy
5 issued, building inspections, etc.). Updates are also be made as needed following new
6 releases of aerial imagery.

7

8 **VI. STORMWATER CREDIT PROGRAM**

9 **Q. DOES PWSA OFFER A CREDIT PROGRAM THAT ALLOWS CUSTOMERS**
10 **TO REDUCE THEIR MONTHLY STORMWATER FEE?**

11 A. Yes. For the initial filing, PWSA proposed a credit program that would allow residential
12 or non-residential customers to reduce their stormwater fee by taking specific actions to
13 reduce their demand for stormwater service. That program is in place.

14 **Q. WHAT ARE THE OVERALL GOALS OF A CREDIT PROGRAM?**

15 A. One goal is to refine the stormwater fee for an individual ratepayer to account for things
16 that happen on their site that cause their true stormwater demand to be different than that
17 computed from impervious area. Another is to encourage customers to undertake or
18 maintain helpful best management practices. In designing the credit program, PWSA has
19 sought to create a program that can achieve meaningful benefits in terms of stormwater
20 reduction and recognize customers' efforts to reduce stormwater runoff, while also
21 imposing minimal administrative burden on ratepayers or the Authority.

22 **Q. WHAT CREDITS DOES PWSA MAKE AVAILABLE TO NON-SINGLE-**
23 **FAMILY RESIDENTIAL CUSTOMERS?**

24 A. PWSA offers a Stormwater Control Structures Credit which is available to non-single
25 family residential properties with well-maintained, functioning structural stormwater

1 controls that meet either the 2019 City of Pittsburgh stormwater standards (up to 60%
2 credit) or the 2016 City of Pittsburgh stormwater standards (up to 45% credit).

3 **Q. WHY DOES PWSA BASE ITS NON-RESIDENTIAL CREDIT ON THE 2019**
4 **DEVELOPMENT STANDARDS?**

5 A. PWSA bases its non-residential credit primarily on the 2019 Development Standards
6 because these are the standards that were in place when the stormwater fee went into
7 effect (Ord. No. 12-2019, art. I, § 13101, eff. 3-20-19). Similarly, the 2016 Development
8 Standards were recently in place. By tying the performance of stormwater controls to an
9 existing or recent past standard we hoped to minimize the administrative burden that the
10 credits program would place on ratepayers and the Authority. Using these standards
11 provides clear guidance for both PWSA and its customers as to whether requirements for
12 a credit have been met and ensures that the stormwater controls will meaningfully reduce
13 stormwater runoff from a property.

14 **Q. WHAT CREDITS DOES PWSA MAKE AVAILABLE TO SINGLE FAMILY**
15 **RESIDENTIAL CUSTOMERS?**

16 A. PWSA offers a Residential Downspout Disconnection and Street Planters Credit for
17 residential customers. Additionally, residential customers can get a credit for capturing
18 and slowly releasing the runoff from 3/4-inch of rain from the impervious surfaces on the
19 property.

20 **Q. WHY DID PWSA PROPOSE THIS TYPE OF CREDIT FOR RESIDENTIAL**
21 **CUSTOMERS?**

22 A. Downspout disconnection and rerouting of roof drainage to street planters can divert
23 runoff from significant amounts of impervious area on residential properties, which
24 would be very beneficial to the proper function of PWSA's infrastructure in some areas
25 of the City where planters are available. While PWSA recognized that not all properties

1 would be able to disconnect downspouts or reroute to street planters due to limitations at
 2 the property, this initial residential credit offering was intended to recognize customers
 3 who meaningfully reduced their demand for stormwater service by disconnecting
 4 downspouts or rerouting drainage to street planters while limiting the administrative
 5 burden for PWSA.

6 Although it is not technically a credit, I would also note that customers can simply
 7 remove impervious area in order to potentially qualify for a lower tier of the stormwater
 8 fee.

9 **Q. IS PWSA UPDATING THE CREDIT PROGRAM TO OFFER OTHER TYPES**
 10 **OF CREDITS?**

11 A. Yes, PWSA has updated the credit program. See exhibit KR-2 and also Exhibits JAM-15
 12 and JAM-16. One update is to more explicitly show that non-residential properties can
 13 receive the 45% and 60% credits through passive management of stormwater via the
 14 property’s green space. This would require an engineering analysis but may be
 15 demonstrable for lightly developed properties with runoff patterns where runoff from
 16 impervious surfaces is routed to green areas. The other update is to offer a one-time \$40
 17 credit for installed rain barrels that capture and retain roof runoff from single family
 18 properties.

19 **Q. DOES PWSA VERIFY THAT STORMWATER MITIGATION MEASURES ARE**
 20 **INSTALLED AND MAINTAINED?**

21 A. Continued eligibility for credits is contingent on the proper function of stormwater
 22 controls. This function will be verified by periodic field reviews by PWSA or through
 23 coordination with City staff.

1 **Q. OVER WHAT TIME PERIOD DO CREDITS APPLY?**

2 A. Credits are valid for up to three (3) years. Customers can reapply every three years to
3 continue receiving a credit as long as the stormwater mitigation measure remains in place
4 and is working properly, thereby reducing the property's demand for stormwater service.

5 **Q. WHAT IMPACT DOES PWSA EXPECT THE UPDATED CREDIT PROGRAM**
6 **WILL HAVE ON STORMWATER REVENUE?**

7 A. PWSA anticipates participation in the credit program to result in revenue offsets of
8 approximately 1% of full billings. Now that we have credit participation rates from 2022,
9 we see that the value of credits issued is so far lower than expected. Estimates for
10 "forgone revenues" from the credit program have been included in the stormwater rate
11 calculation. In addition to that, we estimate the revenue lost from the addition of the rain
12 barrel credit to be \$40,000 per year.

13 **VII. CONCLUSION**

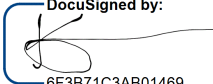
14 **Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?**

15 A. Yes.

VERIFICATION

I, Keith Readling, hereby state that: (1) I am the Executive Vice President, Raftelis Financial Consultants, Consultant to The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 05/08/2023 | 8:45 AM EDT

DocuSigned by:

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Keith Readling
Executive Vice President
Raftelis Financial Consultants

Consultant to:
The Pittsburgh Water and Sewer Authority

APPENDIX A

Keith Reading

Executive Vice President



PROFILE

Keith has 38 years of experience in municipal stormwater management and civil engineering. As an executive, he has broad responsibilities for service delivery to clients across the U.S., with a particular focus on program and financial planning, stormwater utility development and implementation, and enterprise fund data and systems development for local governments. Keith has consulted with and/or helped stand up many of the largest and most complex stormwater utilities in the U.S. and is one of the foremost authorities in the country regarding stormwater management programs, data, systems, and business processes. He has assisted with the establishment of more than 45 stormwater utilities. As a senior manager for data-related services in this capacity, he has developed more than 30 stormwater utility impervious area or intensity of development rate structures, databases and utility billing and collections or integration systems to support the connectivity of geographic billing data to legacy account-based billing systems. Keith's other technical expertise includes water resources and civil engineering planning, analysis, graphical and non-graphical database development and management, and environmental and regulatory compliance efforts. He is experienced in all aspects of implementing municipal stormwater management programs, from strategic planning and regulatory compliance services to database architecture and customer service support systems. Keith also co-authored a chapter entitled, "Expanding Financing and Pricing Concepts into Stormwater," for the Fourth Edition of the industry guidebook, *Water and Wastewater Finance and Pricing: The Changing Landscape*.

REPRESENTATIVE PROJECT DESCRIPTIONS

Pittsburgh Water and Sewer Authority (PA)

Keith served as senior manager, technical advisor and subject matter expert as the Pittsburgh Water and Sewer Authority (PWSA) planned for and implemented a stormwater fee in early 2022 to begin recovering costs related to stormwater management, as directed by PWSA's oversight body, the Pennsylvania Public Utility Commission. Ahead of implementation, he oversaw the development of a stormwater billing information management software, impervious area data revisions and parcel-to-account relationships, and billing policies. He also served as a key advisor to PWSA staff and management on the credit program, customer relationship concerns, data maintenance processes, and customer outreach. Keith continues to support PWSA with stormwater utility administration on a regular basis, advising on key program, billing, and credit policy considerations.

City of Charlotte and Mecklenburg County (NC)

Keith served as project manager, and has served as Principal in Charge for a number of projects for the City of Charlotte and Mecklenburg County over the past 15 years. One highlighted project was strategic planning in support of business process improvements for all business processes that relate to stormwater utility billing, collections, database maintenance, and customer service. The outcomes from this project supported improvements in the connectivity between the third-party billing vendor and the stormwater utility. Past projects have included residential rate structure changes, utility credit policy development and adjustment, capital project prioritization assistance, and various financial planning services.

Specialties

- Stormwater program planning & development
- Stormwater finance & utility development
- Management policy & practice
- Business process development & improvement
- Data & systems integration
- Database architecture & design

Professional History

- Raftelis: Executive Vice President (2016-present); Vice President (2014-2015); Director of Stormwater Management Consulting (2011-2013)
- AMEC: Vice President (1998-2011); Senior project manager
- (1995-1998); project manager (1991-1995)
- Jarvis Associates: Project Engineer (1988-1991)
- Talbert, Cox, & Associates: Project Engineer (1985-1988)

Education

- Bachelor of Science in Civil Engineering - North Carolina State University (1985)

Professional Registrations

- Registered Professional Engineer: NC (Inactive)

Professional Memberships

- American Public Works Association: Past President, North Carolina Chapter, Water Resources Division

Town of Westford (MA)

As a subconsultant, Keith served as finance lead for a project with the Town of Westford (Town) to evaluate future program scope and cost, and provide funding options for an expanded stormwater management program for the Town. Ultimately, the Town opted to implement a stormwater fee and Keith oversaw the data development, analyses, and all technical, procedural, and communications-related efforts to successfully implement the new funding approach. The Town's stormwater program is now funded through a dedicated stormwater utility fee.

Sewerage and Water Board of New Orleans (LA)

Keith served as project manager for a recent effort whereby the Sewerage and Water Board of New Orleans evaluated different funding approaches for generating additional stormwater management funds to fund operation and maintenance of various new large flood control infrastructure and to fund an expanded groundwater management program. Keith was responsible for all aspects of the evaluation including rate base estimates, rate structure recommendations, and impact analyses.

Northeast Ohio Regional Sewer District (OH)

Keith serves in an ongoing role for an engagement with the Northeast Ohio Regional Sewer District (District) which includes data management, policy development, and financial analysis tasks. The primary effort was focused on building a billing database and related functionality to support the District's stormwater management program, which began billing on January 1, 2013, then was stopped and restarted as a result of legal challenges, in which the District eventually prevailed. During the project, the Raftelis team enhanced the database to provide for ongoing maintenance of about 400,000 stormwater accounts, and numerous customer service and program reporting functions. Raftelis led a process to refine stormwater billing and program policies, which required various updates and expansions of current processes, partly driven by the results of several lawsuits.

Keith also served as Data Lead in the development of the user fee to support the District's stormwater management program. In this role, he oversaw data collection and data development, including developing and reviewing key data process algorithms and the rate structure. In addition, Keith aided the client in the creation and revision of key business processes related to periodic data updates from the 60 municipalities and portions of three counties in the District's service area. He was the lead database architect and also provided guidance relating to the District's customer service protocols and billing policies.

City of Baltimore (MD)

Keith served as Program Manager for a complex and fast-paced project to implement a stormwater fee for the City of Baltimore Bureau of Water and Wastewater. He was responsible for oversight of all data-, systems-, and policy-related efforts in support of developing the fee.

City of Philadelphia (PA)

Keith served as lead analyst for this project for the Philadelphia Water Department to assess many aspects of the stormwater utility's residential rate structure, phase-in plans, credits program, and economic assistance program. The project required detailed account assessment at the individual account level for more than 500,000 records. Keith developed the database architecture for the analysis and directed the analytical efforts of programmers and DBAs. He was also responsible for developing summary reports that depicted the estimated implications of proposed rate and credit and phase-in policy shifts.

City of Manchester (NH)

Keith served as Data Track Manager on this project to develop a user fee to support the City of Manchester's (City) stormwater program. Keith was responsible for the associated graphical GIS-based impervious area database used for billing stormwater service charges as well as the creation of billing policies and the connection of stormwater-specific characteristics to the legacy sanitary sewer billing system.

Lexington-Fayette Urban County Government (KY)

Keith served as Data Manager for the stormwater utility project for this combined city-county government. Keith managed data collection and data development, including developing and reviewing the impervious area database. He developed the concepts and was lead architect for middleware developed and deployed to connect stormwater billing characteristics to a third-party billing system maintained by American Water Company. He also developed the concepts and architecture for an enterprise customer service and database maintenance platform that connected to the legacy billing system and the City/County 311 (LexCall) system. Keith also provided billing policy, collections, and enforcement recommendations.

Georgetown County (SC)

Keith served as Principal in Charge for the development and implementation of Georgetown County's (County) stormwater utility. Keith was responsible for all phases of the utility development, including: analyzing the proposed cost-of-service; determining strategic, organizational, and staffing needs; developing the rate structure analysis; coordinating the public education effort; developing the impervious area database; creating the billing system; and developing a stormwater fee crediting policy with design guidelines and credit procedures. He developed and deployed the master account database and developed the connectivity protocol for this database to connect to the County's tax database for billing.

City of Dallas (TX)

Keith serves as project manager for the study and implementation of a stormwater rate structure change for the City of Dallas (City). The City implemented a stormwater fee in 1991 that generates about \$49 million annually. The rate structure change represents a significant effort on the part of the City to assure the financial stability of its Storm Drainage Fund, recover costs more equitably from its ratepayers, and to do both in a transparent fashion. Now implemented, the updated rate structure embodies a considerable change, not only for ratepayers receiving changed bills, but also for the City's business processes for billing and account maintenance. Raftelis was tasked with determining the stormwater cost-of-service and developing the stormwater financial plan. Raftelis also updated available impervious area data and evaluated potential rate structures. The team performed an account review and evaluated the impacts upon customers of a rate structure change. In addition, we evaluated the billing mechanism and performed account to parcel matching. Raftelis assisted the City with necessary rate ordinance changes and with public outreach around the rate structure changes.

City of Mount Lebanon (PA)

Keith served as Lead Data Consultant for this project to establish a stormwater utility for the City of Mount Lebanon. The work included editing an existing cost-of-service model developed by others, developing a rate structure and rate, developing data and billing policies, codifying an ordinance establishing the utility and rates, developing a credits program, developing the master account database, and connecting the database to a third-party privatized billing system.

Arapahoe County and Douglas County (CO)

Keith served as technical advisor for both Douglas and Arapahoe Counties' stormwater billing and data management tasks in support of developing a stormwater utility fee. His involvement included review of cadastral and imagery source data, discussions about the potential connectivity between an external parcel-based data management system and legacy tax billing systems (for conveying the potential fees), and decisions about appropriate rate structures that would be defensible and supportable by the extent and quality of the source data. Much of his work on these two separate projects fed into what ultimately became a Stormwater Authority (SEMSWA).

City of Jacksonville (NC)

Keith served as Principal in Charge for this project to identify compliance efforts, prepare the City of Jacksonville's (City) annual National Pollutant Discharge Elimination System (NPDES) report, establish and facilitate a stormwater advisory committee, and develop a stormwater post-construction ordinance for the City. In addition to directing the compliance efforts, Keith facilitated all stakeholder meetings and City Council education sessions. Keith also served as Principal in

Charge for the development of a user fee to support the City's stormwater management program. He facilitated a citizens' stormwater advisory team to build consensus and provide informed policy guidance to City staff. In addition, he was responsible for all phases of utility development, including analyzing the cost-of-service and rate structure, determining organizational and staffing needs, developing the impervious area database, and managing the overall project administration. Currently, he is assisting the City with regulatory compliance for new coastal runoff laws and editing the City's administrative process manual that defines how developers procure permits for new development.

Wake County (NC)

Keith served as Principal in Charge for this multi-faceted project to implement the recommendations for better land development standards of a County-wide stakeholder group. The project involved several disparate elements: facilitation of a stakeholder group tasked with developing a multi-jurisdictional post-construction ordinance, development of a risk-based methodology for erosion control enforcement, and an innovative pilot basin model that will help Wake County (County) test development scenarios. Keith facilitated the stakeholder and staff-level discussions to arrive at business process decisions to ensure that the multi-jurisdictional ordinance, administered by the County, is workable for the participating jurisdictions, developers, and permitting staff.

City of Rock Island (IL)

Keith served as Data Track Leader for developing this stormwater utility for the City of Rock Island (City) which, at the time, was the first stormwater utility in Illinois. His efforts included developing the ERU value that is still used today (2,800 square feet of impervious surface) by performing statistical analysis on a residential property sample. He also developed statistical relationships that ultimately allowed the City to implement a simplified residential rate based solely on the gross property area found on a residential land parcel. Connectivity of the stormwater fees to the existing City water billing system was also developed as part of this project.

City of Champaign (IL)

Keith served as Manager of data-related services for the first phase of this multi-phase stormwater utility feasibility study and implementation project for the City of Champaign (City). His role was to evaluate available data and recommend a rate structure and billing mechanism supportable by the legacy data (for efficiency). In this capacity, Keith determined that the Urbana-Champaign Sanitary District (UCSD) could provide billing and customer services for the stormwater utility most efficiently, if processes were put into place to connect that system to the City's GIS-derived rate structure and customer base. This decision was facilitated by the UCSD's unusual billing policies that essentially always bill owners (instead of occupants) for wastewater services.

City of Urbana (IL)

On a parallel track with the work in Champaign, IL, Keith provided similar services to the City of Urbana. Although the projects were separate and distinct, they were procured and performed on the same schedule to save money, and under the approach that assumed a common billing method would be found.

City of Raleigh Public Utilities Department (NC)

In March 2012, the City of Raleigh (City) contracted Raftelis to conduct a comprehensive organizational analysis and development study for the City's Public Utility Department within a 20-week time frame. For several years, the City had been discussing whether to relocate its stormwater utility from the Public Works Department to the Public Utilities Department. The move could have had far-reaching effects on the relationship between stormwater and transportation, the efficiency of planning, design, and engineering activities, regulatory compliance, and customer service management. Keith was the Project Lead on the Raftelis team. With extensive knowledge of and experience in the field of surface water management, the Raftelis team was asked to compile, measure, and analyze the costs and benefits of relocating the utility. As this data would inevitably be presented in both qualitative and quantitative formats, Raftelis conducted both types of analyses to arrive at its recommendation. Finally, Raftelis reported its findings to the leadership of Public Utilities, Public Works, and the City Council.

Montgomery County (OH)

Keith is serving as a solutions architect for a solid waste rate study for Montgomery County Environmental Services (MCES). The first phase of the study will include three components: 1) information technology and business systems review; 2) solid waste rate benchmarking; and 3) rate development and financial planning. The primary task under the information technology and business systems review is to perform an audit of the County's billing system. MCES is concerned that it is not billing all of the customers it is serving and that it may be incorrectly billing some of those customers that it is billing. One of the complicating factors is that MCES must rely on private haulers for billing information. The objective of the solid waste rate benchmarking is to identify the way other solid waste districts in Ohio and across the country charge for the services provided. MCES currently recovers about half of its revenue from tipping fees and half from annual property charges. The third component of this phase of work will be to develop a multi-year financial plan for the solid waste enterprise fund. The model will be used to evaluate alternative charge methodologies and, ultimately, it will be a financial planning tool for MCES.

City of Morristown (TN)

Keith served as project director for the development of a unified solution for viewing, editing, and billing stormwater, solid waste, and wastewater services for the City of Morristown (TN). This solution allows City staff to view billing data for those services on a particular account, allows staff to change accounts and communicate those changes to the City's third-party biller, and also provides account rectification protocols where City records do not align with records maintained by the biller. Development of this solution included database and software creation, data analysis, and coordination with the third-party biller. Raftelis team members also developed documentation and training materials to describe the use and operation of the software solution and offered recommendations on related business processes.

Carlisle Borough (PA)

Raftelis was engaged by the Borough of Carlisle to provide assistance in assessing the financial needs of its growing stormwater program and evaluating the feasibility of a fee as the most appropriate funding mechanism. Keith served as Principal in Charge for this successful effort. He provided expertise based on an extensive engineering background during the program assessment phases. Keith led numerous public outreach meetings and presented several updates to elected officials. Subsequent to the feasibility study, Raftelis was engaged by the Borough to implement the stormwater fee based on implementation and data maintenance considerations and recommendations made during the feasibility phase. Keith led the implementation effort for the fee.

Lower Paxton Township (PA)

Raftelis was engaged by Lower Paxton Township to evaluate the feasibility of establishing a stormwater fee as the funding mechanism for the Township's growing stormwater program. Keith served as Principal in Charge of this project. Keith provided expert guidance to the Township as the project team evaluated its current program and envisioned the scope and costs of the future program, and is assisted with the Township's implementation of the stormwater fee which went live in 2019. Keith served as primary liaison to the Township Board.

STORMWATER PROGRAM AND UTILITY DEVELOPMENT - FULL CLIENT LIST

Keith served or is serving as project manager, Data and Systems Manager, Consultant, or Principal in Charge responsible for various components of stormwater management program or utility consulting for these clients:

- Arapahoe County (CO)
- City of Archdale (NC)
- City of Albemarle (NC)
- City of Atlanta (GA)
- City of Baltimore (MD)
- Beaufort County (SC)
- City of Beaufort (SC)
- City of Bellingham (MA)
- City of Bluffton (SC)
- Boston Water and Sewer Commission (MA)
- City of Burlington (NC)
- City of Butner (NC)
- Camden County (NC)
- Capital Region Water (PA)
- Borough of Carlisle (PA)
- City of Cartersville (GA)
- City of Champaign (IL)
- City of Chapel Hill (NC)
- City of Charlotte (NC)
- City of Colorado Springs (CO)
- City of Columbia (SC)
- Columbia County (GA)
- City of Creedmoor (NC)
- Cumberland County (NC)
- City of Dallas (TX)
- DC Water (DC)
- City of Decatur (GA)
- Douglas County (CO)
- City of Durham (NC)
- Durham County (NC)
- City of East Point (GA)
- City of Fayetteville (NC)
- City of Franklin (MA)
- City of Fort Worth (TX)
- City of Gainesville (GA)
- Georgetown County (SC)
- City of Goldsboro (NC)
- Granville County (NC)
- City of Greensboro (NC)
- City of Greenville (NC)
- City of Greenville (SC)
- City of Griffin (GA)
- City of Hilton Head Island (SC)
- Horry County (SC)
- City of Hudson Oaks (TX)
- City of Indianapolis (IN)
- City of Jacksonville (NC)
- City of Kannapolis (NC)
- City of Kernersville (NC)
- Lexington-Fayette County (KY)
- Lower Paxton Township (PA)
- City of Manchester (NH)
- City of Marathon (FL)
- City of Maryville (TN)
- City of Meadville (PA)
- Mecklenburg County (NC)
- City of Milford (MA)
- City of Mooresville (NC)
- City of Morristown (TN)
- City of Mount Lebanon (PA)
- City of Nashville (TN)
- City of New Castle (DE)
- New Hanover County (NC)
- City of New Orleans (LA)
- Town of North East (MD)
- Northeast Ohio Regional Sewer District (OH)
- Person County (NC)
- City of Philadelphia (PA)
- Pittsburgh Water and Sewer Authority (PA)
- City of Pompano Beach (FL)
- City of Portland (ME)
- City of Port Royal SC)
- City of Raleigh (NC)
- City of Reno (NV)
- Richland County (SC)
- City of Rock Island (IL)
- City of Rocky Mount (NC)
- San Diego County (CA)
- City of San Jose (CA)
- City of Shelby (MT)
- St. Louis MSD (MO)
- City of South Burlington (VT)
- City of Tega Cay (SC)
- City of Urbana (IL)
- Wake County (NC)
- Town of Westford (MA)
- Village of Wilmette (IL)
- City of Wilmington (NC)
- City of Yarmouth (MA)

Exhibit KR-1

TECHNICAL MEMORANDUM 4

Revenue Requirements

PREPARED FOR: Pittsburgh Water & Sewer Authority

DATE: August 1, 2013

The purpose of this Technical Memorandum (TM) is to summarize the estimated stormwater program revenue requirements and associated cost allocation methodology.

This Technical Memorandum is organized as follows:

Section 1 – Revenue Requirements

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1 Revenue Requirements Analysis

1.1 Background

The revenue requirements analysis includes a six-year financial plan for Fiscal Year (FY) 2012 through FY 2017. In this financial plan, FY 2014 is set as the “Test Year” as it is assumed to be a likely year in which a stormwater rate structure could be realistically launched if PWSA decide to implement a stormwater rate structure.

The revenue requirements analysis involves the following components:

- Allocation factors;
- O&M cost projections;
- Capital cost projections;
- Other revenue requirement adjustments; and
- Net revenue requirement projections

The following sub-sections discuss each of these revenue requirement analysis components.

1.1.1 Allocation Factors

To determine the revenue requirements, allocation factors were required, as the current financial records at PWSA only differentiate between water and wastewater costs. As such, the costs associated with stormwater are a portion of the overall wastewater costs. To separate the wastewater costs into stormwater and sanitary components for the purposes of budgeting for the stormwater authority, allocation factors were developed that focused on the peak flow of the system and the size of the collection system. The following sections describe the methodology that was used to develop those representative allocation factors.

1.1.1.1 Operation and Maintenance Conveyance Cost Allocation Factor

To allocate the O&M costs associated with the combined sewer collection system, a comparison of peak flows was established. The peak flow comparison was used, given that the combined sewer collection system is sized to convey wet weather events, essentially stormwater, which require larger infrastructure and, therefore, higher O&M costs than if the system was only sized to convey sanitary flows.

To determine the percentage of dry weather flows versus the wet weather flows, results from the current Main Rivers Planning Basin effort were used to be consistent with other feasibility studies that are currently underway within the region and the ability to correlate to documented dry weather flows. The Main Rivers Planning Basin was used based on its coverage of the majority of the PWSA system, which is assumed herein to represent the typical flow characteristics within the entire PWSA sewer system.

Table 5.1 compares total runoff from the watersheds during the top three rainfall events in 2003, which is being used by the region as the “Typical Year”. The total runoff from the watersheds was added to the average dry weather flow of 63.0 million gallons per day (MGD) to determine the total volume for that day. When comparing the percentages for the two largest events during the “Typical Year”, the approximate ratio of stormwater runoff to sanitary (dry weather) runoff was approximately 73/27. The smaller storm event illustrates that the ratio was reduced to a 60/40 storm-to-sanitary ratio.

The results of the flow comparisons are presented below.

Table 1.1: Peak Day Runoff of Three (3) Storm Events During the 2003 Typical Year

(8/29/03 to 8/30/03, 1.60 inch rainfall)		
Avg. Dry Weather Flow	63.0 MGD	26.4%
Runoff from Watersheds	175.2 MGD	73.6%
Total Flow	238.2 MGD	100%
(7/21/03 to 7/22/03, 1.53 inch rainfall)		
Avg. Dry Weather Flow	63.0 MGD	26.7%
Runoff from Watersheds	172.8 MGD	73.3%
Total Flow	235.8 MGD	100%
(7/4/03, 0.92 inch rainfall)		
Avg. Dry Weather Flow	63.0 MGD	40.0%
Runoff from Catchments	94.4 MGD	60.0%
Total Flow	157.4 MGD	100%

In summary, it was determined that a 70/30 stormwater to sanitary ratio was reasonable to allocate the O&M costs for the conveyance system. The 70/30 ratio is supported by the results documented in Table 1.1 and also compares reasonably well with other large combined sewer systems that have used similar methodologies to allocate costs between sanitary and stormwater for the purposes of developing a stormwater authority.

1.1.1.2 Debt Service Cost Allocation Factor

To allocate the costs associated with the existing and future debt service of the combined sewer collection system, a comparison of existing infrastructure was established. An inch-foot analysis was used to determine the ratio of infrastructure within the collection system in relation to stormwater and sanitary.

The inch-foot analysis was conducted based on PWSA's existing collection system and included determining the "inch-foot" total for each pipe by taking the diameter (or representative diameter) of each pipe times the length of the pipe. The total length of the pipe was obtained from the PWSA GIS data provided by PWSA. As shown on Table 1.2, the total length of the pipe within the PWSA system is 6,379,951 linear feet.

Table 1.2: Total Length of Pipe by Pipe Type

Pipe Type	Linear Feet
Combined	4,791,216
Force Main	7,420
Overflow	65,377
Sanitary	909,478
Storm	599,770
Undefined	5,973
Total	6,379,951

Once an inch-foot value was determined for each pipe, the total inch-foot was summarized based on “Pipe Type”. The inch-foot of each main category of pipe type in the PWSA system is presented in Table 1.3.

Table 1.3: Total Inch-Foot by Pipe Type

Pipe Type	In-Ft
Combined	100,476,225
Force Main	61,882
Overflow	2,885,669
Sanitary	9,041,697
Storm	12,044,613
Undefined	97,224
Total	124,607,310

For the purposes of this evaluation, the pipe types relating to combined portions of the system were grouped together to form one combined category. These included combined, force main and overflow pipe types. These types were included based on the fact that force mains are primarily serving to pump combined flow from low areas back into the gravity system. Overflow pipes were also included based on their responsibility to convey combined flows to a designated outfall. Last, undefined pipes were not included in the assessment, given that their use was undefined. The results of this grouping are provided in Table 1.4 below.

Table 1.4: Consolidated Total Inch-Foot by Pipe Type

Pipe Type	In-Ft	%
Combined	103,423,776	83.0%
Sanitary	9,041,697	7.3%
Storm	12,044,613	9.7%
Total	124,510,087	100.0%

To assign the combined total to either sanitary or storm, the peak flow allocation factor described in Section 1.1.1.1 was used. This resulted in 70 percent of the combined total being allocated to storm (72,396,643 inch-foot [in-ft]), with the remaining 30 percent allocated to sanitary (31,027,133 in-ft). The resulting inch-foot allocation is provided in Table 1.5 below.

Table 1.5: PWSA Sewer System Proposed Breakdown1

Pipe Type	In-Ft	%
Sanitary (allocated from combined)	31,027,133	24.9%
Sanitary (known)	9,041,697	7.3%
Sanitary (total)	40,068,830	32.2%
Storm (known)	12,044,613	9.7%
Storm (allocated from combined)	72,396,643	58.1%
Storm (total)	84,441,257	67.8%
Total	124,510,087	100.0%

- 1) Assumes the 70/30 split between storm sewers and sanitary sewers for combined systems.

In summary, a 68/32 stormwater to sanitary ratio was determined to be reasonable to allocate the debt service of the conveyance system. The 68/32 ratio is supported by the results documented in Table 1.5 and also compares reasonably well with other large combined sewer systems that have used similar methodologies to allocate costs between sanitary and stormwater for the purposes of developing a stormwater authority.

1.1.1.3 Treatment Cost Allocation Factor

Currently, ALCOSAN's charge for the treatment of wastewater is determined by water meter consumption. The ALCOSAN charge is currently a direct transfer through PWSA and is shown as a separate line item on the PWSA bill. As such, the stormwater authority would not include the cost associated with the treatment of wastewater; however, it should be noted that, while the ALCOSAN costs are currently determined by water consumption, there could be a shift in the future to base that charge on the actual flows to ALCOSAN. If that shift occurs in the future, the stormwater authority should consider reevaluating allocating a portion of the costs to the stormwater authority, given that reductions in stormwater contributions might reduce the overall cost of treatment.

1.1.1.4 Customer Service Allocation Factor

To develop a customer service allocation factor, individual costs items are first allocated based on the revenues between water and wastewater services. Given that the wastewater does not required meter readings, the meter readings were removed from the total cost. The remaining costs were then divided on an equal basis between sanitary sewer and the stormwater authority.

1.1.1.5 General and Administrative Allocation Factor

After all direct costs are allocated, the General and Administrative (G&A) costs are allocated proportionate to the allocation of all the direct (non-G&A) O&M costs.

Table 1.6 documents the allocation factors and the basis that was used for the development of the rate structure.

Table 1.6 –Wastewater O&M Allocation Factors

Allocation Factor/Cost Center	Allocation Basis	Sanitary Sewer Allocation	Stormwater Allocation
O&M Conveyance	Based on the ratio of estimated peak wet weather flow to peak dry weather flow volume.	30%	70%
Debt Service	Based on the inch-foot analysis.	32%	68%
Treatment	Treatment costs are allocated to Sanitary as it is assumed that these costs will continue to be borne by the Sanitary budget based on the rate established by ALCOSAN.	100%	0%
Customer Service	Individual cost items first allocated based on revenue between Water and Wastewater. Wastewater costs (except Meter costs) were then further allocated on an equal basis between sanitary and stormwater. The percentages reflect the overall resulting allocation.	63%	37%
General & Administrative	Based on the proportionate allocation of all the direct (Non-G&A) O&M costs.	94%	6%

1.1.2 O&M Cost Projections

The O&M cost projections typically include costs of existing operational activities, the costs currently expended by PWSA for stormwater management, and any anticipated increases in future operational activities.

For the six-year forecast period, the O&M costs are projected using PWSA's approved FY 2012 budget as the base year. Allocation factors discussed in Section 1.1.1 above were used to allocate the FY 2012 budget in terms of stormwater and sanitary costs. The O&M costs were developed using the multi-step process described below:

Step 1: PWSA's combined wastewater costs were first categorized in to functional costs. The four functional costs delineated are: Conveyance; Treatment; Customer Service; and G&A.

Step 2: Allocation factors were developed as noted in Section 1.1.1, to apportion each of the functional costs (except Treatment) between the sanitary sewer and stormwater budgets. Treatment costs are not allocated to stormwater as it is assumed that those costs will continue to be borne by the sanitary budget based on the rate established by ALCOSAN.

Step 3: Additional O&M costs for services currently provided by the City, for which the stormwater authority is expected to take responsibility for funding, were defined. It is assumed that the stormwater authority will take on these costs only from the Test Year and beyond. Hence, these costs are included only from FY 2014 onwards. Additional information pertaining to these costs is provided in Section 1.1.2.1 below.

Step 4: One-time stormwater authority implementation costs were estimated and included in the O&M cost projections. The total estimated implementation costs are assumed to occur over a two year period between FY 2014 and FY 2015.

The sum of all of the above costs provides the total estimated O&M costs. Recurring functional costs are projected using an escalation factor of 4.15 percent, which is an approximation of allowances for projected costs. Table 1.7 presents the six-year projections of O&M costs for the stormwater authority.

1.1.2.1 Additional O&M Costs Currently Conducted by the City

In addition to the FY 2012 PWSA budget, costs from the City DPW that were related to stormwater management were included in the O&M costs that are to be covered by the stormwater authority. These costs include DPW costs for labor and equipment for work orders that included stormwater repairs such as flood and storm damages, as well as inlet, manhole, gutter, and stream channel repairs. Those costs were projected to be a total of \$320,000 for FY 2012 and are presented in the table in Appendix A - Table A.1, Current Stormwater Responsibilities.

Given that the City currently provides engineering services which include zoning/development reviews pertaining to stormwater, as well as floodplain reviews, an additional engineer will be required for the stormwater authority in order to conduct those reviews. This engineer would also be responsible for reviewing and assisting with stormwater credit applications and appeals processing. To support with the inspection of private stormwater management facilities and verification of stormwater credit applications, an additional field inspector would be required. The field inspector would require a vehicle to conduct the inspections as well as the authority to enter private property, which is something that PWSA currently cannot do. In total, this equates to two additional staff with a combined cost of \$160,000 per year, which includes salary and benefits, as well as a vehicle estimated at \$10,000 per year to cover the lease of the vehicle, insurance, and fuel. As such, \$170,000 is added above the current PWSA budget to cover the additional staff required for the stormwater authority.

Table 1.7 – Projected O&M Expenses

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
<i>Annual Escalation Factor</i>		4.15%	4.15%	4.15%	4.15%	4.15%
Existing O&M Costs						
Conveyance	\$3,516,000	\$3,662,000	\$3,814,000	\$3,972,000	\$4,138,000	\$4,309,000
Treatment	-	-	-	-	-	-
Customer Service	\$537,000	\$559,000	\$583,000	\$607,000	\$632,000	\$658,000
General & Administrative	\$602,000	\$627,000	\$653,000	\$680,000	\$708,000	\$738,000
Additional Stormwater Related Costs						
Current City Services ⁽¹⁾	-	-	\$532,000	\$554,000	\$577,000	\$601,000
Implementation Costs ⁽²⁾	-	-	\$300,000	\$150,000	-	-
Total Estimated O&M Costs	\$4,655,000	\$4,848,000	\$5,882,000	\$5,963,000	\$6,055,000	\$6,306,000

Notes:

- (1) Current City Services include the following City activities anticipated to be taken over by PWSA in FY 2014:
 - o Stormwater Reviews and Inspections (2 FTEs and a vehicle lease). Estimated FY 2012 cost of \$170,000.
 - o Stormwater Facility Maintenance costs. Estimated FY 2012 cost of \$285,000 based on information provided by the City.
 - o Stream Maintenance costs. Estimated FY 2012 cost of \$35,000 based on information provided by the City.
- Assumes a January 2014 launch of the stormwater authority.

The sum of all of the above costs provides the total estimated O&M costs. Recurring functional costs are projected using an escalation factor of 4.15%. Table 1.2 presents the six-year projections of O&M costs for the stormwater utility.

1.1.3 Capital Cost Projections and Financing

1.1.3.1 Capital Cost Projections

The capital costs are projected based on the PWSA's CIP. PWSA's CIP was reviewed, and the wastewater related projects were identified. Appendix A - Table A.2, Capital Improvement Program Expenses, provides a summary of the wastewater-related projects included in PWSA's CIP.

1.1.3.2 Capital Cost Financing

PWSA's existing outstanding debt service was first allocated between the water and wastewater departments. The wastewater outstanding debt service was subsequently allocated between sanitary sewer and stormwater based on the Debt Service Cost Allocation Factor discussed in Section 1.1.1.2 above. Appendix A - Table A.3, Existing Debt Service, provides a summary of the stormwater authority's allocation of existing debt service.

For initial planning and evaluation purposes, it is assumed that all other capital program costs presented in Appendix A - Table A.2 will be entirely bond financed. A financing plan for PWSA's wastewater-related CIP was developed to estimate the projected bond issues necessary to provide the funding for the wastewater-related CIP. The projected debt service for the projected bond issues was subsequently allocated between the sanitary sewer and stormwater authority using the same proportion as the existing debt service. Appendix A Table A.4, Projected Capital Funding Expenses, provides a summary of the estimated wastewater CIP financing plan and subsequent allocation of proposed debt service to the stormwater authority.

PWSA's existing revenue bond covenant requires PWSA to maintain a debt service coverage ratio of 1.20 (120 percent). For initial planning and evaluation purposes, it is assumed that the stormwater authority will establish the annual revenue requirements to maintain a debt service coverage ratio of 1.25 (125 percent). A slightly higher debt service coverage than required by the bond covenant is recommended as a contingency to account for any potential shortfalls in the stormwater authority's revenues when the stormwater authority is launched. Estimated additional revenues required to maintain the 1.25 (125 percent) debt service coverage are included as a revenue requirement.

1.1.3.3 Routine Capital Outlay Costs

It is prudent and good financial practice to establish an annual capital budget for Routine Capital Outlays for minor unforeseen expenditures. To reflect this practice, an estimated additional budget has been defined for Routine Capital Outlays. This additional budget will provide an allowance for repairs to the system as well as cleaning and repairing structures such as roadway culverts which are not currently included within PWSA's maintenance contracts, but are a part of the overall stormwater management system with PWSA's service area.

For the purpose of this study, an annual budget estimate for Routine Capital Outlay is included

beginning FY 2014. The annual estimate is calculated as follows:

- Fifteen percent (15 percent) of the “conveyance” O&M costs allocated to stormwater for FY 2012, which equates to \$530,000 is estimated for minor repairs/cleaning for roadway culverts, inlets, etc.
- An additional \$320,000 is estimated for minor stormwater infrastructure repairs that the City typically performs.

The sum of the above two items which approximately equates to \$850,000 is defined as the baseline annual Routine Capital Outlay budget. For FY 2014, only 50 percent of this estimated baseline amount is included to reflect program initiation, and then the full baseline amount of \$850,000 is included in projection for FY 2015, and escalated using a nominal annual escalation factor of 4.15 percent for FY 2016 and FY 2017.

Table 1.8 presents the six-year projections of capital expenses including the allocation of existing outstanding bonds, proposed bonds, routine capital outlay, and debt service coverage requirement, needed to support the PWSA’s stormwater capital expenditure needs at the current level of service.

Table 1.8 – Projected Annual Expenditures

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
Existing Debt Service						
GO/Direct Debt	\$10,334,000	\$10,545,000	\$10,606,000	\$10,621,000	\$10,634,000	\$10,557,000
PennVest Loans	\$436,000	\$437,000	\$437,000	\$436,000	\$453,000	\$458,000
Proposed Debt Service						
Proposed Revenue Bonds	\$772,000	\$772,000	\$2,509,000	\$2,509,000	\$4,246,000	\$4,246,000
Routine Capital Outlay⁽¹⁾						
Routine Capital Outlay	-	-	\$425,000	\$850,000	\$885,000	\$922,000
Debt Service Coverage						
Debt Service Coverage	\$2,886,000	\$2,938,000	\$1,982,000	\$2,528,000	\$2,932,000	\$2,850,000
Total Estimated Capital Costs	\$14,428,000	\$14,692,000	\$15,959,000	\$16,944,000	\$19,150,000	\$19,033,000

Notes:

Routine Capital Outlay is funded within the revenues required to meet the 1.25 debt service coverage requirement

1.1.4 Operating Reserve Requirement

In addition to the projection of O&M costs and capital costs discussed above, the projection of revenue requirements for authority enterprise operations typically includes other operating and capital reserve requirements and cost adjustments for any anticipated user fee collections shortfall. These additional revenue requirement cost items are discussed below.

Operating Reserve Requirement

In projecting revenue requirements for an enterprise fund authority, it is prudent to include an estimate of annual operating reserve requirement to provide cash flow fluctuations during the fiscal year and to provide for any extraordinary unplanned for operational emergencies. The inclusion of working capital reserve requirement is consistent with PWSA's current bond covenants and PWSA's best practice financial management.

PWSA's existing revenue bond covenants requires PWSA to maintain an Operating Reserve Requirement of 60 days of annual O&M expenditures. As the stormwater authority is expected to be launched in FY 2014, the full 60-day operating reserve needed for that year is included. The incremental increase needed to meet the 60-day O&M reserve requirement is included in each subsequent year. The projected 60-day O&M reserve requirement for the study period is presented in Table 1.9.

1.1.4.1 Capital Reserve Requirement

PWSA's existing revenue bond covenants requires PWSA to maintain a Renewal and Replacement Fund in the amount designated by the PWSA's consulting engineer. For initial planning and evaluation purposes, it is assumed that no additional capital reserve requirements will be necessary during the study period.

1.1.4.2 Collection Shortfall Adjustments

Collection shortfalls, or bad debt amounts, are incurred when billed user fees become delinquent uncollectible amounts. Despite any collection shortfall, the stormwater authority still needs to generate sufficient revenues to meet all the annual expenditure obligations. Therefore, it is prudent financial practice to include an estimate of revenue requirement to offset any potential revenue collection shortfall. Collection shortfall revenue requirement adjustments are estimated as 5 percent of total billings. The projected Collection Shortfall Adjustments are presented in Table 1.9.

1.1.5 Net Revenue Requirement Projection

The net revenue requirement is defined as the revenues that need to be generated from user rates. Therefore, net revenue requirement is calculated as the total annual revenue requirement less any anticipated "miscellaneous revenues" that can offset some of the stormwater management costs. For initial planning and evaluation purposes, it is assumed that no miscellaneous revenues will be attributable to the stormwater authority during the study period. See Table 1.10 for the projected Net Revenue Services.

Table 1.9 – Other Revenue Requirement Adjustments

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
Reserve Requirements						
Operating Reserve Requirement	-	-	\$980,000	\$14,000	\$15,000	\$42,000
Capital Reserve Requirement	-	-	-	-	-	-
Revenue Adjustments						
Collection Shortfall Adjustments	\$954,000	\$977,000	\$1,141,000	\$1,146,000	\$1,261,000	\$1,269,000
Total Other Revenue Requirement Adjustments	\$954,000	\$977,000	\$2,121,000	\$1,160,000	\$1,276,000	\$1,311,000

Table 1.10 – Net Revenue Requirements

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
O&M Expenses	\$4,655,000	\$4,848,000	\$5,882,000	\$5,963,000	\$6,055,000	\$6,306,000
Capital Expenses	\$14,428,000	\$14,692,000	\$15,959,000	\$16,944,000	\$19,150,000	\$19,033,000
Reserve Requirements	-	-	-	-	-	-
Operating Reserve Requirement	-	-	\$980,000	\$14,000	\$15,000	\$42,000
Capital Reserve	-	-	-	-	-	-
Revenue Adjustments	-	-	-	-	-	-
Collection Adjustments	\$954,000	\$977,000	\$1,141,000	\$1,146,000	\$1,261,000	\$1,269,000
Miscellaneous Revenue	-	-	-	-	-	-
Total Net Revenue Requirements	\$20,037,000	\$20,517,000	\$23,962,000	\$24,067,000	\$26,481,000	\$26,650,000

APPENDIX

Table A.1 – DPW Current Stormwater Responsibilities

City of Pittsburgh Department of Public Works Stormwater Activities Cost Summary					
Program	Type of O&M	Total Cost			Projected Cost
		2009	2010	2011	2012
Flood/Storm Damage <i>- To be conducted by Stormwater Authority</i>	Labor	\$9,313	\$18,178	\$4,173	
	OT Labor	\$2,493	\$5,485	\$1,362	
	Materials	\$190	\$438	\$94	
	Equipment	\$8,062	\$8,504	\$2,985	
	Total	\$20,058	\$32,604	\$8,614	\$35,000
Catch Basin/Manhole/Gutters <i>- To be conducted by Stormwater Authority</i>	Labor	\$86,995	\$88,557	\$135,856	
	OT Labor	\$5,726	\$8,946	\$61	
	Materials	\$6,873	\$10,986	\$17,706	
	Equipment	\$48,799	\$60,932	\$105,755	
	Total	\$148,392	\$169,422	\$259,378	\$285,000
Street Sweeping <i>- To be conducted by the City</i>	Labor	\$704,279	\$404,132	\$232,735	
	OT Labor	\$9,078	\$5,383	\$6,445	
	Materials	\$29,282	\$178,675	\$159,945	
	Equipment	\$599,826	\$452,899	\$454,963	
	Total	\$1,342,465	\$1,041,089	\$854,089	\$939,497

Note: Data from City of Pittsburgh Department of Public Works

Table A.2 – Projected Capital Improvement Program Expenses

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
Existing Capital Program Costs						
Try Street Relief Sewer		\$2,209,000				
Sewage Pump Station Upgrades	\$3,090,000					
Becks Run CSO Improvements			\$1,454,000			
Bells Run CSO Improvements				\$5,981,000	\$6,161,000	\$6,346,000
Easy Street CSO Improvements			\$2,295,000			
Little Saw Mill Run CSO Improvements				\$5,459,000	\$5,622,000	\$5,791,000
McCartney Run CSO Improvements			\$5,507,000			
Weymans Run CSO Improvements			\$1,530,000			
Brook Street Run CSO Improvements			\$2,295,000			
COA Compliance	\$1,030,000	\$1,061,000	\$1,093,000	\$1,126,000	\$1,159,000	\$1,194,000
Sewer System Improvements	\$2,060,000	\$2,122,000	\$2,185,000	\$2,251,000	\$2,319,000	\$2,388,000
Total Estimated Capital Program Costs	\$6,180,000	\$5,392,000	\$16,359,000	\$14,817,000	\$15,261,000	\$15,719,000

Table A.2 - Projected Wastewater Related Capital Improvement Program Expenses

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
Existing Capital Program Costs						
Try Street Relief Sewer		\$2,209,000				
Sewage Pump Station Upgrades	\$3,090,000					
Becks Run CSO Improvements			\$1,454,000			
Bells Run CSO Improvements				\$5,981,000	\$6,161,000	\$6,346,000
Easy Street CSO Improvements			\$2,295,000			
Little Saw Mill Run CSO Improvements				\$5,459,000	\$5,622,000	\$5,791,000
McCartney Run CSO Improvements			\$5,507,000			
Weymans Run CSO Improvements			\$1,530,000			
Brook Street Run CSO Improvements			\$2,295,000			
COA Compliance	\$1,030,000	\$1,061,000	\$1,093,000	\$1,126,000	\$1,159,000	\$1,194,000
Sewer System Improvements	\$2,060,000	\$2,122,000	\$2,185,000	\$2,251,000	\$2,319,000	\$2,388,000
Total Estimated Capital Program Costs	\$6,180,000	\$5,392,000	\$16,359,000	\$14,817,000	\$15,261,000	\$15,719,000

Table A.3 – Existing Debt Service

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
<i>Outstanding GO/Direct Debt</i>						
Wastewater Utility						
Series 1993 A	\$3,050,936	\$3,401,975	-	-	-	-
Series 1993 B	-	-	-	-	-	\$799,020
Series 2003	\$784,764	\$784,748	\$4,298,309	\$4,321,793	\$4,336,731	\$646,857
Series 2007 A	\$1,997,559	\$2,000,477	\$1,999,261	\$1,998,236	\$1,999,287	\$1,998,940
Series 2007 B 1	\$564,422	\$564,422	\$564,422	\$564,422	\$564,422	\$564,422
Series 2007 B 2	\$564,490	\$564,490	\$564,490	\$564,490	\$564,490	\$564,490
Series 2008 A	\$1,574,240	\$1,574,240	\$1,574,240	\$1,574,240	\$1,574,240	\$4,355,177
Series 2008 B 1	\$1,392,751	\$1,376,615	\$1,376,615	\$1,376,615	\$1,377,517	\$1,376,615
Series 2008 B 2	\$1,393,898	\$1,376,521	\$1,376,521	\$1,376,521	\$1,377,422	\$1,376,521
Series 2008 C1 A	\$208,382	\$208,382	\$208,382	\$208,382	\$208,528	\$208,382
Series 2008 C1 B	\$208,382	\$208,382	\$208,382	\$208,382	\$208,528	\$208,382
Series 2008 C1 C	\$100,798	\$99,956	\$99,956	\$99,956	\$100,017	\$99,956
Series 2008 C1 D	\$633,484	\$629,089	\$617,977	\$617,977	\$617,977	\$617,977
Series 2008 C2	\$974,916	\$971,923	\$960,946	\$960,946	\$961,553	\$960,946
Series 2008 D 1	\$424,375	\$424,375	\$424,375	\$424,375	\$424,375	\$424,375
Series 2008 D 2	\$1,323,255	\$1,322,490	\$1,322,490	\$1,322,490	\$1,323,255	\$1,322,490
Total	\$15,196,650	\$15,508,087	\$15,596,366	\$15,618,826	\$15,638,343	\$15,524,550
Stormwater Utility Allocation						
Percent Allocation	68%	68%	68%	68%	68%	68%
Allocated Debt Service	\$10,333,722	\$10,545,499	\$10,605,529	\$10,620,801	\$10,634,073	\$10,556,694

Table A.3 - Existing Debt Service (Continued)

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
<i>PennVest Loans</i>						
Wastewater Utility						
Note # 71362 (#3)	\$264,769	\$264,770	\$264,769	\$264,769	\$281,646	\$290,087
Note # 27772 (#4)	\$611,446	\$611,445	\$611,444	\$611,444	\$649,347	\$656,930
Note # 27784 (#5)	\$268,519	\$268,520	\$268,520	\$268,520	\$268,520	\$268,520
Note # 71191 (#6)	\$10,375	\$10,376	\$10,375	\$10,376	\$10,374	\$10,374
Note # 58066 (#7)	\$52,056	\$52,056	\$52,056	\$52,058	\$52,059	\$52,055
Note # 71217 (#11)	\$136,848	\$136,848	\$136,848	\$136,848	\$136,848	\$136,848
Total	\$1,344,014	\$1,344,015	\$1,344,012	\$1,344,014	\$1,398,795	\$1,414,813
Stormwater Utility Allocation						
Percent Allocation ¹	32.5%	32.5%	32.5%	32.5%	32.5%	30%
Allocated Debt Service	\$436,531	\$436,531	\$436,530	\$436,532	\$452,967	\$457,770
<i>Total</i>						
Wastewater Utility	\$16,540,664	\$16,852,102	\$16,940,378	\$16,962,840	\$17,037,137	\$16,939,363
Stormwater Utility Allocation						
Percent Allocation	65.1%	65.2%	65.2%	65.2%	65.1%	65.0%
Allocated Debt Service	\$10,770,253	\$10,982,030	\$11,042,059	\$11,057,333	\$11,087,040	\$11,014,464

Notes:

1. Wastewater Utility related PennVest Loans allocated 30% to Stormwater Utility with the exception of Note # 58066 (#7) which is allocated 100% to the Stormwater Utility.

Table A.4 – Projected Capital Funding Expenses

Annual Expenditures	Projected Year 1 (FY 2012)	Projected Year 2 (FY 2013)	Projected Year 3 (FY 2014)	Projected Year 4 (FY 2015)	Projected Year 5 (FY 2016)	Projected Year 6 (FY 2017)
<i>Revenue Bond Issue Terms</i>						
Interest Rate	5.0%	-	5.0%	-	5.0%	-
Term	25 years	-	25 years	-	25 years	-
Issuance Date	January 1	-	January 1	-	January 1	-
Bond Issue	\$16,000,000	-	\$36,000,000	-	\$36,000,000	-
Estimated Issuance Expense ¹	(\$240,000)	-	(\$540,000)	-	(\$540,000)	-
Debt Service Reserve Requirement ²	(\$1,135,000)	-	(\$2,554,000)	-	(\$2,554,000)	-
Net Proceeds	\$14,625,000	-	\$32,906,000	-	\$32,906,000	-
<i>Construction Fund</i>						
Beginning Balance	\$0	\$8,572,000	\$3,239,000	\$20,093,000	\$5,403,000	\$23,381,000
Bond Proceeds	\$14,625,000	-	\$32,906,000	-	\$32,906,000	-
Capital Expenditures	(\$6,180,000)	(\$5,392,000)	(\$16,359,000)	(\$14,817,000)	(\$15,261,000)	(\$15,719,000)
Interest Income	\$127,000	\$59,000	\$307,000	\$127,000	\$333,000	\$156,000
Ending Balance	\$8,572,000	\$3,239,000	\$20,093,000	\$5,403,000	\$23,381,000	\$7,818,000
<i>Proposed Debt Service</i>						
Series 2012 Bonds	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000
Series 2013 Bonds		-	-	-	-	-
Series 2014 Bonds			\$2,554,000	\$2,554,000	\$2,554,000	\$2,554,000
Series 2015 Bonds				-	-	-
Series 2016 Bonds					\$2,554,000	\$2,554,000
Series 2017 Bonds						-
Total Proposed Bonds	\$1,135,000	\$1,135,000	\$3,689,000	\$3,689,000	\$6,243,000	\$6,243,000
Stormwater Allocation	68%	68%	68%	68%	68%	68%
Stormwater Debt Service	\$772,000	\$772,000	\$2,509,000	\$2,509,000	\$4,246,000	\$4,246,000

Notes:

2. Bond Issuance costs estimated as 1.5% of bond issuance.
3. Estimated debt service reserve requirement based on level principal and interest payments.



~~2022~~ 2024

Stormwater Fee Credit Manual



Pittsburgh Water and Sewer Authority

~~1/12/2022~~ 2/8/2024

**The Pittsburgh Water and Sewer Authority’s
Stormwater Fee Credit Manual**

SELECT ~~January 12, 2022~~ PROPOSED REVISIONS TO BE EFFECTIVE 2/8/2024

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Overview

Impervious surfaces, such as driveways and rooftops, prevent stormwater from infiltrating into the ground. Impervious surfaces increase runoff, transport pollutants into local bodies of water, and overload drainage systems, causing flooding and other issues.

The Pittsburgh Water and Sewer Authority (PWSA) has established a stormwater management service charge, also referenced throughout this document as the stormwater fee, to provide a dedicated source of revenue for the construction, operation, and maintenance of PWSA's stormwater infrastructure. All developed parcels with over 400 square feet of impervious area will be required to pay the fee, which is based on the amount of impervious surface on a property.

Addressing Pittsburgh's problem of excess stormwater is a community undertaking that requires the active participation of property owners to reduce the peak runoff rate, manage the total quantity of stormwater runoff, and improve its quality, as it enters Pittsburgh's sewer system or waterways. PWSA has developed a credit program that offers a discount on the stormwater fee to encourage property owners to take actions to reduce runoff from their property, thereby reducing stormwater service demand. The program seeks to minimize the administrative burden placed on customers who want to participate. Customers can also reduce their stormwater service charges by replacing impervious surfaces with green roofs or permeable pavement.

Disclaimer

The property owner assumes all risks and responsibilities associated with stormwater drainage modifications, including obtaining the necessary permits and complying with applicable regulations. PWSA is not responsible for said modifications and disclaims liability for such actions.

PWSA is providing this Manual as an accompanying document to its Stormwater Tariff. The Stormwater Tariff is approved by the Pennsylvania Public Utility Commission (PUC) and is what will determine if stormwater credits are available to PWSA stormwater customers receiving stormwater service for properties within the PWSA stormwater service territory.

Definitions, as defined in the Stormwater Tariff

Best Management Practice (BMP): Activities, facilities, designs, measures, practices, procedures, or a combination thereof determined to be the most effective and practicable used to manage stormwater runoff, control sediment, stabilize soil, reduce nonpoint source pollution and/or meet state water

quality requirements. Refer to the Pennsylvania Department of Environmental Protection’s suggested guidelines for stormwater quality, as defined in the current edition of the Pennsylvania Stormwater Best Management Practices Manual (<http://www.stormwaterpa.org/from-the-foreword.html>) .

Customer: Person or entity that is responsible for payment of storm water service charges. Customers are classified as either residential or non-residential. The property owner or, in the case of a non-residential property, a Guaranteed Lessee are the Customer.

Developed Property: A parcel altered from its natural state that contains an impervious area from manmade changes, including but not limited to, buildings, structures, gravel, and pavement equal to or greater than 400 square feet.

Equivalent Residential Unit (ERU): Unit of measurement that standardizes the amount of impervious area on a property to the typical amount of impervious area found on one residential parcel. PWSA equates 1 ERU to 1,650 square feet of impervious area.

Impervious Area or IA: A manmade surface resulting from parcel improvements which prevents or limits the infiltration of water into the ground, including compacted or covered semi-pervious surfaces such as compacted earth or clay, gravel that is installed and maintained for vehicle travel or parking, most conventionally hardscaped surfaces such as streets, driveways, roofs, sidewalks, parking lots, walkways, patio areas, attached and detached structures, and other similar surfaces.

Non-Residential Property: Any property that is not considered residential property.

Owner: The person having an interest as owner, or a person representing themselves to be the owner, whether legal or equitable, sole or partial, in any premises that are or are about to be supplied with water, wastewater conveyance, or stormwater service by PWSA.

Regional Efforts or “Enhanced Volume Control”: BMPs controlling at least 25% more runoff than what is required by the City of Pittsburgh 2019 stormwater standards for all impervious surfaces on the property.

Residential Property: Property used exclusively for residential purposes with at least one and no more than four dwelling units and which cannot be classified as a condominium property. Each residential property is considered to be a residential customer.

Runoff: Any water flow, resulting from either naturally occurring precipitation, snowmelt or human activity that does not immediately infiltrate the ground and travels along the ground surface potentially picking up pollutants until it has infiltrated, is collected, or reaches a receiving water body.

Stormwater Credit: A conditional reduction to the stormwater management service charge available to a customer for implementing certain eligible property conditions or controls and reducing a property’s demand for service.

Stormwater Management Service Charge: The service charge imposed by PWSA under its Stormwater Tariff, as amended from time to time, on each customer for their property’s use of the stormwater system and other stormwater services provided by PWSA.

Stormwater Management Service Charges Calculation

All customers are charged based on their property’s impervious area.

Residential Customers

Residential customers (owners of parcels with one to four dwelling units) are placed in one of three impervious area tiers, with all residential properties assigned either 0.5, 1, or 2 Equivalent Residential Units (or ERUs – see Definitions section, above) depending on their measured impervious area.

The ERU is the stormwater fee applied to each base billing unit (ERU). Refer to PWSA’s stormwater tariff for the rate currently in effect. In 2024, the proposed monthly stormwater fees by residential tiers are as follows: rate will be \$5.96 /ERU per month, ~~and in 2023 the rate will be \$7.95/ERU per month.~~

PWSA Proposed Monthly Stormwater Fees by Residential Tier			
<u>Proposed Residential Stormwater Fee</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>
<u>2024</u>	<u>\$5.13</u>	<u>\$10.26</u>	<u>\$20.52</u>

The calculations for charges are below:

Stormwater Customer Category	Tier ERU
Tier 1 - Impervious area of 400 square feet to less than 1,015 square feet	0.5
Tier 2 - Impervious area of 1,015 square feet to less than 2,710 square feet	1
Tier 3 - Impervious area greater than or equal to 2,710 square feet	2

$$Charge = Rate\ per\ (1)\ ERU \times Tier\ ERU$$

So, for example, a single-family residence having 2,236 square feet of impervious area is Category Tier 2 with 1 ERU. ~~In 2022 t~~For 2024, their monthly stormwater bill would be – ~~\$5.96~~10.26 X 1 ERU or ~~\$10.26~~5.96 per month.

Non-Residential Customers

Non-residential properties are charged based on their total impervious area, measured in Equivalent Residential Units (ERUs). 1 ERU is equivalent to 1,650 square feet of impervious area, and a property’s charge is its impervious area in ERUs multiplied by the effective rate per ERUs, which in 2024 is \$10.26 per month.

	<u>Effective January 12, 2022</u>	<u>Effective January 1, 2023 February 8, 2024</u>
Rate per (1) ERU	\$5.96	\$7.95 \$10.26

$$Charge = Rate\ per\ (1)\ ERU \times \frac{Total\ Impervious\ Area}{1,650\ sq\ ft\ per\ ERU} \text{ (round up to the nearest whole number)}$$

So, for example, consider a non-single-family residence having 148,672 square feet of impervious area. This equates to 91 ERUs (148,672 / 1,650, rounded up to the nearest whole number = 91). This property’s monthly stormwater fee is ~~\$933.66542.36~~ (91 ERUs x ~~\$10.25.96~~ = ~~\$933.66542.36~~).

To find your property’s Tier or Impervious Area, consult your stormwater bill, visit the PWSA Stormwater Fee Finder website -

<https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29889a42125edc>, call (412) 255-2423 (Press Option 5), or email info@pgh2o.com.

Stormwater Fee Credits

PWSA has developed a system of stormwater fee credits for customers who take steps to reduce stormwater runoff leaving their property and entering PWSA’s stormwater management system and natural receiving waters such as Saw Mill Run and the Allegheny, Monongahela, and Ohio Rivers.

Residential and non-residential customers are eligible for different credits as detailed in the sections below.

Residential Customers

~~A residential stormwater credit reduces a customer’s stormwater charge by 50%.~~ Residential customers can receive a stormwater credit, reducing the stormwater charge by 50%, by controlling ¾ of an inch of runoff from their property’s impervious surfaces.

A residential customer in any part of the city can get a stormwater credit by installing (or documenting the performance of a previously installed) stormwater control measure such as those listed on Worksheet 5, “Structural BMP Volume Credits” in the Pennsylvania Stormwater Best Management Practices Manual ([Chapter 8, pg. 34](#)). The control measure must capture for 24 to 72 hours and slowly release at least ¾ of an inch of runoff from the impervious surfaces on their property.

The more impervious surface on a residential property, the more runoff a measure must control to qualify for the fee credit. To calculate the runoff volume that needs to be controlled on a residential property –

$$* \text{Runoff Volume to be Controlled on a Residential Property in Gallons} = \text{Impervious Area sf} \times 0.0625 \times 7.48$$

*To find your property’s Impervious Area, consult your stormwater bill, or visit the PWSA Stormwater Fee Finder website -

<https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29889a42125edc>

$$* 0.0625 \text{ ft} = \frac{3}{4} \text{ inches} \times \frac{1 \text{ ft}}{12 \text{ inches}}$$

*To convert the value from cubic feet to gallons, multiply by 7.48.

For example, to determine how much water a stormwater control measure would need to detain on a Tier 2 residential property with 2,000 square feet of impervious area to receive a credit-

$$935 \text{ Gallons} = 2,000 \text{ sf} \times 0.0625 \times 7.48$$

They would need a rain garden, for example, that holds 935 gallons of runoff for 24-72 hours.

Residential customers are also eligible for a one-time credit of \$40 if they can demonstrate the use of a rain barrel to capture and detain roof runoff. Customers must submit a photo of the rain barrel installed and in good working order.

Non-Residential Customers

Non-residential customers can receive stormwater fee credit by **capturing and detaining runoff on-site through the use of structural BMPs that, meeting or exceeding recent development standards** in place in the City of Pittsburgh.

Non-residential customers who bring parts of their property up to the most stringent Stormwater Management standards, (the “2019 standards” <https://pittsburghpa.gov/dcp/stormwater>) will receive a 60% credit on the part of the property that meets the standards. Those standards are:

- Keep 1” or more of water from running off the impervious surfaces on their property and from getting into rivers or streams.

Non-residential customers who bring parts of their property up to the second-most stringent Stormwater Management standards (the “2016 standards”), will receive a 45% credit on the part of the property that meets those standards. Note that the 2016 Stormwater Management Standards have been replaced by the 2019 Stormwater Management Standards, so the written 2016 standards are no longer available. However, the 2016 standards are:

- Keep ¾” of an inch or more of water from running off the impervious surfaces on their property and from getting to rivers or streams.

In both situations, only the portion of the property's impervious area that meets the requirement will be used to compute the credit. The rest of the property will have the same charge as before.

Non-Residential Customers will be eligible for a credit provided that an approved stormwater BMP has been installed and the owner can demonstrate that the BMP is functioning as intended. Customers who have completed a Stormwater Plan and have received a letter from the City attesting that their plan is adequate have met these requirements. The letter from the City must be submitted with a credit application and other required supporting documentation for a Non-Residential property. Customers who have implemented stormwater treatment outside of City requirements will not have this letter, thus will submit plans and calculations for PWSA review.

To calculate the runoff volume that needs to be controlled on a property in order to obtain a 60% credit, multiply the impervious area in square feet by 0.083 feet (the same as one inch). To calculate the runoff volume that needs to be controlled on a property in order to obtain a 45% credit, multiply the impervious area in square feet by 0.0625 feet (the same as 3/4 inch).

As an example, a non-residential customer with a property of 165,000 sq. ft or 100 ERUs of impervious area will receive a monthly bill of ~~\$1,026,596.00 in 2022~~. If the customer decides to redevelop 33,000 sq. ft. or 20% of the impervious area to meet the 2019 standards, they will receive a 60% credit on that 20%. The customer's new monthly bill will be reduced by 12% (60% discount x 20% of impervious area), for an updated monthly fee of ~~\$902,8524.48~~.

Non-residential customers can also earn a credit of between 75% and 100% of their stormwater fees, for "regional efforts - or "Enhanced Volume Control" for controlling at least 25% more runoff than what is required by the City of Pittsburgh 2019 stormwater standards.

Non-residential customers can also receive credit through passive management of stormwater via a property's green spaces. An engineer-stamped drainage analysis must demonstrate that green spaces are receiving and infiltrating runoff from adjacent impervious surfaces to an extent consistent with the standards described above. That is, impervious surfaces for which ¾ inch of runoff is infiltrated by green spaces will be eligible for 45% credit, and impervious surfaces for which 1 inch of runoff is infiltrated by green spaces will be eligible for 60% credit.

Credit Application and Approval Process

The Stormwater Fee Credit Application and Approval process consists of the following steps:

1. The property owner (or an approved representative thereof) completes and submits a Stormwater Fee Credit Application form with all required documentation.
2. PWSA will evaluate the application within three days to determine if the action qualifies for a stormwater fee credit. Review times may be extended to up to 30 days, based on the number of applications received by PWSA.
3. The applicant will be notified by letter and/or email of the determination of the stormwater fee credit.

General questions regarding credits should be referred to PWSA's Customer Service at (412) 255-2423 (Press Option 5) or via email to info@pgh2o.com. Stormwater fee credits are maintained on a property for as long as the stormwater facility receiving credit(s) is properly functioning in accordance with applicable codes, ordinances and the policies stated herein. The credit will continue for three (3) years for residential and non-residential properties from the date of approval of the credit, at which time the owner must submit a renewal form. Three months prior to expiration of the credit, PWSA will send a notification by letter or e-mail of the requirement for renewal.

Application Submission

The stormwater fee credit application form is provided in Attachment A and is available on the PWSA Stormwater Fee website at www.pgh2o.com/stormwater-fee. Electronic submission via the website is preferred. If this is not possible, the paper application and supporting documentation may be mailed to:

Pittsburgh Water and Sewer Authority
Attn.: Department of Engineering and Construction, Stormwater Fee Credit Review
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222

PWSA will notify applicants if their applications are incomplete. If complete information is not provided, the application will expire one year from the date of the original submission. Once an application expires, the owner must submit a new credit application with all supporting documentation.

Questions can be directed to (412) 255-2423 (Press Option 5) or via email to info@pgh2o.com.

Credit Approval

PWSA will review the required documentation, and approval or denial of the stormwater fee credit application will be determined. If all requirements and conditions are met, the stormwater fee credit will be available upon successful completion of the stormwater fee credit application process and approval by PWSA for the stormwater fee credit, generally within 3 days. Review times may be extended to up to 30 days based on the number of applications received by PWSA. A PWSA representative will notify the applicant by letter and/or email of the approval or denial and the resulting credits (if applicable). If approved, the credit will be made to the customer's bill on the next billing cycle, and can be made retroactive to no earlier than January 12, 2022, based on date of installation.

Credit Termination

PWSA may review and terminate approved credits at any time if the facilities associated with those credits are found to be improperly maintained and/or not adequately functioning and the owner fails to restore the BMP to good working order following notification by PWSA.

Failure to properly maintain the BMP may result in a public nuisance. If disconnection causes a public nuisance to neighboring property or public property, sidewalk, or roadway, corrective actions, which may include reconnection to the public sewer system, must be made within 30 days upon re-inspection and notification by Inspector(s) or credits will be terminated.

Answers to Some Common Questions About the Stormwater Fee

What if I Have a Question About My Credit Determination?

Questions can be directed to (412) 255-2423 (Press Option 5) or via email to info@pgh2o.com. PWSA will review your question and account details with you.

What Are the Maintenance and Renewal Requirements?

The facilities must be owned, operated, and maintained, either on-site or by record of agreement, by the applicant.

Does the Credit Have to Be Renewed?

To continue to receive a credit, the property owner must submit a renewal form (see Attachment B) with a copy of a property owner's written inspection report of their BMP every three (3) years. The owner confirms that the BMP is performing as intended in properly managing stormwater with a current photograph.

Will PWSA Perform Site Inspections?

After an owner submits a credit application or credit renewal application, PWSA may inspect the parcel(s) as needed to verify the information provided in the application and in the supporting documentation. It is the responsibility of the customer/owner to allow PWSA access to the parcel.

If at any time an Authority inspection determines that the facility is not being maintained, the credit can be suspended. PWSA may choose to withhold credit until the owner can demonstrate the facility has been restored to good working order and appropriate maintenance plans are in place.

Disputes

If you are unsatisfied with any issue related to your stormwater fee, you may avail yourself of your rights in accordance with the Pennsylvania Public Utility Commission's Inquiry/Dispute/Informal Complaint/Formal Complaint processes at <https://www.pgh2o.com/residential-commercial-customers/account-billing-info/customer-rights>.

Attachments

Attachment A – Stormwater Fee Credit Application Form

The stormwater fee credit application form is available on the PWSA Stormwater Fee website at www.pgh2o.com/stormwater-fee. It is also provided in Attachment A. Electronic submission via the



website is preferred. If this is not possible, the paper application and supporting documentation may be mailed to:

Pittsburgh Water and Sewer Authority
Attn.: Department of Engineering and Construction, Stormwater Fee Credit Review
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222

Or email to: stormwaterfee@pgh2o.com

General questions can be directed to (412) 255-2423 (Press Option 5) or via email to info@pgh2o.com. The application will be evaluated to determine if the action qualifies for a credit. The applicant will be notified by letter and/or email of the determination of the credit.

Stormwater Fee Credit Application – Pittsburgh Water and Sewer Authority

Date:

Property Owner Information

Name:

E-mail:

Phone Number:

Mailing Address:

I attest that I have legal ownership and maintenance responsibility for the Best Management Practice(s) included in this application.

Signature:

Parcel Information

Address:

Allegheny County Parcel ID Number (Ex: 0123-A-00123-00000-00): _____

To find your parcel ID number, you can search for your property's address on the [Allegheny County Real Estate Portal \(https://www2.alleghenycounty.us/RealEstate/Search.aspx\)](https://www2.alleghenycounty.us/RealEstate/Search.aspx)

Parcel Impervious Area (in square feet): _____ sq. ft.

To find your parcel's impervious area in square feet, please check your most recent stormwater bill, visit the PWSA Stormwater Fee Finder page -

<https://pwsa.maps.arcgis.com/apps/webappviewer/index.html?id=df39e93b5a0e403f8a29889a42125edc>, or call Customer Service at [412-255-2423](tel:412-255-2423) (Press Option 5).

Does this property have one or more tenant-occupied residential dwelling units? ___ Yes ___ No.

Type of Credit:

Is your property... (choose one)

- A single-family home, duplex, triplex, or quadplex, and not a condominium (considered Residential for the fee)
- Any other type of property (considered Non-Residential for the fee)

Please choose the type of credit you are applying for. If your property is Residential, you may only choose the first two, Residential, options. If your property is Non-Residential, you may select all Non-Residential credit types that apply.

- Residential, Controlling at least 0.75 inches ($\frac{3}{4}$ ") of runoff
Residential, Rain Barrel
- Non-Residential, 2019 Standards (Controlling at least 1 inch (1") of runoff)
- Non-Residential, 2016 Standards (Controlling at least 0.75 inches ($\frac{3}{4}$ " of runoff)
- Non-Residential, Regional Efforts or "Enhanced Volume Control" controlling at least 1.25 inches (1 $\frac{1}{4}$ ") of runoff

Type of Best Management Practice:

- Rain Garden (complete "Runoff Control Calculations" section below
Rain Barrel)
- Other Best Management Practice (Please specify, e.g. modular storage, cistern, dry well, green roof): _____ . Complete "Runoff Control Calculations" section below.
- Green Space (complete "Runoff Control Calculations" section below)

Date Best Management Practice was Implemented (Month/Year): _____

Runoff Control Calculations (Complete all that apply):

Residential Rain Garden:

To be eligible for this credit, you must keep $\frac{3}{4}$ " of stormwater from running off your parcel's impervious area.

Storage Requirement: The amount of stormwater you must control is [your parcel's Impervious Area] _____ sq. ft. * 0.0625 ft. = _____ cu. ft.

Is your rain garden rectangular or non-rectangular? Rectangular _____ Non-rectangular _____

If rectangular Rain Garden Length (in feet): _____ ft. Rain Garden Width (in feet): _____ ft.

Rain Garden Area (length x width, if rectangular): _____ sq. ft.

Depth from the surrounding area to the top of your rain garden bed's soil: _____ ft.

Depth of your rain garden bed's loose soil (in feet): _____ ft.

Storage Volume = Surface Storage + Soil Storage

Storage Volume = (Area x Depth) + (Area x Soil Depth x 10%)

Storage Volume = (_____ square feet x _____ feet) + (_____ square feet x _____ feet x 10%)

Storage Volume for Your Rain Garden = _____ cubic feet

Storage Requirement for Your Rain Garden = _____ cubic feet (calculated above)

Residential Other Best Management Practice:

To be eligible for this credit, you must keep ¾" of stormwater from running off your parcel's impervious area.

Storage Requirement: The amount of stormwater you must control is [your parcel's Impervious Area] _____ sq. ft. * 0.0625 ft = _____ cu. ft.

How much runoff does your best management practice control? (in cubic feet) _____ cu. ft.

Non-Residential 2019 Standards (Controlling 1" of Runoff):

How much of your parcel's impervious area meets the 2019 Standards of controlling 1" of runoff? (in square feet): _____ sq. ft.

Parcel Impervious Area = (_____ sq. ft. / 1,650 sq. ft. per ERU), *round up to the nearest whole number*) = _____ Equivalent Residential Units (ERU)

Impervious Area Meeting 2019 Standards = _____ square feet

Impervious Area Not Meeting 2019 Standards = _____ square feet (Parcel Impervious Area – Impervious Area Meeting 2019 Standards)

Runoff Volume Controlled = Impervious Area Meeting 2019 Standards x 1"

Runoff Volume Controlled = _____ square feet x 1"

Runoff Volume Controlled = _____ cubic feet

Credit on Impervious Area = 60% Credit x (Impervious Area Meeting 2019 Standards / Parcel Impervious Area)

Credit on Impervious Area = 60% x (_____ square feet / _____ square feet)

Credit on Impervious Area = _____%

Non-Residential Runoff Controls, 2016 Standards (Controlling ¾" of Runoff):

How much of your parcel's impervious area meets the 2016 Standards of controlling ¾" of runoff? (in square feet): _____ sq. ft.

Parcel Impervious Area = (_____ sq. ft. / 1,650 sq. ft. per ERU), *round up to the nearest whole number*) = _____ Equivalent Residential Units (ERU)

Impervious Area Meeting 2016 Standards = _____ square feet

Impervious Area Not Meeting 2016 Standards = _____ square feet (Parcel Impervious Area – Impervious Area Meeting 2016 Standards)

Runoff Volume Controlled = Impervious Area Meeting 2016 Standards x ¾"

Runoff Volume Controlled = _____ square feet x ¾"

Runoff Volume Controlled = _____ cubic feet

Credit on Impervious Area = 45% Credit x (Impervious Area Meeting 2016 Standards / Parcel Impervious Area)

Credit on Impervious Area = 45% x (_____ square feet / _____ square feet)

Credit on Impervious Area = _____%

Reduction on Stormwater Bill = \$5.96 Rate per ERU x Parcel Impervious Area in ERU x Credit on Impervious Area

Reduction on Stormwater Bill = \$5.96 per ERU x _____ ERU x _____%

Reduction on Stormwater Bill = \$ _____

New Stormwater Bill Total, Non-Residential:

Original Stormwater Bill = \$5.96 Rate per ERU x Parcel Impervious Area in ERU

Original Stormwater Bill = \$5.96 per ERU x _____ ERU

Original Stormwater Bill = \$ _____

Total Reduction on Stormwater Bill = Reduction for 2019 Standards + Reduction for 2016 Standards

Total Reduction on Stormwater Bill = \$ _____ + \$ _____

Total Reduction on Stormwater Bill = \$ _____

New Stormwater Bill = Original Stormwater Bill - Total Reduction on Stormwater Bill

New Stormwater Bill = \$ _____ - \$ _____

New Stormwater Bill = \$ _____

Non-Residential Runoff Controls, Regional Efforts or "Enhanced Volume Control"

Please summarize your plan for Regional Efforts. PWSA staff will contact you to review together.

Supporting Documentation

For Residential Credits

Rain Gardens: Please upload a site plan or design drawing that shows the dimensions (including a profile and cross section) and location of the rain garden, and the area of the parcel that drains to it. The site plan or design drawing should list the property's impervious area in square feet, the area that drains to the rain garden in square feet, the elevation or vertical distance of the surrounding area compared to the top of the garden bed in feet, and the depth of the rain garden bed's loose soil in feet.

Please also include at least two photographs of the rain garden, either as part of the site plan or as separate files.

For Other BMP's: Please upload a brief description of the best management practice, including a report by a professional engineer as well as as-built plans. Also include a calculation from [Worksheet 5](#) in the Pennsylvania Stormwater Best Management Practices Manual ([Chapter 8, pg. 34](#)), assuming a non-structural volume credit of 0 cubic feet, and a required control volume equivalent to the storage requirement for your best management practice.

For all Non-Residential Credits: Please submit Stormwater Plans and as-builts signed and sealed by a professional engineer, showing the change in impervious area and the total volume of runoff managed. A copy of a letter from the City of Pittsburgh that attests that the property's Stormwater Plan has been found to be adequate should also be submitted, if available. Letters received before 2019 will be proof of meeting the 2016 standards, and letters received after 2019 will be proof of meeting the 2019 standards. These documents will be reviewed by PWSA."

Attachment B – Stormwater Fee Credit Renewal Form

A Stormwater Fee Credit Renewal Form, including the property owner's written inspection report of their BMP must be submitted to PWSA every three (3) years (based on the date that the credit was first approved) to be considered for the credit. The written report should be a confirmation that the BMP is performing as intended in properly managing stormwater with a current photograph.

Please submit the completed renewal form and supporting documentation to:

Pittsburgh Water and Sewer Authority
Attn.: Department of Engineering and Construction, Stormwater Fee Credit Review
Penn Liberty Plaza I
1200 Penn Avenue
Pittsburgh, PA 15222

Or email to: stormwaterfee@pgh2o.com

General questions can be directed to (412) 255-2423 (Press Option 5), or via email to info@pgh2o.com. The application will be evaluated to determine if the action qualifies for a credit. The applicant will be notified by letter and email of the determination of the credit renewal.

Pittsburgh Water and Sewer Authority - Stormwater Fee Credit Renewal Form

Date:

Property Owner Information

Name:

E-mail:

Phone Number:

Mailing Address:

The BMP is performing as intended in properly managing stormwater. Attached is a current photograph (dated _____). I attest that I have legal ownership and maintenance responsibility for the Best Management Practice(s) included in this application.

Signature:

Parcel Information

Address:

Allegheny County Parcel ID Number:

Parcel Impervious Area (Found on Fee Finder Website):

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

TESTIMONY OF

CHRISTINE M. FAY

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
R-2023-3039919 (Stormwater)

Topics:

Support for Proposed Rate Increase
Financial Policies and Goals
Capital Markets and Rating Consideration
Peer Review of Financial Metrics

May 9, 2023

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Appendix A	Information regarding PRAG’s Experience in Water and Sewer Financing and Representative Client List
CF-1	Summary of the Authority’s Rate Covenant and Flow of Funds Provisions
CF-2	Peer Ratings and Comparative Financial Information
CF-3	Moody’s Investors Service, Sector Profile 26 May 2022: Water and Sewer Utilities – US. Medians – Liquidity and Debt Service Coverage Remained Strong in Fiscal 2020
CF-4	Moody’s Investors Service, 6 December 2022: Local Government 2023 Outlook: Stable With Reliable Revenue Sources and Robust Reserves
CF-5	S&P Global Ratings, January 12, 2023: Outlook For U.S. Municipal Utilities: Stable, Though Risks Are Rising
CF-6	Moody’s Investors Service, April 13, 2022: US Municipal Utility Revenue Debt Methodology
CF-7	S&P Global Ratings, April 14, 2022: U.S. Municipal Water, Sewer and Solid Waste Utilities: Methodology and Assumptions
CF-8	Moody’s Investors Service, report on Pittsburgh Water and Sewer Authority dated October 22, 2022.
CF-9	S&P Global Ratings, report on Pittsburgh Water and Sewer Authority dated March 15, 2023.

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

3 A. Christine M. Fay. I am a Senior Managing Director and Partner with Public Resources
4 Advisory Group, Inc. (“PRAG”). The business address is 39 Broadway, Suite 1210, New
5 York, New York, 10006.

6 **Q. PLEASE DESCRIBE PRAG.**

7 A. PRAG is a national independent financial advisory firm, wholly-owned and managed by
8 its employees that provides independent and in-depth financial capital markets advice to
9 state and local governments, authorities and their agencies and has continuously served
10 governments that access the municipal finance market for the past thirty-eight 38 years.
11 PRAG is a Municipal Advisor, registered with the Municipal Securities Rulemaking Board
12 (“MSRB”) (MSRB ID K0133) and the Securities and Exchange Commission (“SEC”)
13 (Municipal Advisor Registration Number 867-00146) and an Investment Adviser registered
14 with the State of New York, with additional registrations in the states of California and
15 Florida, Maryland, the District of Columbia (“District”) and the Commonwealth of
16 Pennsylvania (“Pennsylvania”) (CRD# 113338). PRAG provides independent financial
17 advice to public sector clients with respect to issuance of municipal bonds, credit rating
18 strategy, capital planning, debt portfolio management, debt capacity analysis, swaps and
19 derivative instruments, financing options, refunding approaches and techniques, bond
20 structure and pricing, and bond proceeds investment strategies. PRAG is one of the
21 leading municipal advisors in the country and has been ranked by Thomson Reuters as
22 either the top one, two or three firm by volume over the past 20 years. Our water and
23 wastewater experience includes some of the most active issuers in the country, including

1 The Metropolitan Water District of Southern California, Miami Dade County Water and
2 Sewer Department and the City of Los Angeles Wastewater System.

3 **Q. SUMMARIZE YOUR PROFESSIONAL QUALIFICATIONS AND**
4 **EXPERIENCE.**

5 A. I joined PRAG’s Media, Pennsylvania office in 2008 and was promoted to Senior
6 Managing Director in 2018 and Partner in 2019. At PRAG, I work with my colleagues
7 and manage financial advisory engagements, working with a broad range of municipal
8 clients located throughout the East and Midwest regions of the U.S.

9 My background includes 20 years as an independent financial advisor and as a municipal
10 finance executive. Since joining PRAG, I have worked with similar water and sewer
11 clients over the years, including The Bethlehem Authority (PA), Capital Region Water
12 (formerly The Harrisburg Authority; PA), Miami-Dade County Water and Sewer
13 Department (FL), the City of Orlando (FL) and the West Virginia Water Development
14 Authority. I have served as a financial advisor to The Pittsburgh Water & Sewer
15 Authority (“PWSA” or “Authority”) since 2019.

16 **Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND.**

17 A. I graduated Cum Laude from the University of Pennsylvania with a Bachelor of Arts
18 degree in Economics and an MBA from UCLA Anderson School of Business. I am a
19 registered Municipal Advisor Representative with a Series 50.

20 **Q. HAVE YOU EVER TESTIFIED BEFORE ANY REGULATORY AGENCIES OR**
21 **IN LEGAL PROCEEDINGS?**

22 A. No. However, I have assisted in the drafting and development of the Direct,
23 Supplemental Direct and Rebuttal testimony in support of PWSA’s most recent base rate
24 case at Docket Numbers R-2021-3024773 (water) and R-2021-3024774 (wastewater) and
25 R-2021-3024779 (Stormwater) and prior base rate case at Docket Numbers R-2020-

1 3017951 (water) and R-2020-3017970 (wastewater). In addition, I have assisted in the
2 preparation of various securities certificates related to issuance of PWSA debt for the
3 Pennsylvania Utility Commission (“PUC”)’s consideration.

4 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 A. The purpose of my testimony is to:

- 6 1) Provide expert witness testimony with respect to the credit rating agencies’
7 criteria for evaluating public water and sewer entities including PWSA, the rating
8 agencies’ outlooks for the water and wastewater sector especially given
9 inflationary pressures and higher borrowing rates, and the implications for the
10 Authority’s credit ratings both with and without the proposed rate increases;
- 11 2) Provide expert witness testimony with respect to the importance of PWSA’s
12 credit ratings in the context of current capital market conditions, borrowing rates,
13 and PWSA’s ability to access the capital markets to advance its capital
14 improvement plan;
- 15 3) Discuss the Authority’s credit profile and key financial metrics compared to
16 PWSA’s peer group of large urban mid-Atlantic and Midwestern water and
17 wastewater public utilities; and
- 18 4) Emphasize the importance of the proposed rate increases to the Authority’s
19 ability to secure additional financing to complete its substantial capital
20 improvement plan, especially with respect to meeting its Additional Bonds Test,
21 and the immediate and severe implications for its credit ratings, finances and
22 operations if it is unable to do so.

23

1 This testimony will focus on setting rates at a level in which PWSA can
2 successfully access the capital market and achieve efficient financings at a reasonable
3 cost of capital to fund its capital plan and maintain its existing bond ratings. This
4 objective has become increasingly more challenging since the Authority's prior base rate
5 case since municipal market borrowing costs have precipitously increased following
6 aggressive action of the Federal Reserve to control inflationary levels and changing
7 investor preferences. Also, the rating agencies are increasingly more concerned about the
8 economy and recessionary pressures and municipal utilities' ability to fund critical capital
9 programs amid rising costs spurred by inflation and exacerbated by increased costs of
10 borrowing. In 2022, the Authority needed to scale back its planned 2022 bond issuance
11 from \$100 million to \$45 million due to affordability concerns stemming from rising
12 borrowing costs and operating costs. All of the rating agencies consider access to capital
13 markets and ability to fund capital as critical components of their rating assessment.
14 PWSA has a complex debt profile which includes several bank and swap agreements
15 with rating-related cost increases and termination triggers which would result in
16 significantly escalated borrowing costs in the event of rating downgrades. It is necessary
17 for the Authority to receive its requested rate increase to meet its annual Rate Covenant
18 and its Additional Bonds Test and demonstrate to the rating agencies capacity to fund its
19 capital needs and avoid rating downgrades which would result in additional costs to the
20 rate payers.

21 Further, the financial metrics based on the PWSA's proposed rates will be
22 discussed in comparison to peer utility systems and water and sewer industry type rating
23 criteria. I will discuss the importance of the financial metrics and the need for the

1 requested rate increase in order to maintain these metrics in the FY 2024 (“FPFTY”) and
2 FY 2025 and 2026 (the “Forecast Period”) at levels that will allow PWSA to maintain its
3 current credit profile. PWSA’s current financial metrics are on the low side of peer
4 utility systems and industry standards and need to be bolstered to be more in line with its
5 peer utility systems in order to reduce its financial risks as described later in this
6 testimony.

7 In this testimony, I have relied on my professional experience in working with
8 similar issuers and credits entering the capital markets, as well as the experience of
9 PRAG’s other utility advisory professionals. I have also examined materials, documents,
10 and information produced in this matter, including the testimony of other PWSA
11 witnesses, PWSA bond disclosure statements, PWSA financial statements, PWSA bank
12 and swap agreements and rating agency publications related to PWSA, as well as industry
13 and peer-related rating reports.

14 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

15 A. Yes. I am sponsoring the following exhibits:

- 16 • **Exh. CF-1:** Exhibit CF-1 contains a summary of PWSA’s Rate Covenant and
17 Flow of Funds from the Amended and Restated Indenture.
- 18 • **Exh. CF-2:** Exhibit CF-2 contains Peer Ratings and Comparative Financial
19 Information
- 20 • **Exh. CF-3:** Exhibit CF-3 contains Moody’s Investors Service, May 26, 2022:
21 Water and Sewer Utilities – US Medians – Liquidity and Debt Service Coverage
22 Remained Strong in Fiscal 2020
- 23 • **Exh. CF-4:** Exhibit CF-4 contains Moody’s Investors Service, 6 December 2022:
24 Local Government 2023 Outlook: Stable With Reliable Revenue Sources and
25 Robust Reserves
- 26 • **Exh. CF-5:** Exhibit CF-5 contains S&P Global Ratings, January 12, 2023:
27 Outlook For U.S. Municipal Utilities: Stable, Though Risks Are Rising
- 28 • **Exh. CF-6:** Exhibit CF-6 contains Moody’s Investors Service, April 13, 2022: US
29 Municipal Utility Revenue Debt Methodology

- 1 • **Exh. CF-7:** Exhibit CF-7 contains S&P Global Ratings, April 14, 2022: U.S.
2 Municipal Water, Sewer and Solid Waste Utilities: Methodology and
3 Assumptions
- 4 • **Exh. CF-8:** Exhibit CF-8 contains Moody’s Investors Service, report on
5 Pittsburgh Water and Sewer Authority dated October 22, 2022.
- 6 • **Exh. CF-9:** Exhibit CF-9 contains S&P Global Ratings, report on Pittsburgh
7 Water and Sewer Authority dated March 15, 2023.

9 **II. FINANCIAL POLICIES AND GOALS**

10 **Q. PLEASE SUMMARIZE THE CREDIT AGENCIES’ VIEW OF THE** 11 **AUTHORITY’S DEBT STRUCTURE.**

12 **I.** The Authority’s debt structure is complex, consisting of a significant amount of variable
13 rate bonds and interest rate swaps. In March 2023, S&P wrote: “Approximately 30% of
14 PWSA’s debt is variable rate, most of which is synthetically fixed-rate by way of interest
15 rate swaps. We view the contingent liquidity risk as remote, as the most prominent
16 termination event would be if the ratings on PWSA were to be lowered to below
17 investment grade. Although the current positions of the interest-rate swaps remain
18 materially unfavorable, PWSA has not had to post collateral to its counterparts.” See
19 PWSA Exhibit CF-8 & CF-9 for the most recent ratings reports from the two rating
20 agencies that rate PWSA’s Revenue Bonds.

21 In addition to the complicated nature of the debt portfolio, PWSA is also highly
22 leveraged compared to other systems. As stated in Moody’s most recent rating report
23 dated October 22, 2022, “The authority’s total debt is equal to 99% of fixed assets as of
24 2021 year end, well above similarly sized peers. The outstanding debt amortizes slowly,
25 with only 36% of the principal scheduled to be repaid in the next 10 years.” This is a
26 result of many years of structuring bond financings with deferred principal in order to
27 minimize then current year rate increases. The slow principal amortization combined
28 with the structure of PWSA’s currently outstanding debt (ascending through FPPTY and

1 generally level thereafter through FY 2040) will mean an increase of annual debt service
2 each year as the Authority issues additional debt for capital projects.

3 **Q. PLEASE DESCRIBE THE KEY FINANCIAL METRICS THAT WILL DRIVE**
4 **THE REVENUE REQUIREMENT AND THE RESULTING IMPACT ON THE**
5 **AUTHORITY'S CREDIT RATINGS.**

6 **I.** Currently, the Authority's senior debt is rated "A3" by Moody's with a "Stable" outlook.
7 Moody's downgraded the Authority's previous "A2" rating and changed the Rating
8 Outlook to "Negative" on October 15, 2018 due to PWSA's "narrow cash position, well
9 below average for similarly sized peers" and due to the Authority being "pressured by the
10 need for major capital funding." In the most recent Moody's report for the Authority
11 Exhibit CF-8, the agency specifically mentions that "high leverage will be a continued
12 headwind for the Authority going forward. The Authority's current debt burden is
13 significant, and material additional debt is expected as the Authority progresses on its
14 capital improvement plan." With the Authority's requested rate increase, we are hoping
15 to mitigate these concerns by demonstrating an ability to access the capital markets and
16 maintain debt service coverage given the ascending nature of the Authority's existing
17 debt service and need to issue additional debt.

18 The Authority's senior debt was upgraded from "A" to "A+" by S&P Global
19 Ratings ("S&P") with a "stable" outlook and subordinate debt was upgraded from "A-"
20 to "A" on October 12, 2022; of particular relevance in the context of this testimony, S&P
21 directly cited the importance of the PUC's last rate increase to this upgrade, stating "the
22 upgrade reflects the management team's continued maturation and conservative
23 budgeting practices as it works through a \$1.4 billion capital improvement plan (CIP)
24 from 2022-2026, *along with seeing continued successful rate cases with the*
25 *Pennsylvania Public Utility Commission (PaPUC) (emphasis added).*" S&P also

1 mentioned the complex nature of the Authority's debt and makes it clear that contingent
2 risks are mitigated in part by the assumption of continued improvement in management,
3 decreased exposure to interest rate risks and maintaining certain financial metrics, such as
4 debt service coverage and strong liquidity. S&P also notes PWSA's large capital
5 improvement plan and the need for significant amount of debt to fund the plan in addition
6 to what they view as an already highly leveraged system.

7 Critical to the revenue requirement is the Authority's Financial Management
8 Policy, which is provided as PWSA Exhibit EB-5, and was established in 2018 and most
9 recently updated in 2019. The Financial Management Policy provides a framework to
10 maintain the PWSA's financial integrity, while serving the long-term interests of its
11 customers and other constituencies. The Financial Management Policy applies to all
12 financial practices within PWSA and provides guidance to policy makers, staff and
13 stakeholders as PWSA seeks to maintain and improve its financial position. The scope of
14 the guidance includes many of the key metrics that the rating agencies and other credit
15 analysts use to evaluate PWSA's creditworthiness, including minimum targeted debt
16 service coverage levels, minimum and targeted levels of liquidity and reserve funds as
17 measured by days cash on hand, and the ability to manage future debt capacity by
18 funding a portion of the capital program with internally generated funds or "pay-go" and
19 asset preservation. Both Moody's and S&P reference certain financial metrics that are
20 key in order to maintain PWSA's current credit profile.

21 **Debt Service Coverage Ratio**

22 The first important metric is the debt service coverage ratio (Net Revenue to Annual Debt
23 Service) as it is the primary metric considered by the rating agencies. As discussed in Mr.

1 Barca's testimony; PWSA's Amended and Restated Trust Indenture includes a Rate
2 Covenant with the Authority's bondholders that requires PWSA to maintain an annual
3 debt service coverage ratio at 1.25 times Senior Lien debt service and 1.10 times for total
4 debt service. The Authority has covenanted with its bondholders that it will establish
5 rates for each fiscal year to at least achieve these levels. See Exhibit CF-1 for a summary
6 of the Authority's Rate Covenant and Flow of Funds provisions.

7 The Authority's Financial Management Policy is more stringent than the legal rate
8 covenant and states that if the five year average senior lien debt service coverage is to be
9 less than 1.35 times or less than 1.15 times on total debt service coverage basis, the Board
10 will implement a plan which could include increasing rates, reducing expenses or other
11 means to achieve a 1.35 times senior debt service coverage level and 1.15 times total debt
12 service coverage level, "taking into consideration approved and pending rate increases
13 with the Pennsylvania Public Utilit[y] Commission." It is important to note that while
14 PWSA's financial management debt service coverages are higher than the legal
15 requirements, the overall municipal water and sewer utility sector wide debt service
16 coverage is closer to 2.4 times (using Moody's most recent median report, dated May 26,
17 2022, which is included as Exhibit CF-3) for combined water and sewer governmental
18 systems. While peer and rating comparisons will be discussed later in this testimony, it is
19 clear that PWSA's debt service coverage ratio target is still significantly below industry
20 standards. Therefore, the 1.35 times level should not be viewed as a goal, but a
21 minimum. It is also important to note that if PWSA is able to increase its debt service
22 coverage over time, PWSA will be able to grow its financial resources to fund targeted
23 pay-go capital levels with less reliance on using debt. Without increased coverage levels,

1 PWSA will have to continue its over reliance on debt, further leveraging an already over-
2 leveraged system. In addition to providing pay-go resources, adequate debt service
3 coverage creates critical financial resources that are needed to address potential economic
4 and operational challenges without dipping into the Authority's modest reserves. Lastly,
5 PWSA has annual obligation payments to the City of Pittsburgh pursuant to a
6 Cooperation Agreement that are subordinate to the Senior Lien and Subordinate Lien,
7 which are also funded from internally generated funds (debt service coverage monies).
8 It is extremely important to establish rates that also generate coverage at a level to protect
9 against any unforeseen additional expenses or decreases in expected revenues. Setting
10 coverage at just the minimum legal requirement puts the Authority at significant risk of
11 violating the covenant and risking adverse action from the rating agencies. Furthermore,
12 the ability to issue additional debt under the bond documents requires the Authority to
13 pass an Additional Bonds Test, remain in compliance with the rate covenant and have
14 sufficient revenues to comply with the covenant taking into account the additional debt
15 service. In the absence of a rate increase, the Authority will not be able to pass its
16 Additional Bonds Test and be precluded from accessing the capital markets which will
17 result in rating downgrades and deferring the funding of its Capital Plan which will
18 escalate future costs, as later discussed in my testimony.

19 Although the Authority did have a rate increase for FY 2022-2023, the agreed to
20 rate increase was less than the amount requested and was largely absorbed by escalating
21 operational costs spurred by increased inflation. Thus the requested rate increase is
22 critical to avoid breaching rate covenants debt service coverage requirements and
23 meeting the Additional Bonds Test. Provided below is a summary table of debt service

1 coverage levels based on existing rates. Budgeted FY 2023 figures of net revenue 1.45
 2 times over senior lien debt service and 1.13 times over total debt service are just
 3 marginally above the Authority’s Financial Management and projected debt service for
 4 FY 2024 (FPFTY) and the FY 2025 and 2026 Forecast Years are at levels that would
 5 violate the Authority’s rate covenant.

	<i>FY 2023</i>	<i>FY 2024</i> <i>(FPFTY)</i>	<i>FY 2025</i>	<i>FY 2026</i>
<i>Senior Debt Service Coverage Ratio</i>	<i>1.45x</i>	<i>1.00x</i>	<i>0.76x</i>	<i>0.50x</i>
<i>Total Debt Service Coverage</i>	<i>1.13x</i>	<i>0.73x</i>	<i>0.51x</i>	<i>0.35x</i>

6
 7 As described in PWSA Exhibit EB-2, after accounting for the \$146.1 million proposed
 8 rate increase, the FPFTY (FY 2024) projected debt service coverage and FY 2025 and
 9 2026 Forecast Years exceeds the minimum coverage requirements set forth in PWSA’s
 10 bond covenants, and are improvements on the coverage levels compared to the budgeted
 11 FY 2023 figures.

	<i>FY 2023</i>	<i>FY 2024</i> <i>(FPFTY)</i>	<i>FY 2025</i>	<i>FY 2026</i>
<i>Senior Debt Service Coverage Ratio</i>	<i>1.45x</i>	<i>1.65x</i>	<i>1.87x</i>	<i>2.02x</i>
<i>Total Debt Service Coverage</i>	<i>1.13x</i>	<i>1.21x</i>	<i>1.26x</i>	<i>1.40x</i>

12
 13 While the requested rate increase results in debt service coverage results marginally
 14 higher than the Authority’s Financial Management Policy for both the senior lien debt
 15 and total debt, the Authority must continue to improve financially to anticipate changes in

1 capital needs and operations and meet its Additional Bonds Test (as discussed later in my
2 testimony) and achieve metrics that are required for entities with similar bond ratings

3 **Reserves and Liquidity**

4 The second critical metric is cash reserves and liquidity, often measured as days cash on
5 hand, which is calculated by taking unrestricted cash and investments times 365 divided
6 by total annual operating and maintenance expenses. This statistic is used by both
7 Moody's and S&P to measure liquid financial resources available for a utility to survive
8 temporary revenue disruptions and unexpected expenses. This metric is fundamental in
9 analyzing the financial strength of a municipal utility. Moody's has commented on the
10 Authority's liquidity in its most recent rating report. Moody's report asserts that "the
11 Authority's liquidity is satisfactory, at 137 days unrestricted cash on hand as of fiscal year
12 end 2021, equating to about \$76 million. However, PWSA's cash position is considerably
13 weaker than national water and sewer system median days cash of 450 days as of 2021."
14 Although Moody's has recognized the Authority's liquidity improvement, the credit
15 agency still states that the PWSA has a cash position that is "narrow, though improved,
16 liquidity versus similarly sized peers" and sees this as a "credit challenge." In a debrief
17 with the Moody's rating analyst following the Authority's most recent rating review in
18 2022, the analysts explained that the Authority's depressed DCOH as compared to peer
19 utilities is one of the primary drivers preventing the rating agency from upgrading the
20 Authority's credit rating. Without improvement in the Authority's DCOH the Authority
21 will continue to be rated A3 and pay higher borrowing costs.

22 The Authority's Financial Management Policy is to "[m]aintain cash reserves,
23 including the operating reserves, rate stabilization fund, and revenue fund at a level of 100

1 days cash on hand with the goal of increasing to over 300 days over the next five (5)
 2 years.” This goal has been communicated to the rating agencies and the agencies annually
 3 request an update on progress made towards meeting these goals.

4 As described in Mr. Barca’s testimony, the Authority’s DCOH based on existing
 5 rates is projected to drop off significantly from budgeted FY 2023 levels to 70.9 in
 6 FPFTY (FY 2024) and negative levels for FY 2025 and 2026, as summarized in the table
 7 below which will cause significant concerns with the rating agencies and result in rating
 8 downgrades.

	<i>FY2023</i>	<i>FY 2024</i>	<i>FY 2025</i>	<i>FY 2026</i>
<i>Days Cash on Hand (“DCOH”)</i>	<i>1605.5 DCOH</i>	<i>70.9 DCOH</i>	<i>(60.5) DCOH</i>	<i>(230.0) DCOH</i>

9
 10 It is important to know that the Capital Line of Credit is a tax-exempt facility and
 11 therefore, it is not available for operating liquidity support.

12 As shown in PWSA Exhibit EB-2, after accounting for the requested rate
 13 increase, the days cash on hand is projected to be 145 for FPFTY (FY 2024), 143 for FY
 14 2025 and 153 for FY 2026 which is still lower than PWSA’s Financial Policy target,
 15 rating agencies medians (as discussed previously), the majority of peer utilities (as
 16 discussed later in my testimony).

	<i>FY2023</i>	<i>FY 2024</i>	<i>FY 2025</i>	<i>FY 2026</i>
<i>Days Cash on Hand (“DCOH”)</i>	<i>1605.5 DCOH</i>	<i>145 DCOH</i>	<i>143 DCOH</i>	<i>153 DCOH</i>

17
 18 **Q. PLEASE DESCRIBE HOW THE CREDIT RATING AGENCIES VIEW**
 19 **INFLATIONARY PRESSURES IN RELATION TO WATER AND SEWER**

1 **UTILITIES AND HOW HAS IT HAS AFFECTED THEIR VIEW OF THE**
2 **AUTHORITY.**

- 3 A. Credit rating agencies have been monitoring the public finance industry, which includes
4 water and/or sewer utilities, for inflationary impacts including higher prices generally,
5 increased labor and materials costs, and higher borrowing costs owing to the Federal
6 Reserve's increases to the Federal Funds Rate commencing in March of 2022.

7 At the end of 2022 and beginning of 2023, Moody's and S&P published their
8 respective annual outlook reports for municipal governments and the water and/or sewer
9 sector (provided as Exhibit CF-4 and Exhibit CF-5). Moody's specifically identified
10 water and sewer enterprises as being susceptible to higher costs, stating "inflation will
11 increase employee wages and drive higher construction costs. Higher capital costs will be
12 difficult for some water and sewer enterprises amid a need to address aging
13 infrastructure." Moody's additionally states that "for water and sewer enterprises, the cost
14 increases come at a time when the utilities are confronted with greater needs associated
15 with aging infrastructure, including adverse effects tied to the increase in the frequency
16 and severity of extreme weather events, and regulatory requirements to replace lead
17 service lines and remediate PFAS (per- and polyfluoroalkyl substances). A recent
18 infusion of federal dollars will help address some of the needs. Longer term, though,
19 without continued and consistent increases in federal dollars, the burden of investing in
20 water and sewer infrastructure will fall largely on ratepayers."

21 S&P similarly raised concerns about persistent inflation, stating "Construction cost
22 inflation is reaching levels we have not seen in decades. The Producer Price Index figure
23 for building materials and supplies increased 38% between November 2021 and

1 November 2022. In addition to increased project costs, we expect construction cost
2 inflation will result in higher bids from contractors, larger contingencies in new contracts
3 along with wider cost escalation ranges for materials, and a shift away from fixed-price
4 contracts. While materials costs may begin to stabilize as supply chain issues subside, the
5 shortage of skilled labor may be more enduring given the systemic shortage of new
6 workers entering the construction trades, which will keep labor costs elevated.”

7 In regard to the Authority, S&P’s most recent rating report (included as Exhibit CF-9)
8 addresses the potential risk of inflationary pressures to PWSA’s outlook, stating “should
9 inflationary and supply-chain issues significantly drive up the cost of the CIP, which is
10 expected to be mostly debt funded, and thereby causing additional debt which pressures
11 financial metrics, the rating could be lowered.”

12 **Q. PLEASE DESCRIBE HOW THE CREDIT RATING AGENCIES VIEW THE**
13 **AUTHORITY’S PROPOSED INFRASTRUCTURE SURCHARGE.**

14 A. I believe the credit rating agencies would view a dedicated reconcilable charge, in this
15 case to finance the cost of PENNVEST and WIFIA loans, as a credit positive. To date,
16 the rating agencies have viewed the PUC and PWSA relationship as positive to neutral to
17 the Authority’s credit rating and this view has been predicated on the agencies
18 understanding of the PUC approving rates sufficient for the Authority to fund operations
19 and continue to finance its capital plan. The PUC granting approval to the Authority to
20 implement a reconcilable charge to pass through the costs of opportunities of securing
21 low-cost PENNVEST and WIFIA loans over the next three year period without the need
22 to file rate cases will be further demonstration to the rating agencies of the PUC
23 supporting the Authority’s pursuits in funding its capital plan. S&P in its most recent
24 reports states “The stable outlook reflects our expectation that when PWSA does need to

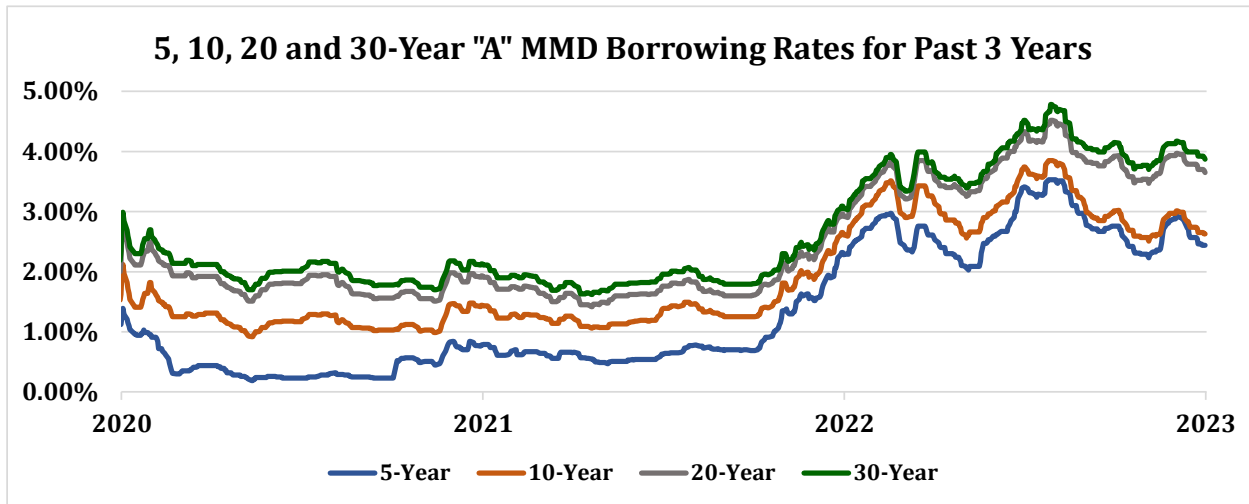
1 propose a rate case to the PaPUC, there will generally be a credit-supportive relationship,
 2 observed by both the timing and magnitude of rate adjustments that PWSA is likely to
 3 request, versus what the PaPUC ultimately grants.” The proposed Infrastructure
 4 Improvement Charge is consistent with what is important to S&P--this type of
 5 reconcilable cost recovery mechanism that can be used to pass through actual costs
 6 without filing a rate case is both timely and consistent with debt service expense. In
 7 addition, the proposed dedicated surcharge is consistent with the rating agencies positive
 8 view of preapproved rate increases (as discussed later in this testimony). S&P’s criteria
 9 states that “compelling factors that would likely preserve credit quality include
 10 *preapproved rate adjustments multiple years into the future* (emphasis added), or an
 11 existing debt service schedule that allows for the new debt to be layered on in a manner
 12 that we believe is unlikely to worsen financial performance.”

13 **III. CAPITAL MARKETS CONSIDERATION**

14 **Q. WHAT IS THE IMPACT ON THE AUTHORITY OF INCREASED**
 15 **BORROWING COSTS.**

16 A. Since the prior base rate case, municipal market borrowing costs which are indexed to the
 17 Municipal Market Data (“MMD”) have risen sharply since the beginning of 2022 with
 18 the 5, 10, 20 and 30-year borrowing rates for “A” rated municipal issuers, such as the
 19 Authority, increasing approximately 174 basis points (“bps”), 137 bps, 201 bps and 206
 20 bps, respectively, which has more than doubled the Authority’s borrowing costs since the
 21 beginning of 2022 and contributed to the Authority downsizing its 2022 bond issue from
 22 \$100 million to \$45 million due to affordability concerns. While municipal borrowing
 23 rates are slightly down from the highs of 2022 they are still significantly higher than the

1 municipal borrowing rates in 2021 and will contribute to higher borrowing costs for the
 2 Authority’s planned 2023 bond issuance.



3
 4
 5 *Municipal Market Data (MMD) is the standard index for municipal bonds. MMD publishes various yield
 6 curves (1 to 30 years) for different credits/rating categories.
 7

8 **Q. PLEASE EXPLAIN THE IMMEDIATE CONSEQUENCES IF THE PROPOSED**
 9 **RATES ARE NOT APPROVED.**

10 A. As outlined in PWSA Exhibit EB-1, which is a part of Mr. Barca’s testimony, if the
 11 current rates remain in place, the Authority will immediately violate its covenant with
 12 bondholders, and it will be unable to meet its Additional Bonds Test, which will halt its
 13 capital improvement plan starting in FY 2024 due to lack of financing.

14 As described previously, in order to comply with its legally required bond covenants, the
 15 Authority must generate net revenues in an amount that exceeds senior debt service of at
 16 least 1.25 times and total debt service of at least 1.1 times and is adequate to pay all
 17 financial obligations. Without a rate increase, the debt service coverage in FPFTY (FY
 18 2024) is projected to be 1.00 times for senior debt service (1.25 times is the legal
 19 covenant for senior debt) and 0.73 times for total debt service (1.10 times is the legal
 20 covenant). Furthermore, without a rate increase, the debt service coverage in FY 2025

1 and FY 2026 is projected to be 0.76 and 0.50 times for senior debt service (1.25 times is
2 the legal covenant) and 0.51 and 0.35 times for total debt service (1.10 times is the legal
3 covenant). This would cause the Authority to be in non-compliance with its rate
4 covenant in FY 2024, 2025 and 2026 as well as having insufficient funds to pay its debt
5 service obligations in all three years.

6 If the Authority fails to comply with the rate covenant, the Authority is legally required to
7 engage a consultant to prepare a report to remedy the failure and to make
8 recommendations. The Authority has 180 days after the tested fiscal year to revise rates,
9 fees and charges or to petition the PUC to establish the necessary rates, fees and charges
10 to address the rate covenant failure. If, after this time period, the Authority continues to
11 fail the rate covenant, then an Event of Default under the Trust Agreement will have
12 occurred. An event of default results in certain remedies available to bond holders,
13 including acceleration of principal. An event of default would likely result in an
14 emergency request to the PUC to allow PWSA to raise rates and would likely lead to a
15 downgrade of the Authority's credit ratings, making future borrowing more problematic
16 and costly and requiring increased rate revenue to cover the Authority's higher cost of
17 borrowing. In terms of days cash on hand, without a rate increase, days cash on hand
18 falls to 71 days cash on hand in FPFTY (FY 2024). Days cash on hand is projected to be
19 negative in FY 2025 and FY 2026, (60.5) and (230.0), respectively.

20 As explained in Mr. Barca's testimony, prior to issuing additional senior or subordinate
21 lien debt under the Indenture the Authority needs to pass an Additional Bonds Test
22 ("ABT") which is a three-part test of senior lien coverage at 1.25x, subordinate coverage
23 at 1.1x and total coverage at 1x. As Financial Advisor to the Authority, and a third party

1 consultant as required by the Indenture, PRAG is tasked with preparing the ABT test
2 prior to closing on the Authority's senior and subordinate bond issuance. For purposes of
3 providing this certification we need to provide analysis demonstrating that there are
4 sufficient revenues (including rate increases previously authorized by the Authority
5 Board and approved by the PUC) to fund operations, make debt service payments and
6 satisfy legal debt service coverage requirements on the existing and proposed debt.
7 Failure to pass ABT would preclude the Authority from securing additional financing and
8 halt its capital improvement plan. As included in Exhibits EB-7 and EB-8 and
9 summarized in the table below, without the requested rate increase the Authority is
10 failing the second prong of the ABT on the subordinate lien by almost \$46 million in FY
11 2024 and the deficiency grows to as much as \$104.1 million by FY 2026 on the
12 subordinate lien. The subordinate lien test is the determining factor for purposes of the
13 Authority's ABT given the significant amount of subordinate PENNVEST and WIFIA
14 debt service that is not included in the senior test. With the requested rate increase the
15 Authority narrowly passes its ABT on the subordinate lien in FY 2024, modest capacity
16 in FY 2025 and adequate capacity in FY 2026. I cannot emphasize enough the
17 importance of the Authority receiving a substantial amount of the requested rate increase
18 to be in a position to pass its ABT to issue bonds to fund its critical capital projects.
19 Without a rate increase in FPFTY (FY 2024) the Authority's ability to finance its capital
20 plan will halt due to an inability to access the capital markets, and correspondingly be
21 unable to maintain and improve its assets or comply with consent decrees would be of
22 immediate and serious concern to the rating agencies, and likely result in either or both

1 multiple ratings downgrades and/or withdrawal or suspension of ratings, only further
 2 increasing PWSA’s potential cost of financing and exacerbating its operating challenges.

Additional Bonds Test Surplus/(Deficit) Forecasts			
PWSA’s Projected Additional Bonds Test Coverage with Rate Increase			
	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
First Lien Net Surplus/(Deficit)	\$29.5M	\$58.6M	\$92.3M
Subordinate Lien Net Surplus/(Deficit)	\$0.7M	\$7.5M	\$38.4M
Total Surplus/(Deficit)	\$21.0M	\$32.1M	\$66.3 M
PWSA’s Projected Additional Bonds Test Coverage without Rate Increase			
	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
First Lien Net Surplus/(Deficit)	-\$16.9M	-\$31.3M	-\$50.2M
Subordinate Lien Net Surplus/(Deficit)	-\$45.7M	-\$82.4M	-\$104.1M
Total Surplus/(Deficit)	-\$25.4M	-\$57.8M	-\$76.3M

3

4 **Q. WHAT ARE THE LIKELY CONSEQUENCES IF PWSA FAILS TO MEET ITS**
 5 **BOND COVERAGE TARGETS OR FAILS TO MAINTAIN ADEQUATE CASH**
 6 **ON HAND?**

7 A. The failure to maintain adequate debt service coverage levels and/or a notable
 8 deterioration in days of cash on hand would likely cause a downgrade in PWSA’s credit
 9 ratings. Credit ratings are an important component in determining the cost of debt as the
 10 ratings signal PWSA’s ability and willingness to meet financial obligations in full and on
 11 time. A downgrade of the credit ratings for PWSA would result in an increase in
 12 PWSA’s borrowing costs and necessitate higher rate increases over time.

13 There are also the consequences for failure to comply with the debt service coverage
 14 requirement (rate covenant). As I explained, if there is an event of default, there are
 15 certain remedies available to bond holders, including acceleration of principal. The
 16 Authority would have to use its cash reserves to pay its FPFTY (FY 2024) debt service
 17 and other long-term financial obligations. This would create an obligation that PWSA
 18 could not possibly meet without extraordinary rate relief or an infusion of cash from
 19 some other sources. Additional information is provided later in my testimony regarding

1 risks of the PUC not approving a substantial amount of the requested rate increase,
2 including rating downgrades and the possible collateral consequences.

3 Failure to maintain sufficient available cash could result in a rating downgrade, and thus,
4 increase the Authority's borrowing costs. If sufficient revenue is not generated to cover
5 all the PWSA's costs and obligations, as well as not having sufficient reserves to have the
6 cash to fully cover operating expenses, debt service and other could result in financial
7 failure. Additionally, the Authority could experience bondholder lawsuits related to its
8 failure to raise sufficient rates to meet its rate covenant. With the requested rate increase,
9 the Authority will have higher annual coverages and relatively stable days cash on hand,
10 each year, for four years in a row (FY 2023 through FY 2026). Without the request, the
11 Authority will not be able to reach minimum coverages on Senior or Total Debt Service.
12 If provided the proposed rate increase, the Authority can better manage its obligations
13 and perhaps even receive a rating upgrade. Thus, I strongly believe that the Authority
14 should be granted a substantial amount of the proposed rate adjustment in order to permit
15 the PWSA to reach total coverage closer to the median of other single-A rated municipal
16 water utilities. The Authority's historical and projected debt service coverage and days
17 cash on hand with and without the proposed rate increase is provided in the table below.
18 The Authority's Rate Covenant Requirement for coverages and the Authority's Financial
19

1 Management Policy related to debt service coverages and Liquidity (measured in days
 2 cash on hand) are provided below:

PWSA’s Historical and Projected Financial Metrics with Rate Increase					
	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
Senior Debt Service Coverage	1.53	1.45	1.65	1.87	2.02
Total Debt Service Coverage	1.25	1.13	1.21	1.26	1.40
Days Cash on Hand	141	161	145	143	153
PWSA’s Historical and Projected Financial Metrics without Rate Increase					
	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
Senior Debt Service Coverage	1.53	1.45	1.00	0.76	0.50
Total Debt Service Coverage	1.25	1.13	0.73	0.51	0.35
Days Cash on Hand	141	161	71	(61)	(230)
Bond Indenture -- Rate Covenant Coverage Requirement					
	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
Senior Debt Service Coverage	1.25	1.25	1.25	1.25	1.25
Total Debt Service Coverage	1.10	1.10	1.10	1.10	1.10
PWSA’s Financial Management Policy					
	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
Senior Debt Service Coverage	1.35	1.35	1.35	1.35	1.35
Total Debt Service Coverage	1.15	1.15	1.15	1.15	1.15
Days Cash on Hand	100-300	100-300	100-300	100-300	100-300

3
 4 As shown in table above, with the proposed rate increase, the metrics improve year over
 5 year from FY 2024 to FY 2026 putting the Authority on more stable ground. The
 6 proposed rates will permit PWSA to have the funds it needs throughout the Forecast
 7 Period to satisfy all of its financial obligations. Projected Total Debt Service coverage in
 8 FY 2023 is 1.13, just above the legal, required coverage is 1.10 times, with rate increases
 9 the Authority moves coverages positively away from the legal limit.

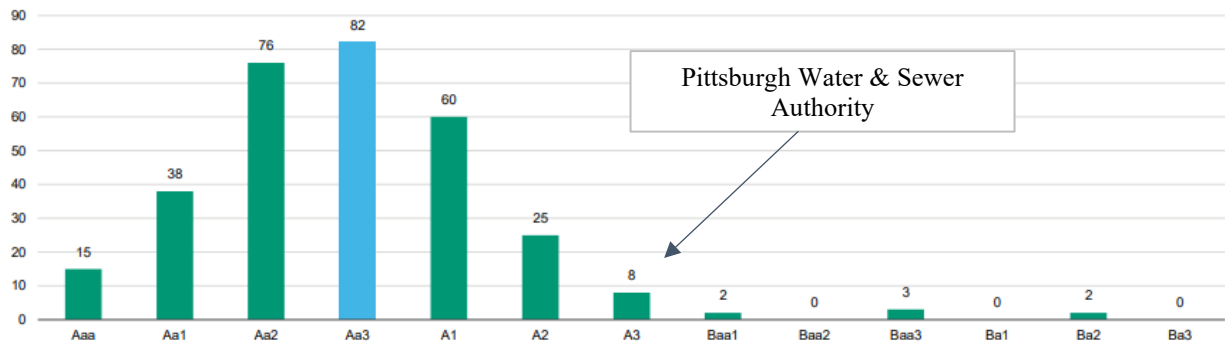
1 **IV. PEER REVIEW OF FINANCIAL METRICS**

2 **Q. DISCUSS THE AUTHORITY’S CREDIT PROFILE IN COMPARISON TO**
 3 **OTHER PEER UTILITIES.**

4 A. The Authority’s senior lien credit ratings are “A3” and “A+”, from Moody’s and S&P
 5 respectively. As can be seen within Exhibit CF-3, as well as in the graphic below, in
 6 terms of other US municipal water and sewer systems, PWSA, with its A3 rating, is in
 7 the bottom 5% percent of all governmental water and sewer utilities that are rated by
 8 Moody’s.

9 **Distribution of Moody’s Ratings for Combined Municipal Water and Sewer Issuers**

10 *(Median is Shown in Dark Blue)*



11 Highlighted bar represents median rating
 Source: Moody's Investors Service

11

12 US municipal water and sewer credits are generally well received by the investor
 13 community with rating agencies viewing the industry overall with a stable outlook. It is
 14 expected that the industry outlook will remain stable with increasing rates as necessary
 15 while still balancing affordability concerns. Rating agencies have been reviewing and
 16 updating methodologies with a view towards transparency and a more quantitative
 17 approach. Both Moody’s and S&P have published credit scorecards which identify
 18 certain rating factors, as well as assigning certain factor weighting. Both credit
 19 scorecards include some level of qualitative analysis, as well as above and below-the-line

1 notching. While the approach is slightly different, the factors considered both include
 2 debt service coverage and liquidity measures as critical components of any credit review.

3 **Moody’s** – Moody’s identifies broad factors for consideration and further provides sub-
 4 factors in the scorecard. The broad categories include system characteristics (asset
 5 condition, service area and system size), financial strength (debt service coverage, days
 6 cash on hand, debt to operating revenues), management (rate management, regulatory
 7 compliance and capital plans) and legal provisions (rate covenant, debt service reserve
 8 requirements). In general, Moody’s reports that the median coverage for all Moody’s
 9 rated credits (using 2020 data) is 2.4x for combined water and sewer systems, 2.3x for
 10 water systems and 2.1x for sewer systems. The Moody’s median for days cash on hand
 11 are 451 days for combined systems, 454 days cash on hand for water systems and 650
 12 days cash on hand for sewer systems.

13 Below are PWSA’s key ratios from the most recent Moody’s Median report dated May
 14 26, 2022 (which uses 2020 data) included as Exhibit CF-3 compared to median peers for
 15 the “Aa,” “A” and “Baa” rating categories that illustrates that the Authority is below each
 16 median indicator. Increasing rates to provide cash flow available to fund an increasing
 17 amount of projects on a pay-go basis will help mitigate PWSA’s relative position.



Moody’s Key Indicators	PWSA (2022)*	Aa Rated Medians	A Rated Medians	Baa Rated Medians
Debt Service Coverage	1.25x	2.5x	2.0x	1.5x
Days Cash on Hand	141	521	359	148

18 Source: Moody’s Water and Sewer Median Report dated May 26, 2022
 19 *Moody’s calculations. PWSA metrics based on FY 2022 audited financials.

20
 21 **Standard & Poor’s** – S&P has also developed a credit scorecard to provide a qualitative
 22 analysis of a systems credit profile. S&P measures credit through an enterprise risk
 23 profile (economic fundamentals, industry risk, market position and operational

1 management assessment) and a financial risk profile (“all in” coverage, liquidity and
 2 reserves, debt and liabilities and financial management assessment). They also provide
 3 notch adjustments for certain factors. When reviewing assessment scores for “A+” rated
 4 water and sewer credits, debt service coverage averaged 1.8 times for S&P A-rated
 5 systems and liquidity measures averaged approximately 459 days cash on hand.

6 Below is a summary of the Authority’s most recent rating recent reports, full reports are
 7 included in CF-8 and CF-9, outlining the strengths, challenges and viewpoints of the
 8 credit agencies.

 A3 (Stable)	 A+ (Stable)
Credit Strengths	
<ul style="list-style-type: none"> ■ Diverse, urban service area, supported by strong “eds & meds” presence ■ Considerable size ■ Significant rate increase implemented recently ■ Rate increase boost revenues ■ PUC oversight should bring improvements and controls. 	<ul style="list-style-type: none"> ■ Employment base that has reinvented itself from previously relying on manufacturing and industrial jobs ■ View operational management assessment (OMA) as “good” ■ Strong on-balance sheet liquidity
Credit Challenges	
<ul style="list-style-type: none"> ■ Substantial debt burden ■ Narrow, though improved, liquidity versus similarly sized peers ■ Projected \$1.4 billion in capital needs over next five years to be primarily funded with debt ■ Consent decree to remediate sewer overflows not yet finalized 	<ul style="list-style-type: none"> ■ Extremely high leverage with \$1.4 billion in capital commitments ■ Exposure to large regional consent decree through Allegheny County Sanitary Sewer Authority ■ Best practices for financial management not as comprehensive as utilities with strong financial management

9 **Regulatory Oversight:** Moody’s views PUC oversight as a credit positive while S&P
 10 views it more as a credit neutral, however, both agencies have stated in recent reports that
 11 PUC oversight has contributed to their stable outlooks for PWSA. Moody’s noted that the
 12 PUC oversight “brings improvement and controls,” and that “the PUC has helped to
 13 ensure timely system maintenance and routine capital investment, in line with broad
 14 industry standards.” S&P notes “our stable outlook reflects our expectation that when

1 PWSA does need to propose a rate case to PaPUC, there will generally be a credit-
2 supportive relationship.”

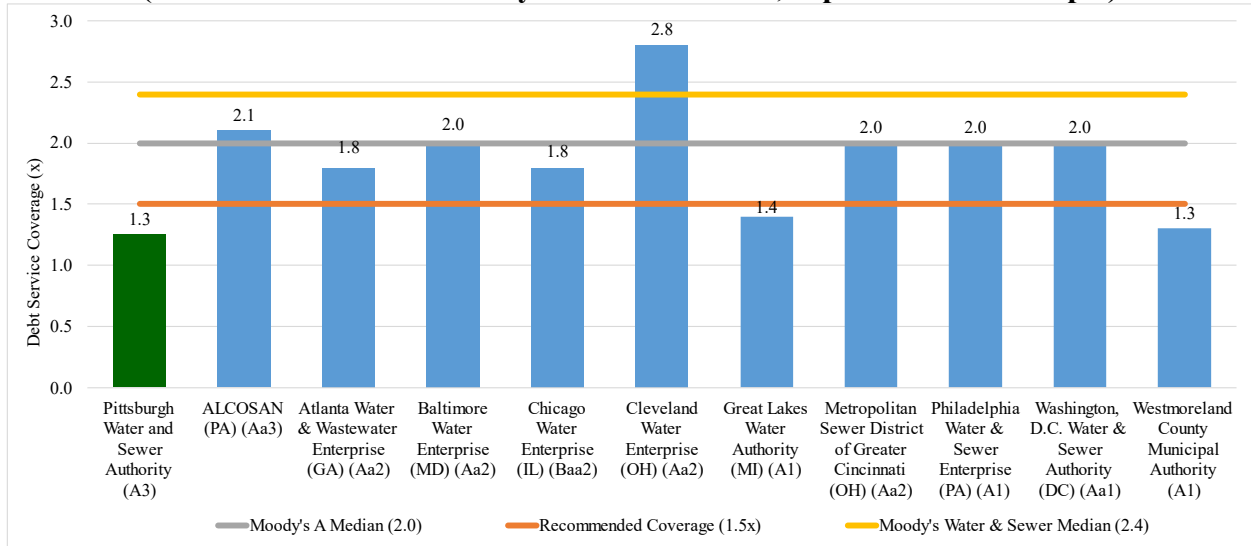
3 **Peer Utilities:** PWSA has selected certain large city municipal peer systems to provide
4 important benchmarking critical to organizational best practices. While systems have their
5 own characteristics based on regions, size, and service area, the selected peers are of similar
6 size, service areas of industrial urban centers and are located largely in the mid-Atlantic
7 and Midwestern regions of the country. Peer comparisons and benchmarking performance
8 indicators are a component of best practices and have been incorporated into the
9 Authority’s financial policies. Data gathered on peer systems is provided by recent
10 Moody’s Credit Opinion reports for each respective peer.

11 Below are charts which indicate that PWSA, as compared to its peers, remains on the
12 weaker side of certain key financial metrics. It is important to note that viewing data for
13 peer systems should be used to provide a general perspective, since each system has its
14 own characteristics. Please see Exhibit CF-2 for additional financial data on the peer
15 systems.

16 Provided below is a peer comparison chart of debt service coverage levels that compares
17 PWSA to other large city water and sewer entities. Higher debt service coverage levels
18 are looked upon more favorably by the rating agencies because it indicates a better ability
19 to pay debt service and issue further debt while maintaining a strong financial position.
20 PWSA’s 2021 debt service coverage levels are among the lowest of its peer utilities and
21 also compared unfavorably to Moody’s overall and “A” and “Aa” rated utility medians.
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DEBT SERVICE COVERAGE*
(2021 net revenue divided by 2021 debt service, expressed as a multiple)

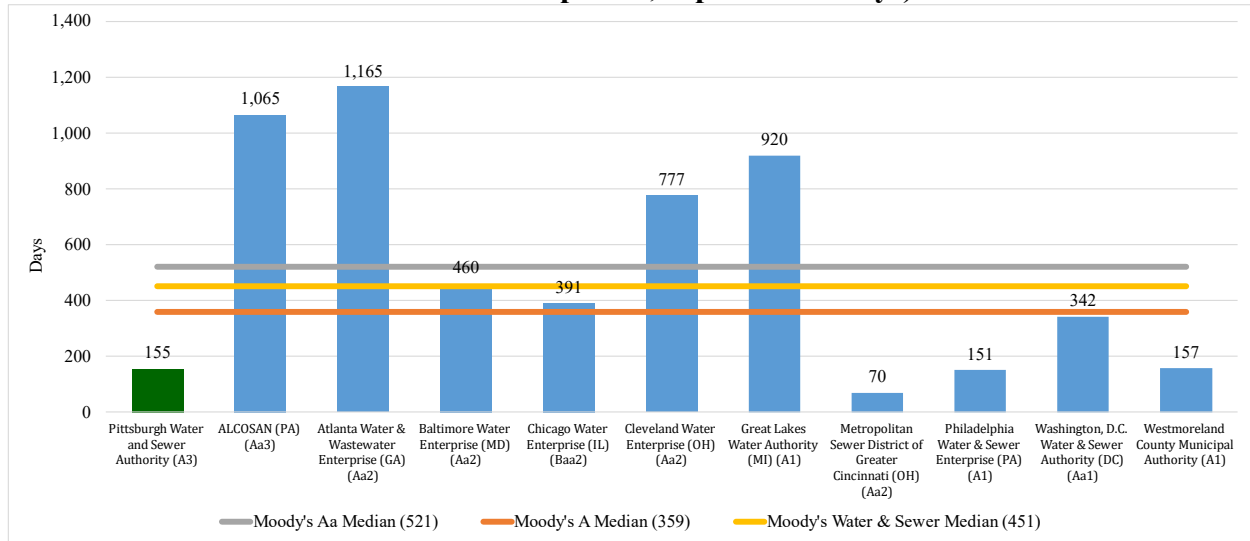


* Chicago, Washington DC and Westmoreland County debt service coverage is based on 2020 data.

Sources: Moody's Investor Service: Water and Sewer Utilities Medians – Liquidity and Debt Service Coverage Remained Strong in Fiscal 2020, May 26, 2022 (2020 data) and Moody's Investor Service latest rating reports for each entity (2020 and 2021 data).

Provided below is a peer comparison chart of days cash on hand that compares PWSA to other large city water and sewer entities. The rating agencies like to see more days cash on hand because it shows a better liquidity position and therefore, more financial flexibility. As previously mentioned in this testimony, the Moody's rating analyst cited the Authority's weak DCOH as compared to its peers as one of the primary reasons the Authority has not been upgraded and continues to be rated "A3." In 2021, PWSA had 155 days cash on hand which ranked the Authority as the third lowest liquidity of its peer utilities and also compared very unfavorably to Moody's overall and "A" and "Aa" rated utility medians.

DAYS CASH ON HAND*
(2021 unrestricted cash and liquid investments times 365 divided by 2021 operating and maintenance expenses, expressed in days)



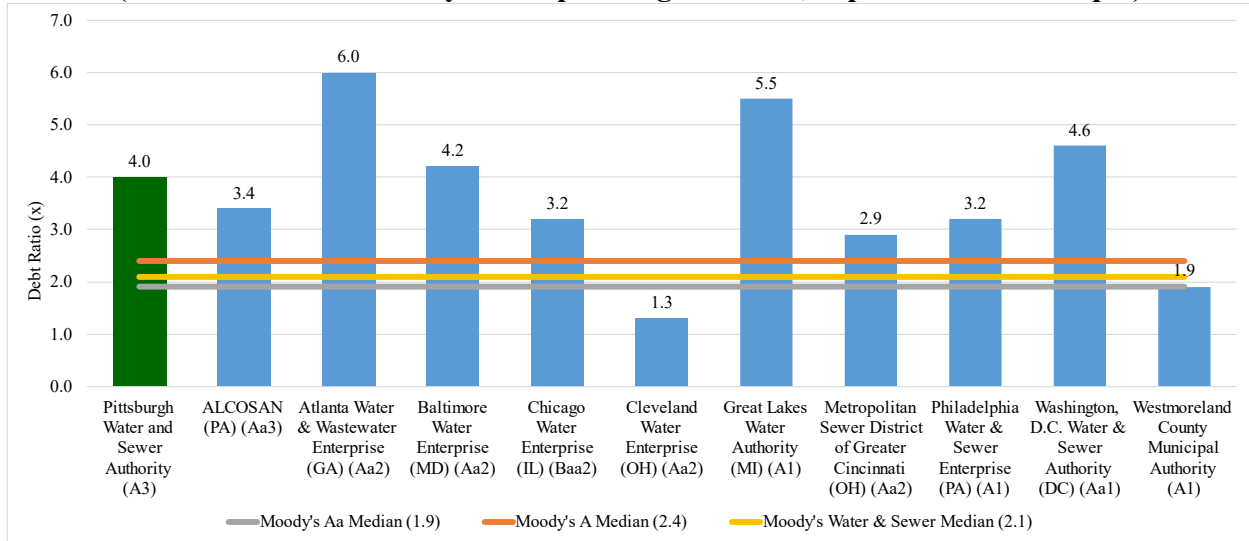
* Chicago, Washington DC and Westmoreland County debt service coverage is based on 2020 data.

Sources: Moody's Investor Service: Water and Sewer Utilities Medians – Liquidity and Debt Service Coverage Remained Strong in Fiscal 2020, May 26, 2022 (2020 data) and Moody's Investor Service latest rating reports for each entity (2020 and 2021 data).

Provided below is a peer comparison chart of debt ratios that compares PWSA to other large city water and sewer entities. The rating agencies would like to see a low debt ratio since that would indicate that the entity is not overextended in debt obligations. In 2021, PWSA ranked in the bottom half of utilities for its debt ratio compared to its peer utilities and also compared unfavorably to Moody's overall and "A" and "Aa" rated utility medians.

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DEBT RATIO
(2021 net debt divided by 2021 operating revenues, expressed as a multiple)



* Chicago, Washington DC and Westmoreland County debt service coverage is based on 2020 data.

Sources: Moody's Investor Service: Water and Sewer Utilities Medians – Liquidity and Debt Service Coverage Remained Strong in Fiscal 2020, May 26, 2022 (2020 data) and Moody's Investor Service latest rating reports for each entity (2020 and 2021 data).

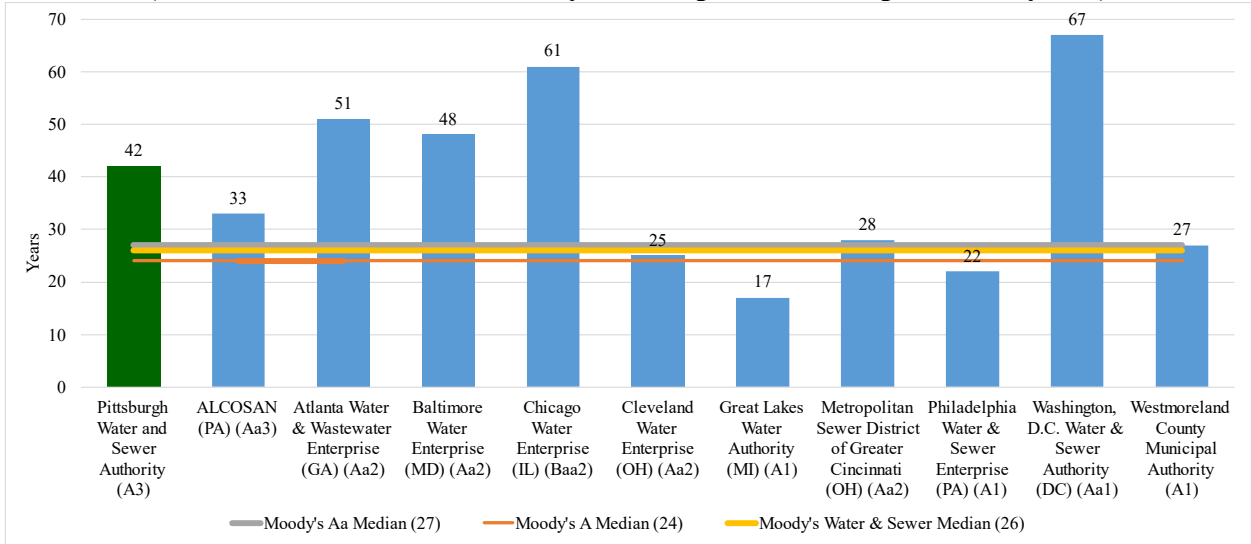
Provided below is a peer comparison chart of asset condition in years that compares PWSA to other large city water and sewer entities. A low number indicates that the assets of an entity are nearing their end of useful life and can indicate that large maintenance and/or replacement costs are on the horizon. In 2021, PWSA compared favorably to its peer utilities in Asset Condition and also compared favorably to Moody's overall and "A" and "Aa" rated utility medians.

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ASSET CONDITION
(2021 net fixed assets divided by 2021 depreciation, expressed in years)



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* Chicago, Washington DC and Westmoreland County debt service coverage is based on 2020 data.

** Washington DC 's asset condition is based on 2017 data.

Sources: Moody's Investor Service: Water and Sewer Utilities Medians – Liquidity and Debt Service Coverage Remained Strong in Fiscal 2020, May 26, 2022 (2020 data) and Moody's Investor Service latest rating reports for each entity (2020 and 2021 data).

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14

Q. DISCUSS THE AUTHORITY'S CAPITAL IMPROVEMENT PLAN IN COMPARISON TO OTHER PEER UTILITIES.

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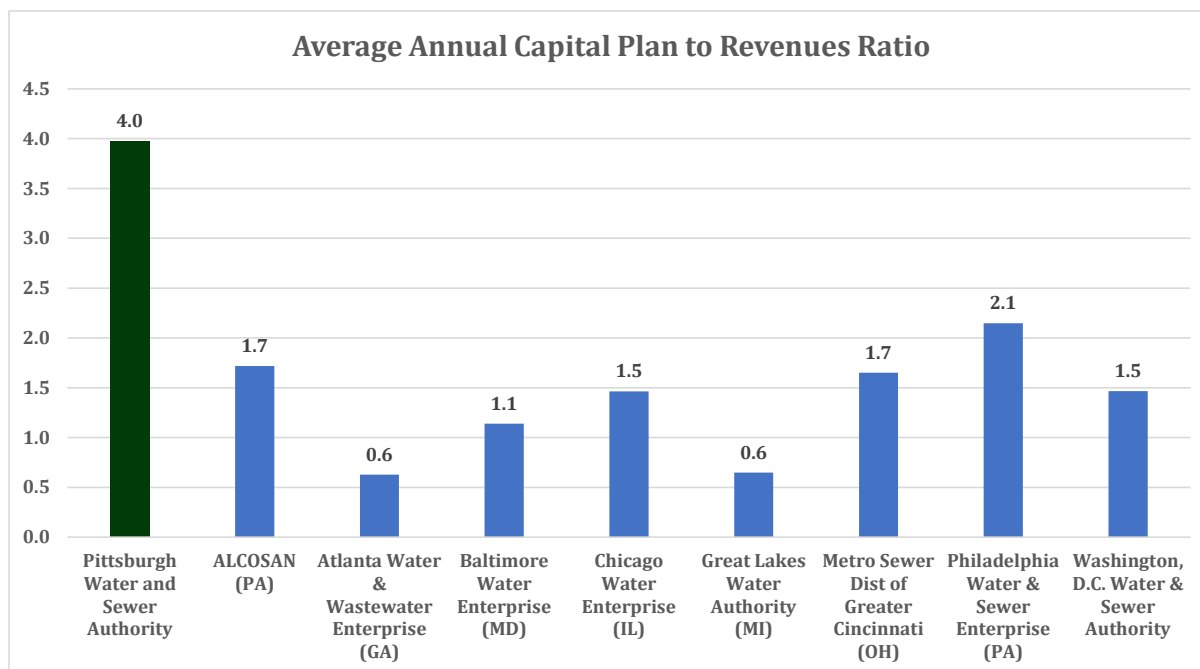
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A. The Authority's capital improvement plan (CIP) of approximately \$1.8 billion over the five years from FY 2023 to FY 2027 is among the largest and most intensive of its peers when adjusted for both PWSA's relative size and its financial capacity to meet this plan.

	Capital Plan (in \$ 000s)	Capital Plan (# of Years)	Net Revenues (in \$ 000s)	Average Annual Capital Plan to Revenues Ratio
Pittsburgh Water and Sewer Authority	1,800,000	5	90,592	4.0
ALCOSAN (PA)	3,900,000	20	113,493	1.7
Atlanta Water & Wastewater Enterprise (GA)	1,260,000	5	401,549	0.6
Baltimore Water Enterprise (MD)	989,000	6	144,855	1.1
Chicago Water Enterprise (IL)	2,625,000	5	358,764	1.5
Great Lakes Water Authority (MI)	1,780,000	5	550,492	0.6
Metro Sewer Dist of Greater Cincinnati (OH)	1,400,000	5	169,588	1.7
Philadelphia Water & Sewer Enterprise (PA)	3,975,000	6	308,602	2.1
Washington, D.C. Water & Sewer Authority	6,400,000	10	437,000	1.5

Source: Moody’s rating reports for entities’ capital plan dollar amounts and length in years, and net revenues

While the Authority’s CIP is not the largest of its peers, when considering the CIP’s relatively short 5-year timeframe and PWSA’s relatively constrained net revenues, the CIP is significantly more intensive than that of its peers. To quantify this intensity, the below chart shows the ratio of average annual capital plan (dollar amount divided by years) divided by net revenues. By this measure, PWSA’s CIP is between two and seven times as intensive as those of its peer entities.



1 **Q. DESCRIBE THE RISKS OF NOT APPROVING THE REQUESTED REVENUE**
 2 **INCREASE.**

3 A. There are several risks that occur if the PUC does not approve a substantial portion of the
 4 requested rate increase. Previously, I described the repercussions if a rate increase was
 5 not approved in relation to the debt service coverage and liquidity, the violations of the
 6 Authority’s Rate Covenant and inability to pass its ABT and issue additional debt to
 7 finance its capital program. In addition to those risks, there are several other risks that
 8 correlate if there is no revenue increase for the Authority.

9 **Existing Debt Service.** It should be noted that even in the absence of additional
 10 borrowing, the Authority’s loans with PENNVEST have ascending debt service in future
 11 years. Thus, with no rate increase, the Authority may be unable to meet its rate covenants
 12 with the bondholders.

13 **Operations.** The Authority has put off investing in improvements of infrastructure in the
 14 past, which has led to cost inefficiencies and a deteriorated system. The Authority’s new
 15 management has prioritized addressing the system infrastructure and put forth capital
 16 requirements in updating its water pumping and storage and water distribution, among
 17 others. In order to cover costs and expenses for these projects, revenue has to be
 18 adequate. The total system revenues would accumulate to \$255.3 million in FPFTY (FY
 19 2024) if the rate were to be approved by the PUC and cover the necessary costs and
 20 expenses. However, if rates were not increased, total system revenues would only be
 21 \$208.9 million, and the Authority runs the risk of having a deficit in fulfilling their debt
 22 service obligations and creating an event of default. As mentioned in Mr. Barca’s
 23 testimony, there is \$87 million of increased debt service cost is associated with both
 24 existing debt service new debt service to fund capital improvements. The ability to fund

1 the necessary capital improvements would cease and harm the ratepayers if the PUC did
2 not approve a substantial portion of the rate increase request.

3 **Rating Downgrade.** Rating downgrade(s) could lead to a myriad of issues for the
4 Authority. Specifically, the cost of fixed-rate borrowing for infrastructure would
5 increase, as well as rates/costs impacts to the Authority for their current line(s) of credit
6 and outstanding swaps. In addition, the Authority could see a lack of options for the
7 required regular refinancing of its existing variable bonds, which would likely lead to
8 higher interest and support costs. Also, as the Authority experienced in the past with its
9 Moody's downgrade in 2018, once a ratings agency downgrades a credit rating it is
10 reluctant to increase a credit rating for a period of time until it is assured that the factors
11 that led to the downgrade do not persist anymore. If the Authority was to get downgraded
12 because it did not receive a rate increase sufficient to make its debt service requirements
13 and required bond covenants and/or meet its ABT test the rating agencies would begin to
14 see the PUC oversight as a credit negative and would likely downgrade the Authority's
15 rating and be a factor that would prevent rating upgrades in the future.

16 **Cost of Capital.** In addition to ensuring that rate increases provide the necessary cash
17 flow for liquidity and pay-go, the Authority's rating has a direct impact on the cost of
18 capital. This has an impact on the cost of annual debt service, as well as the cost to
19 PWSA of alternative financing options, such as capital lines of credit, bank loans, and
20 implementing a commercial paper program. Higher rated credits enjoy a range of options
21 in financing increasing Capital Improvement Programs and these short term, variable rate
22 options can be even more advantageous in a rising rate environment. A higher credit-
23 driven cost of capital only compounds the challenges arising from a higher interest rate

1 environment generally which we have experience since the end of 2021. Below is a
 2 historical representation of the range in interest rates for “A” and “Baa” rated credits
 3 provided by MMD. Based on data from the last five years, the average between “A” and
 4 “Baa” rates of yield curves ranged from 0.33% to 0.53% in the 5-year, 10-year, 20-year
 5 and 30-year timeframes.

Time Period	5-Year Rate			10-Year Rate			20-Year Rate			30-Year Rate		
	"A" MMD	"Baa" MMD	Rate Difference	"A" MMD	"Baa" MMD	Rate Difference	"A" MMD	"Baa" MMD	Rate Difference	"A" MMD	"Baa" MMD	Rate Difference
March 31, 2023	2.44%	2.81%	0.37%	2.63%	3.17%	0.54%	3.65%	4.09%	0.44%	3.87%	4.31%	0.44%
Prior 5 Year Average	1.56%	2.01%	0.45%	2.08%	2.55%	0.47%	2.62%	3.06%	0.44%	2.80%	3.24%	0.44%
Prior 5 Year Minimum	0.19%	0.72%	0.53%	0.92%	1.43%	0.51%	1.42%	1.75%	0.33%	1.62%	1.95%	0.33%
Prior 5 Year Maximum	3.53%	3.88%	0.35%	3.85%	4.37%	0.52%	4.52%	4.96%	0.44%	4.78%	5.22%	0.44%

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Source: Municipal Market Data.

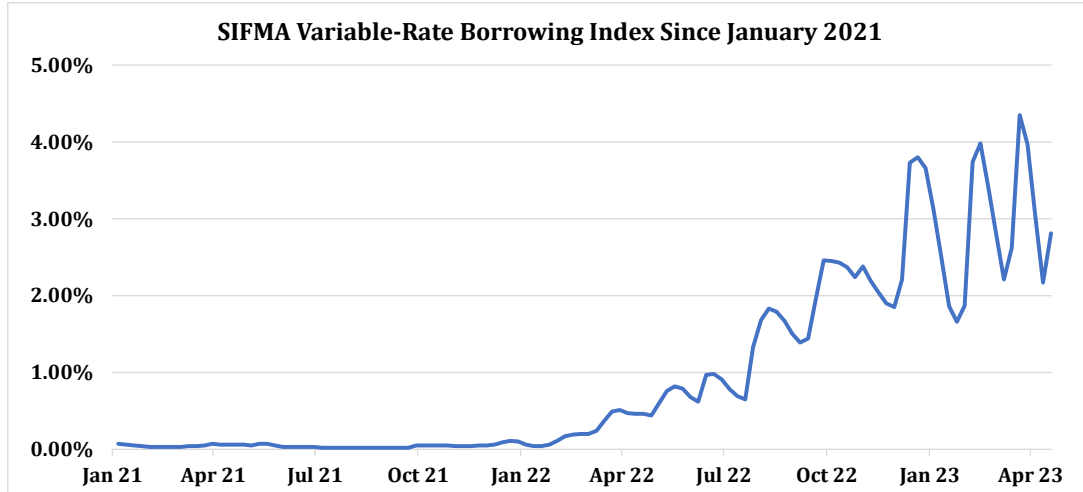
10 Over the next five years, the Authority expects to issue \$1.8 billion in additional revenue
 11 bond debt. For every 0.45% increase, which is approximately the difference between the
 12 prior five-year interest rate average between an A credit and Baa rates, PWSA and
 13 ultimately rate payers could expect to pay an additional \$3.6 million in annual debt
 14 service or more than \$108.3 million over the life of the bond issue. This increase adds up
 15 and can place additional stress on debt service coverage requirements.

16 **Costs of Revolving Capital Line of Credit.** The revolving capital line of credit
 17 agreement that the Authority executed with PNC Bank, NA in June 2022 has legal
 18 language that sets the applicable spread regarding the cost of the line of credit based upon
 19 several factors, including both the number and level of PWSA’s current credit ratings as
 20 follows:

<u>Level</u>	<u>Borrower Rating Moody's/S&P/Fitch</u>	<u>Revolving Credit SIFMA Spread (Applicable Margin)</u>
I	A3/A-/A- or above	0.39%
II	Baa1/BBB+/BBB+	0.46%
III	Baa2/BBB/BBB	0.56%
IV	Baa3/BB-/BB- or below	Default Rate

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The Authority is currently paying the SIFMA variable-rate municipal bond index + 0.39%, based on the lower of PWSA’s current ratings of A3 from Moody’s. However, if the Authority were to be downgraded in the future to Baa1 or BBB+ by Moody’s or S&P, respectively, then the Authority would be paying a spread to SIFMA of 0.46%, and to Baa2 or BBB a spread of 0.56%. Should the Authority be downgraded further, or maintain only one or no credit ratings, then the Authority would pay a Default Rate, which is the greater of the Overnight Bank Funding Rate (OBFR) plus 0.5% or the Prime Rate, plus 3.00%. For reference, as of March 31 the OBFR was 4.82% and the Prime Rate was 8.00%, so the Default Rate would have been 11.00%. Importantly, the SIFMA index has increased significantly over the past several years, more than doubling the Authority’s borrowing cost since the facility was executed:



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Swap Agreements. The Authority’s amended swap agreements for the outstanding 2017C Bonds do not have variable rate or fixed rate triggers related to credit ratings downgrades. Nevertheless, there is legal language relating to an Authority’s credit rating in regards to downgrades constituting an additional termination event if the Authority’s credit rating should be downgraded to Baa3 or BBB- by Moody’s and/or S&P, respectively. As of January 31, 2023, the swap termination net present value for the swaps related to the 2017C Bonds was negative \$37,430,806, which is quite substantial.

Q. DISCUSS THE SIGNIFICANCE OF THE ADDITIONAL BONDS TEST AS IT RELATES TO THE CAPITAL LINE OF CREDIT.

A. As discussed previously, if the Authority’s rate revenue is insufficient to meet its ABT, then it cannot issue new debt. One of the consequences of being unable to issue new debt is the inability to refinance the revolving line of credit upon its Expiration Date of June 23, 2025. In this event, the Authority would need to enter into a Term Loan that is effectively at the above-mentioned Default Rate, less 1.00%, or 10.00% as of March 31. This is more than triple the Authority’s current borrowing rate under the Capital Line of Credit, and would result in an unacceptably high cost of debt service associated with this financing mechanism.

1 V. **IMPACT OF MULTI-YEAR RATE ADJUSTMENT AND FUTURE RATE**
 2 **INCREASES**

3 Q. **HOW WILL THE AUTHORITY'S CREDIT PROFILE BE IMPACTED IF THE**
 4 **PUC APPROVES A MULTI-YEAR RATE ADJUSTMENT?**

5 A. I believe that the Rating Agencies will react positively.

6 Moody's scorecard has a rate management sub-factor under the management factor that is
 7 worth 10% of the overall score. According to Moody's methodology, since rates are
 8 typically the primary mechanism to pay for a utility's operations, ideally their rate would
 9 increase steadily. Management's track record at setting rates appropriately and
 10 increasing them when necessary drives this score. Moody's also takes into account the
 11 length of time required to implement a rate increase, especially when the utility must seek
 12 approval from the state. In the case of PWSA, Moody's has noted that an inability to
 13 raise rates sufficiently to meet debt service coverage covenants while also funding
 14 significant deferred capital improvements could lead to a downgrade.

15 S&P uses a scorecard approach for their water and sewer ratings. There are four factors
 16 that go into the Operational Management Assessment score. "Rate Setting Practices,"
 17 which represents 40% of the Operational Management Assessment score, is the largest
 18 factor within the Operational Management Assessment score.

- 19 • *Strong Rate Setting Practices* occur when rate increases have been needed, the
 20 decision-making body has been supportive and timely, even to the extent that
 21 multiyear, preapproved rate increases are common, if not standard. Financial
 22 decisions are prudent, in our view, rather than simply politically expedient and
 23 that could possibly be to the detriment of the utility's near-term financial health.
 24 Periodic rate studies (internal or external) are common.

1 Specifically, as mentioned previously, S&P has noted in the past that their stable outlook
2 for PWSA reflects an expectation that both the timing and magnitude of rate adjustments
3 that PWSA requests, versus what the PUC ultimately grants, will generally prove to be
4 aligned. S&P assumes that PUC oversight will be a supportive relationship of credit
5 quality observed by both the timing and magnitude of rate adjustments that the Authority
6 requests versus what the PUC grant. S&P also noted in the past that should rate increases
7 be insufficient to support strong finances, they could lower the rating. Therefore, it is
8 imperative the PUC the requested rate adjustments “align” in what the PUC approves.

9 In addition, multi-year planning and rate adjustments contribute to municipal
10 utilities’ stable financial performance. The table below summarizes the historical debt
11 service coverages and days cash on hand for PWSA and peer utilities. The peer agencies
12 generally have stable financial metrics. In cases where metrics have deteriorated sharply
13 for respective peers, such as the City of Baltimore in FY 2016 and PWSA in 2017, bond
14 ratings have been lowered following the reported results. On the contrary, when metrics
15 increase for peers, such as Allegheny County Sanitary Sewer Authority (“ALCOSAN”)
16 or the Great Lakes Water Authority, bond ratings have been upgraded. The absence of
17 annual rate increases has caused substantial volatility in the Authority’s financial metrics
18 in the past and it is imperative that annual rate increases occur with an appropriate
19 adjustment to keep or increase the financial metrics of the Authority. Neither bond
20 investors, nor the rating agencies will look favorably on consistently deteriorating
21 financial metrics or the variability of sporadic rate increases and/or inadequate
22 adjustments, as these characteristics are inconsistent with highly rated municipal utilities.

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Historical and Project Financial Metrics of PWSA Compared to Historical Financial Metrics of Peers											
Debt Service Coverage*											
	Pittsburgh Water and Sewer Authority (A3)	ALCOSAN (PA) (Aa3) ¹	Atlanta Water & Wastewater Enterprise (GA) (Aa2)	Baltimore Water Enterprise (MD) (Aa2)	Chicago Water Enterprise (IL) (Baa1)	Cleveland Water Enterprise (OH) (Aa2)	Great Lakes Water Authority (MI) (A1) ²	Metropolitan Sewer District of Greater Cincinnati (OH) (Aa2)	Philadelphia Water & Sewer Enterprise (PA) (A1)	Washington, D.C. Water & Sewer Authority (DC) (Aa1)	Westmoreland County Municipal Authority (A1)
2015	1.1	1.6	2.1	1.8	2.5	2.2	1.3	1.5	1.5	1.8	1.2
2016	0.9	1.6	1.8	1.1	2.6	2.0	1.6	1.7	1.4	2.0	1.0
2017	0.8	2.2	1.9	0.9	2.3	1.7	1.6	1.5	1.7	2.1	1.5
2018	1.4	2.1	2.0	1.4	2.2	1.9	1.6	2.0	1.5	2.1	1.6
2019	1.3	2.0	2.6	1.4	1.8	2.0	1.5	1.9	1.8	2.0	1.3
2020	1.5	2.0	1.8	1.2	1.8	2.3	1.5	1.9	1.5	2.1	1.1
2021	1.5	2.1		2.0		2.8	1.4	2.0	2.0	2.0	
2022	1.5										
2023	1.4										
2024											
2025											
2026											

Days' Cash on Hand*											
	Pittsburgh Water and Sewer Authority (A3)	ALCOSAN (PA) (Aa3) ¹	Atlanta Water & Wastewater Enterprise (GA) (Aa2)	Baltimore Water Enterprise (MD) (Aa2)	Chicago Water Enterprise (IL) (Baa1)	Cleveland Water Enterprise (OH) (Aa2)	Great Lakes Water Authority (MI) (A1) ²	Metropolitan Sewer District of Greater Cincinnati (OH) (Aa2)	Philadelphia Water & Sewer Enterprise (PA) (A1)	Washington, D.C. Water & Sewer Authority (DC) (Aa1)	Westmoreland County Municipal Authority (A1)
2015	78	424	1,313	205	462	469	266	448	78	244	90
2016	53	450	1,243	113	591	781	391	564	79	268	75
2017	26	620	1,364	58	598	848	670	32	88	250	98
2018	112	684	1,232	258	480	796	912	64	88	261	115
2019	155	830	1,357	199	417	759	937	60	92	281	157
2020	229	960	1,165	233	391	781	956	68	104	349	162
2021	195	1065		460		777	920	70**	151	342	
2022	175										
2023	152										
2024											
2025											
2026											

1

2 *Sources: Moody’s Investors Service Reports for years 2015 through 2021.

3 ¹Chicago Water was upgraded to Baa1 from Baa2 in 2022. The debt statistics are shaded green in 2020 as this is

4 the most recent financial metric data.

5 Notes: Yellow shaded cells represent rating Moody’s downgrades. Green shaded cells represent rating Moody’s

6 upgrade. Orange shaded cells represent years when PWSA rate adjustment is scheduled.

7

8 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

9 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

Appendix A

Firm Overview. PRAG is an independent financial advisory firm organized as a subchapter S corporation wholly-owned and managed by its employees. The firm was founded in 1985 to provide in-depth financing, investment and derivative advice to state and local governments, authorities and agencies and has continuously served governmental entities for the nearly 38 years that our firm has been in business. PRAG's only business is providing independent financial and investment advisory services to municipal clients. Today, PRAG has five offices around the country, including our New York City headquarters, and in suburban Philadelphia, Los Angeles, Oakland and St. Petersburg, Florida.

National Experience.

PRAG has been consistently ranked among the top three financial advisors in the nation over the last decade for all long-term municipal issuance, as illustrated in the table to the right. Our success is built on a history of providing comprehensive, high-quality, and independent advice to public sector issuers with respect to capital planning, debt portfolio

PRAG's Financial Advisory Rankings (2013-2022)						
Year	Long-Term Municipal Issuance Rankings		Competitive Sale Rankings		Negotiated Sale Rankings	
	Total Amount*	Rank	Total Amount*	Rank	Total Amount*	Rank
2022	\$35.2	2	\$10.5	2	\$24.7	2
2021	\$44.5	2	\$17.1	1	\$27.3	2
2020	\$43.4	2	\$13.5	1	\$29.9	2
2019	\$40.6	2	\$19.4	1	\$21.2	3
2018	\$36.1	2	\$17.4	1	\$18.7	2
2017	\$52.4	2	\$20.2	1	\$32.2	2
2016	\$33.4	3	\$12.6	2	\$20.8	3
2015	\$30.9	3	\$12.4	2	\$18.5	3
2014	\$27.9	2	\$11.4	1	\$16.4	3
2013	\$31.0	2	\$9.9	2	\$21.1	2

*\$'s in billions.

Source: Refinitiv.

management, debt capacity, swaps and derivative instruments, financing options, refunding approaches and techniques, bond structure and pricing, and bond proceeds investment strategies.

Water and Wastewater Experience. Since 2000, PRAG has advised water and wastewater authorities and agencies on their complex needs, including over \$42.0 billion in financings. . Our water and wastewater transactions include fixed and variable rate bonds, negotiated transactions, public sales and private placements, new money and refundings. In addition to our water and wastewater transaction experience, we also have ample experience with general financial advisory services, such as review of feasibility studies, credit rating strategies, long-term financial plans, debt affordability studies, advising in an IRMA role, monitoring legislation and more. Provided below is a list of selected water and wastewater clients. PRAG has also advised a number of its water and wastewater clients on executing WIFIA loans.

PRAG advised the Pittsburgh Water and Sewer Authority ("PWSA") on its bond transactions in 2019, 2020 and 2022: \$109,855,000 Water and Sewer System First Lien Revenue Bonds, Series A of 2019; \$104,290,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series B of 2019; \$92,410,000 Water and Sewer First Lien Revenue Bonds Series A of 2020 (Taxable) and Series B of 2020 and the remarketing of the \$218,805,000 Water and Sewer System First Lien Revenue Refunding Bonds, Series C of 2017.

Most recently, PRAG acted as financial advisor for PWSA's \$44.55 million Water and Sewer System First Lien Revenue Bonds, Series A of 2022, the proceeds of which paid down the \$50 million balance on its capital line of credit note and is currently advising the Authority on its 2023 bond issuance which is intended to repay \$110 million on its capital line of credit, currently refund approximately \$80 million in outstanding 2013 A and B bonds for interest rate savings, and the remarketing and refunding of the

Authority; s variable rate Series C of 2017 bonds which have a mandatory put on December 1, 2023 but are callable as early as June 1, 2023.

PRAG is also currently assisting PWSA in negotiating and executing a \$50 million WIFIA loan related to its \$165 million clearwell replacement and improvement project that is expected to close in May 2023.

Provided below is a list of select water and wastewater clients.

Summary of PRAG's Water and Wastewater Experience	Bond Issuance	Innovative Debt Products	Structuring & Restructuring	Long-Term Financial Plan	Investments	Swaps & Derivatives	Credit Rating Strategy	Special Studies & Reports	Financial Policies	Inter-Agency Agreements	WIFIA Loan
Miami-Dade County Water & Sewer	✓		✓	✓		✓	✓		✓	✓	✓
Orange County Sanitation District	✓	✓	✓	✓	✓	✓	✓	✓			
Jefferson County, Alabama	✓		✓	✓			✓	✓	✓		
San Francisco Public Utilities Commission	✓		✓	✓			✓				
Santa Clara Valley Water District	✓	✓	✓	✓	✓	✓	✓	✓			✓
West Virginia Water Development Authority	✓						✓				
LA Department of Water & Power	✓	✓	✓		✓	✓	✓	✓		✓	
City of Los Angeles	✓	✓	✓	✓	✓	✓	✓		✓		✓
Hillsborough County	✓						✓		✓		
Baltimore County	✓		✓	✓			✓	✓	✓		
Anne Arundel County	✓		✓	✓			✓		✓		
City of Virginia Beach	✓		✓	✓			✓				
Bethlehem Authority	✓		✓	✓	✓	✓	✓	✓	✓	✓	
Capital Region Water (Harrisburg)	✓		✓	✓	✓		✓	✓	✓	✓	
Pittsburgh Water and Sewer Authority	✓		✓			✓	✓				✓

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Christine Fay
Senior Managing Director
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Ms. Fay brings over twenty years of municipal finance experience to the engagement. Ms. Fay provides overall project management and quantitative analysis for various state and local issuers, including several municipalities and water and sewer issuers. She has served as the Project Manager for the Pittsburgh Water and Sewer Authority, as well as the states of Illinois, Minnesota, Vermont and West Virginia and the City of

Detroit. Her role includes advising clients on structuring debt consistent with statute and long-term objectives of clients, the debt issuance process on both competitive and negotiated transactions, document drafting and review, rating agency strategy and credit support, market outreach and research, evaluations of various requests for proposals and overall day to day project management.

Ms. Fay has worked with a variety of PRAG clients on water, sewer and storm water financings including serving as Project Manager to Pittsburgh Water and Sewer Authority on its 2019, 2020 and 2022 Bonds and is currently assisting the Authority on the issuance of its 2023 bonds. Additionally, Ms. Fay has also worked with the Bethlehem Authority, Capital Regional Water (formerly The Harrisburg Authority), the Metropolitan Council (MN), Miami-Dade County, New Castle County (DE), and the West Virginia Water Development Authority. In addition to her water and sewer clients, as previously noted, Ms. Fay serves as the day-to-day Project Manager for the states of West Virginia, Minnesota, Vermont and Illinois. Ms. Fay has worked with the State of West Virginia since 2009. She has advised on the issuance of general obligation bonds, lease revenues bonds, lottery backed revenue bonds, moral obligation bonds, revenue bonds, and GARVEE notes. Ms. Fay has been advising the State of Illinois since 2009. She has worked on both competitive and negotiated transactions, bidding escrow securities for a refunding transaction, advised on credit approach, structuring and marketing the bonds and assisted in preparing investor materials. In addition, Ms. Fay advised the State of Illinois on its \$6 billion of general obligation bonds to reduce the State's backlog of unpaid bills. Ms. Fay has worked on all bond issuances that PRAG has advised the State of Minnesota on since 2009. She has sized the State's Various Purpose, Trunk Highway and Refunding bonds consistent with the State's constitution and capital guidelines and was involved in all aspects of the financings.

Prior to joining PRAG, Ms. Fay served as the Debt Finance Manager at the County of San Diego, where she oversaw a \$2.4 billion debt portfolio, managed the County's debt issuance process, was on the capital planning committee, and served as the point of contact to the rating agencies. As the Debt Finance Manager at the County of San Diego, Ms. Fay successfully managed lease revenue transactions, conduit financings, formed the County's first special tax district, and was instrumental in the County getting upgraded to AAA by Standard and Poor's.

Ms. Fay received her MBA from UCLA Anderson School of Business and a Bachelor of Arts degree in Economics from the University of Pennsylvania. *Certifications/Licenses: Series 50, Municipal Advisor Representative.*



PUBLIC RESOURCES ADVISORY GROUP

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Exhibit CF-1

Rate Covenant

The Rate Covenant in the Amended and Restated Indenture that the Authority made with bondholders requires the Authority to satisfy the three requirements below:

1. Net Revenues shall be sufficient in each Fiscal Year to pay Annual Senior Debt Service, Annual Subordinate Debt Service, all deposits to satisfy Reserve Requirements and any additional Authority Indebtedness in that Fiscal Year.
2. Net Revenues shall not be less than 125% of Annual Senior Debt Service, plus 110% of aggregate Annual Debt Service in that Fiscal Year.
3. Rate Covenant Net Revenues, excluding transfers from the Rate Stabilization Fund, shall equal not less than 100% of aggregate Annual Debt Service.

Rate Covenant Net Revenues include Net Revenues plus any transfers from the Rate Stabilization Fund to the Revenue Fund; less any transfers to the Rate Stabilization Fund to the Revenue Fund.

It should be noted that the City's Cooperation Payment is specifically not included as an operating expense for purposes of calculating the rate covenant.

Flow of Funds

1. Revenue Fund - All revenues received by the Authority must be deposited into Revenue Fund.
2. Operating Fund - The Authority shall transfer from the Revenue Fund to the Operating Fund from time to time amounts needed to pay Current Expenses.
3. Debt Service Fund - On the 20th day of each month before debt service is due, the Authority shall transfer to: (1) senior debt service fund (including periodic payments of swap agreements); (2) the senior debt service reserve fund, if needed; (3) the subordinated debt service fund (including periodic payments of swap agreements); the subordinated debt service reserve fund, if needed; (5) any payments owed to swap providers other than periodic payments.
4. Operating Reserve Fund - Amounts necessary to restore the operating reserve requirement of 116th of current expenses of the most recent annual audited financial statements. Such amounts shall be restored if drawn upon within 24 months of the withdrawal by depositing 1/24 of the operating reserve requirement monthly.
5. City Cooperation Agreement - Amounts owed to the City pursuant to the Agreement.
6. Any funds remaining in the Revenue Fund after all of the previous required payments have been made can be transferred to the Rate Stabilization Fund; the Debt Service Fund; the Operating Fund to pay for construction or capital projects.

Exhibit CF-2

Peer Ratings and Comparative Financial Information											
	Pittsburgh Water and Sewer Authority	Atlanta Water & Wastewater Enterprise (GA)	Baltimore Water Enterprise (MD)	Chicago Water Enterprise (IL)	Cleveland Water Enterprise (OH)	Great Lakes Water Authority (MI)	Metropolitan Sewer District of Greater Cincinnati (OH)	Philadelphia Water & Sewer Enterprise (PA)	Washington, D.C. Water & Sewer Authority (DC)	Westmoreland County Municipal Authority	
Year	2021	2022	2022	2022	2021	2021	2022	2021	2022	2022	2022
Current Senior Most Rating	A3	Aa3	Aa2	Aa2	Baa1	Aa2	A1	Aa2	A1	Aa1	A1
Total Current Cash, Cash Equivalents and Investments (\$000)	76,422	311,516	869,042	212,893	470,209	410,903	238,691	19,918	171,445	315,241	36,150
Total Revenue Bonds (\$000)	N/A	906,390	2,635,630	1,341,508	N/A	369,765	N/A	N/A	2,435,116	N/A	N/A
Total Long Term Debt (\$000)	1,070,782	906,390	2,947,648	1,341,508	2,341,421	455,348	2,756,005	813,187	2,435,116	3,726,934	469,010
Total Operating Revenues (\$000)	269,121	211,517	482,084	278,280	775,725	325,793	344,958	266,026	766,367	832,210	109,477
Total O&M Expenses (\$000)	179,900	99,272	245,739	130,471	407,265	192,917	143,639	103,822	458,450	337,384	69,619
Net Revenues (\$000)	90,592	128,590	448,754	161,515	372,231	141,823	240,064	169,558	302,494	499,284	41,841
Total Annual Senior Lien Debt Service (\$000)	57,195	N/A	209,233	42,798	N/A	41,550	124,310	53,528	182,061	76,947	40,306
Total Annual Debt Service (\$000)	67,796	57,158	235,362	71,600	198,482	50,828	175,743	83,824	182,061	219,090	40,306
Operating Ratio (%)	66.8	46.9	51.0	46.9	52.5	59.2	41.6	39.0	59.8	40.5	63.6
Debt Ratio (%)	98.8	59.1	41.5	47.3	41.0	19.3	120.9	33.6	57.5	55.2	68.5
Total Annual Senior Lien DSC (x)	1.6	N/A	2.1	3.8	N/A	3.4	1.9	3.2	1.7	6.5	1.0
Total Annual Debt Service Coverage (x)	1.3	2.2	1.9	2.3	1.9	2.8	1.4	2.0	1.7	2.3	1.0

Sources: Moody's rating reports for each issuer.

Exhibit CF-3

SECTOR PROFILE

26 May 2022



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Water and Sewer Utilities – US

Medians - Liquidity and debt service coverage remained strong in fiscal 2020

Municipal water and sewer utilities benefited from increased liquidity and debt service coverage on a sectorwide basis in fiscal 2020, according to our medians data. The improvements and mostly steady financial performance came despite the fiscal year partly coinciding with the pandemic. The sector, which includes water, sewer and combined utilities, was helped by utilities' willingness and ability to raise rates and the essentiality of their services. While asset conditions continued to signal underinvestment in infrastructure, massive federal aid stands to help fund improvements and manage risks posed by inflation and supply-chain disruption. Most of the water and sewer utilities we rate are enterprises of a city or county. The credit quality of these utilities and their parent governments are closely connected. Other water and sewer systems are standalone authorities.

- » **Revenue was stable in fiscal 2020, owing in part to independent rate-setting ability and essentiality of services.** Sectorwide median revenue increased about 1.0% in fiscal 2020. Most utilities proceeded with planned rate hikes, though some modified plans in fiscal 2021 due to the pandemic.
- » **Operating and maintenance (O&M) expenses increased.** Sectorwide, median O&M expenses increased 4.4% versus the prior year as some systems continued to expand and add customers, which can boost costs.
- » **Net revenue improved sectorwide, indicating continued financial strength and flexibility.** Median net revenue rose 3.7% in fiscal 2020 versus the prior year, which will help systems afford capital improvements or manage unforeseen expenses.
- » **Sectorwide liquidity increased markedly.** The median days cash on hand rose in fiscal 2020 to 506 days from 476 in the prior year.
- » **Leverage declined modestly again in fiscal 2020.** With growth in revenue, the sectorwide median debt-to-operating revenue ratio fell 4.5% to 2.0x.
- » **Debt service coverage remained healthy.** Median sectorwide coverage again grew modestly to 2.3x, indicating capacity to absorb swings in revenues or expenses.
- » **Asset condition remained stable, raising the prospect the utilities will need to increase capital investments.** Project deferrals resulted in a modest decline in the sectorwide median remaining useful life of assets as depreciation outpaced investment.
- » **Asset condition varied by region.** Water and sewer systems in the West had the highest median remaining useful life by a wide margin.

Revenue

Exhibit 1

Revenue improved across the sector in fiscal 2021

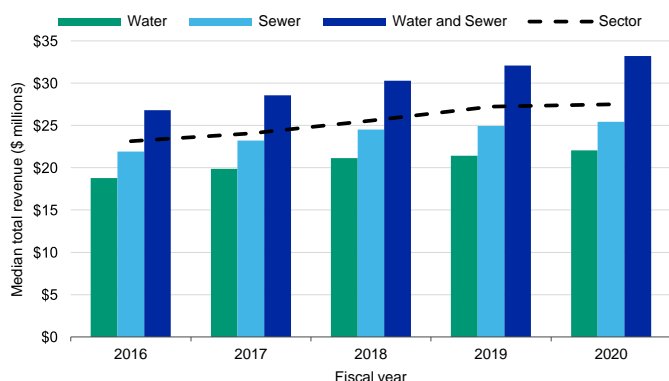


Exhibit includes median data points for water, sewer and combined water and sewer systems, and sectorwide (all three types).

Source: Moody's Investors Service

Revenue improved, helped by independent rate-raising authority and essentiality of services

- » Median sectorwide revenue increased about 1.0% in fiscal 2020 versus the prior year. Most utilities enacted planned rate hikes, though some pulled back in fiscal 2021 due to the pandemic. Utilities also benefit from services that are essential.
- » System growth and revenue diversity reduce the need for large rate increases, allowing systems to implement smaller increases spread across more customers to pay debt or address capital needs.

Expenses

Exhibit 2

Operations and maintenance expenses grew across the sector

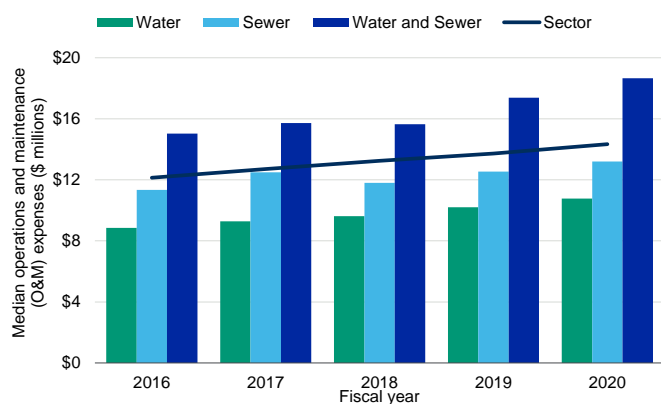


Exhibit includes median data points for water, sewer and combined water and sewer systems, and sectorwide (all three types).

Source: Moody's Investors Service

O&M expenditure growth increased as some utilities expanded and added customers

- » Sectorwide, the median operations and maintenance (O&M) expense increased 4.4% in fiscal 2020 compared with the prior year. Water, sewer and combined systems also each saw a median O&M expense increase in fiscal 2020.
- » Some utilities' O&M expenses increased because of customer growth, including [Austin \(City of\) TX Water and Wastewater System \(Aa2 stable\)](#), which has grown by an annual average of 6.5% over the past five years. Customer growth has paralleled the city's expansion, necessitating increased O&M expense.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moodys.com> for the most updated credit rating action information and rating history.

Net revenue

Exhibit 3

Net revenue at the sectorwide level improved as revenue outpaced expenditures

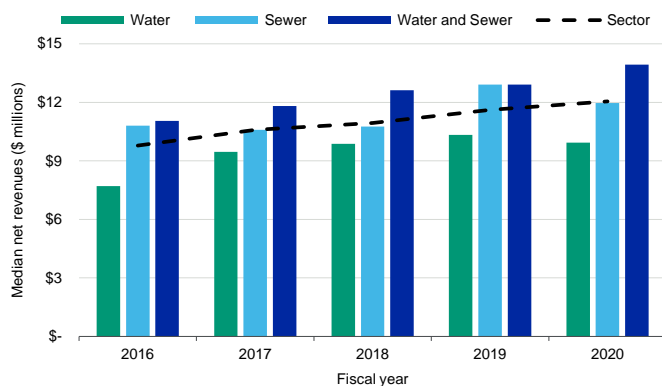


Exhibit includes median data points for water, sewer and combined water and sewer systems, and sectorwide (all three types).

Source: Moody's Investors Service

Improving net revenues indicated continued financial strength and flexibility

- » Sectorwide median net revenue rose 3.7% in fiscal 2020 versus the prior year. Combined water and sewer utilities' median net revenue increased for the eighth year in a row, providing a strong basis for paying debt and building up liquidity to further address capital needs. Median net revenue for both water and sewer systems modestly decreased in 2020 following moderate growth in 2019.
- » Increasing net revenue highlights the benefits of the sector's independent rate-raising ability.

Liquidity

Exhibit 4

Liquidity remained strong across the sector with the three system types maintaining more than a year of operating cash

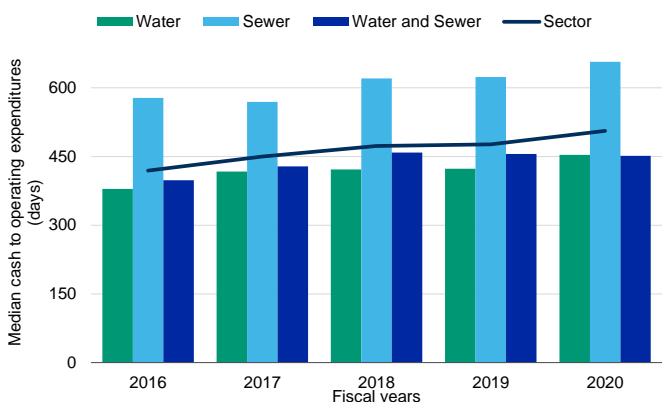


Exhibit includes median data points for water, sewer and combined water and sewer systems, and sectorwide (all three).

Source: Moody's Investors Service

Improvement in liquidity significantly benefited sector

- » The median days cash on hand sectorwide rose in fiscal 2020 to 506 days from 476 in the prior year. Both water and sewer utilities had median increases of at least 30 days following a fairly flat 2019. Combined water and sewer systems, however, fell by a median five days.
- » All system types have materially improved liquidity over at least the past five years by over 50 additional days.
- » [Atlanta \(City of\) GA Water and Wastewater Enterprise \(Aa2 stable\)](#) serves as an example of a system maintaining very strong liquidity — exceeding 1,000 days cash on hand in at least each of the past five years — while addressing significant capital needs.

Leverage

Exhibit 5

Leverage at the sectorwide level declined for the second year in a row in fiscal 2020

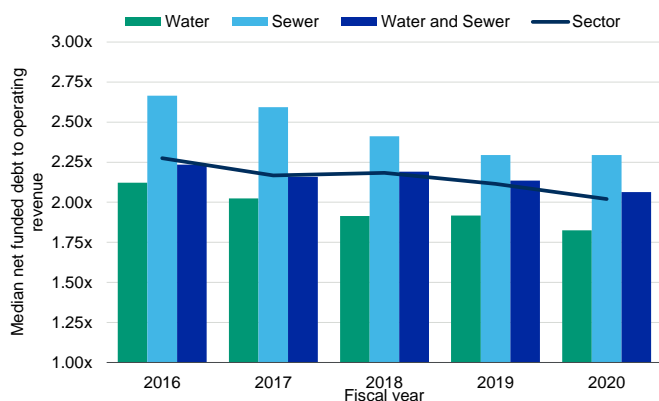


Exhibit includes median data points for water, sewer and combined water and sewer systems, and sectorwide (all three types).

Source: Moody's Investors Service

Leverage levels remained healthy as revenue increased

- » With an increase in revenue, the sectorwide median debt-to-operating revenue ratio dropped 4.5% to 2.0x in fiscal 2020. Median leverage remained the same for sewer entities but fell for water and combined systems versus fiscal 2019.
- » [Sussex \(Village of\) WI Water Enterprise \(Aa3\)](#) serves as an example of a utility that borrowed in part for environmental remediation, increasing the debt-to-operating ratio to 5.1x in fiscal 2018. Since then, leverage has dropped, reaching 3.8x in fiscal 2020 thanks to a new large customer and general rate increases.

Exhibit 6

Debt service coverage continued to top 2.0x across the sector

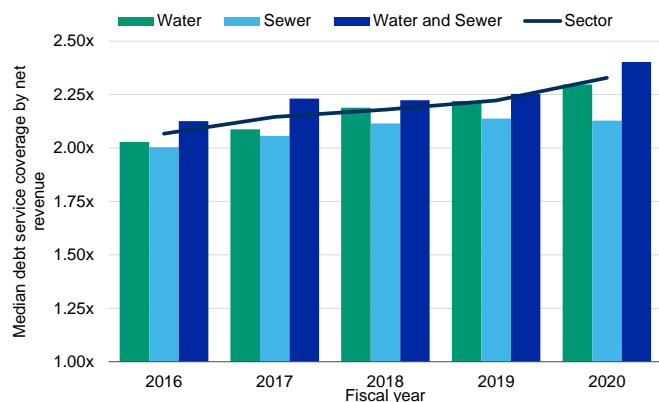


Exhibit includes median data points for water, sewer and combined water and sewer systems, and sectorwide (all three types).

Source: Moody's Investors Service

Debt service coverage remained stable across all system types

- » Sectorwide debt service coverage — annual net revenue divided by annual debt service — increased to 2.3x from 2.2x in fiscal 2020. Coverage remained well in excess of standard rate covenants that are usually between 1.0x and 1.5x annual debt service.
- » Median coverage increased slightly to 2.3x in fiscal 2020 for water systems versus the prior year but was flat at 2.1x for sewer entities. Median coverage increased slightly for combined systems to 2.4x coverage from 2.3x in the prior year.
- » Very strong debt service coverage and liquidity provide utilities with substantial ability to withstand shocks. While actual results show that revenue modestly increased in 2020, we [previously reported](#) that even under a stress scenario of a 10% decline in revenue, the median debt service coverage ratio for water and sewer utilities we rate would remain strong at 1.7x.

Asset condition

Exhibit 7

Remaining useful life of assets remained largely stable in fiscal 2020

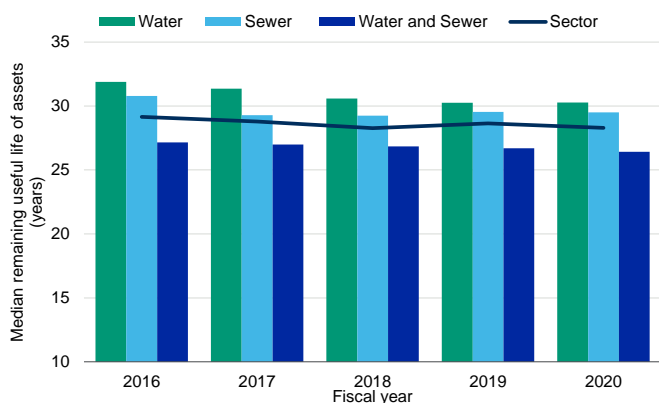


Exhibit includes median data points for water, sewer and combined water and sewer systems, and sectorwide (all three types).

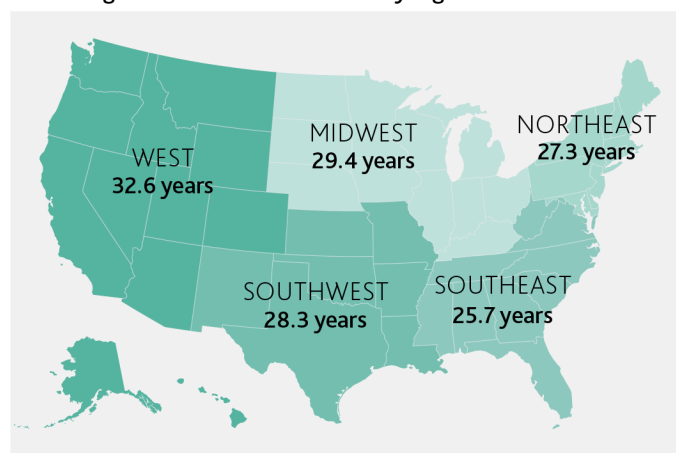
Source: Moody's Investors Service

Asset condition remained stable, indicating greater investment in infrastructure will be needed

- » Median sectorwide asset condition — net fixed assets divided by depreciation expense — remained stable at a healthy 28 years, giving systems time to address capital needs.
- » The median asset conditions for water systems and sewer systems remained stable at 30 years, but decreased slightly to 26 for combined water and sewer systems.
- » Most utilities continued with necessary capital projects during the pandemic, though some were postponed for budget savings.

Exhibit 8

Remaining useful life of assets varied by region in fiscal 2020



Source: Moody's Investors Service

Western US asset conditions topped other regions

- » Sectorwide median asset condition — remaining useful life of assets — varied by region in fiscal 2020, with the Southeast having the shortest and the West having the longest.
- » Population growth and newer infrastructure generally benefit water and sewer systems in the West.

Basis for medians

This report conforms to our [US Municipal Utility Revenue Debt Methodology](#) published in April 2022. As such, the medians presented here are based on the key metrics outlined in the methodology and the associated scorecard. The appendix of this report provides additional metrics broken out by sector and rating category.

We use data from a variety of sources to calculate the medians, some of which have differing reporting schedules. The median family income data (see below) was derived from the 2020 US Census American Community Survey.

Medians for some rating levels, namely Aaa- and Baa-rated issuers (see below), are based on relatively small sample sizes. These medians may therefore be subject to substantial year-over-year variation.

Our ratings reflect our forward-looking opinion derived partly from forecasts of financial performance and qualitative factors, as opposed to strictly historical quantitative data. Our expectation of future performance, combined with the relative importance of certain metrics on individual utility ratings, account for the range of values that can be found within each rating category.

Key ratios

- » Net revenue: total operating revenue minus operating expenditures
- » Debt service coverage: annual net revenue (including connection or impact fees) divided by annual debt service
- » Liquidity: unrestricted cash and liquid investments multiplied by 365 and divided by operating and maintenance expenses (net of depreciation), expressed in days
- » Days cash on hand: Unrestricted cash and liquid investments divided by operating and maintenance expenses and multiplied by 365, expressed in days
- » Debt to operating revenue: net long-term debt less debt service reserve funds divided by most recent year's operating revenues
- » Asset condition: net fixed assets divided by depreciation expense, expressed in years

Appendix A: Water, sewer and combined water and sewer utilities

Exhibit 9

Medians for US water utilities

Selected Indicators	2016	2017	2018	2019	2020
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	98.8%	99.0%	98.2%	99.2%	100.1%
Asset Condition: (Remaining Useful Life)	32	31	31	30	30
Debt to Operating Revenues	2.1	0.0	1.9	1.9	1.8
Annual Debt Service Coverage	2.0	2.1	2.2	2.2	2.3
Days Cash on Hand	379	417	422	423	454
System Size: (O&M, \$000)	8,852	9,457	10,018	10,937	10,891
Debt Service (\$000)	3,682	3,946	3,904	4,086	4,073
Net Revenues (\$000)	7,703	9,468	9,866	10,328	9,942
Net Funded Debt (\$000)	37,043	36,623	36,400	36,729	37,840
Total Revenues (\$000)	18,796	19,877	21,157	21,433	22,040

Source: Moody's Investors Service

Exhibit 10

Medians for US sewer utilities

Selected Indicators	2016	2017	2018	2019	2020
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	99.1%	100.3%	100.6%	100.2%	100.6%
Asset Condition: (Remaining Useful Life)	31	29	29	30	30
Debt to Operating Revenues	2.7	2.6	2.4	2.3	2.3
Annual Debt Service Coverage	2.0	2.1	2.1	2.1	2.1
Days Cash on Hand	578	569	620	623	657
System Size: (O&M, \$000)	11,691	11,896	12,007	12,385	13,032
Debt Service (\$000)	4,236	4,093	4,676	4,392	4,472
Net Revenues (\$000)	10,808	10,590	10,760	12,904	11,961
Net Funded Debt (\$000)	44,764	43,719	44,365	44,685	45,336
Total Revenues (\$000)	21,929	23,210	24,534	24,958	25,448

Source: Moody's Investors Service

Exhibit 11

Medians US combined water and sewer utilities

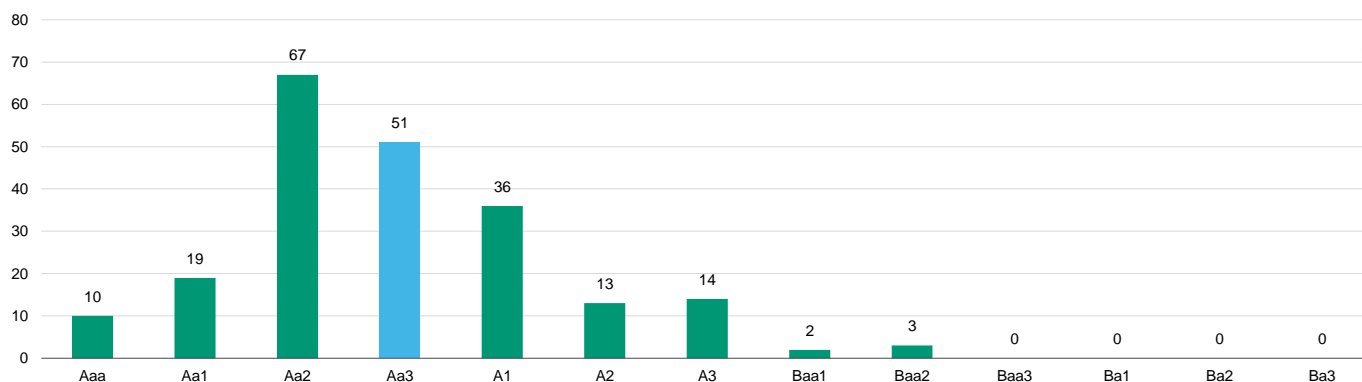
Selected Indicators	2016	2017	2018	2019	2020
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	91.3%	91.0%	92.4%	92.9%	92.8%
Asset Condition: (Remaining Useful Life)	27	27	27	27	26
Debt to Operating Revenues	2.2	2.2	2.2	2.1	2.1
Annual Debt Service Coverage	2.1	2.2	2.2	2.3	2.4
Days Cash on Hand	398	429	458	456	451
System Size: (O&M, \$000)	14,840	15,493	15,973	16,995	17,479
Debt Service (\$000)	5,276	5,153	5,387	5,493	5,151
Net Revenues (\$000)	11,047	11,809	12,615	12,913	13,932
Net Funded Debt (\$000)	50,547	52,055	55,234	56,156	54,944
Total Revenues (\$000)	26,794	28,554	30,282	32,079	33,200

Source: Moody's Investors Service

Appendix B: Water utilities

Exhibit 12

Rating distribution for US water utilities



Highlighted bar represents median rating

Source: Moody's Investors Service

Exhibit 13

2020 medians for US water utilities

Selected Indicators	2020
Moody's Median Senior Revenue Rating	Aa3
Median Family Income (% of US Median)	100.1%
Asset Condition: (Remaining Useful Life)	30
Debt to Operating Revenues	1.8
Annual Debt Service Coverage	2.3
Days Cash on Hand	454
System Size: (O&M, \$000)	10,891
Debt Service (\$000)	4,073
Net Revenues (\$000)	9,942
Net Funded Debt (\$000)	37,840
Total Revenues (\$000)	22,040

Source: Moody's Investors Service

Exhibit 14

2020 medians for US water utilities by rating category

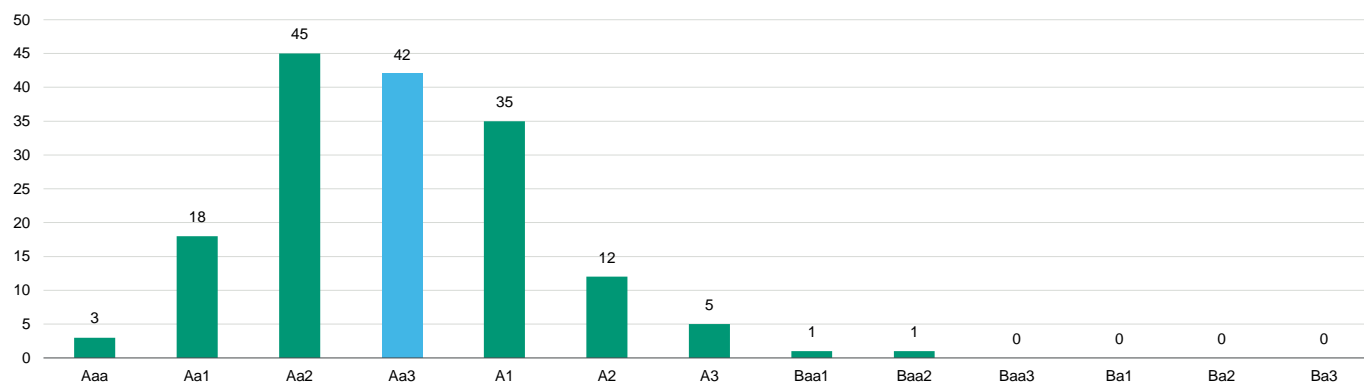
Selected Indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	120%	104%	89%	73%	N/A
Asset Condition: (Remaining Useful Life)	34	32	26	32	N/A
Debt to Operating Revenues	2.1	1.8	1.8	1.8	N/A
Annual Debt Service Coverage	2.93	2.44	1.9	1.8	N/A
Days Cash on Hand	555	486	410	391	N/A
System Size: (O&M, \$000)	94,013	16,949	3,418	3,752	N/A
Debt Service (\$000)	40,563	5,830	1,614	1,322	N/A
Net Revenues (\$000)	104,897	14,955	2,920	2,435	N/A
Net Funded Debt (\$000)	417,926	50,057	14,173	8,803	N/A
Total Revenues (\$000)	197,537	35,323	6,787	5,872	N/A

Source: Moody's Investors Service

Appendix C: Sewer utilities

Exhibit 15

Rating distribution for US sewer utilities



Highlighted bar represents median rating

Source: Moody's Investors Service

Exhibit 16

2020 US sewer medians

Selected Indicators	2020
Moody's Median Senior Revenue Rating	Aa3
Median Family Income (% of US Median)	100.6%
Asset Condition: (Remaining Useful Life)	30
Debt to Operating Revenues	2.3
Annual Debt Service Coverage	2.1
Days Cash on Hand	657
System Size: (O&M, \$000)	13,032
Debt Service (\$000)	4,472
Net Revenues (\$000)	11,961
Net Funded Debt (\$000)	45,336
Total Revenues (\$000)	25,448

Source: Moody's Investors Service

Exhibit 17

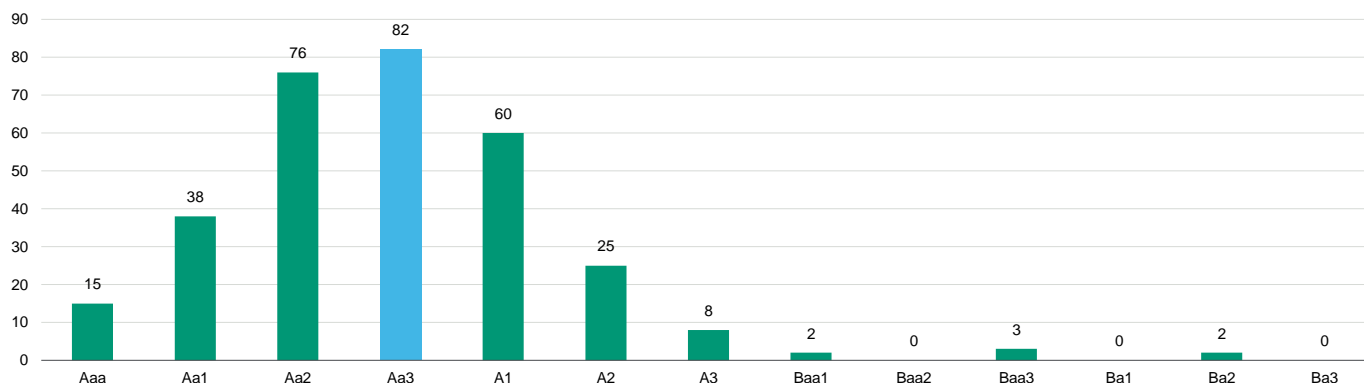
2020 medians US sewer utilities by rating category

Selected Indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	133%	105%	89%	89%	N/A
Asset Condition: (Remaining Useful Life)	26	30	28	42	N/A
Debt to Operating Revenues	2.5	2.2	2.5	3.4	N/A
Annual Debt Service Coverage	2.83	2.41	1.7	2.4	N/A
Days Cash on Hand	1567	658	689	385	N/A
System Size: (O&M, \$000)	105,293	21,736	6,344	83,378	N/A
Debt Service (\$000)	48,688	7,978	2,995	76,217	N/A
Net Revenues (\$000)	137,601	16,843	4,397	95,033	N/A
Net Funded Debt (\$000)	516,173	75,350	22,957	959,580	N/A
Total Revenues (\$000)	242,894	40,088	11,399	178,411	N/A

Source: Moody's Investors Service

Appendix D: Combined water and sewer utilities

Exhibit 18



Highlighted bar represents median rating

Source: Moody's Investors Service

Exhibit 19

2020 US combined water and sewer utilities

Selected Indicators	2020
Moody's Median Senior Revenue Rating	Aa3
Median Family Income (% of US Median)	92.8%
Asset Condition: (Remaining Useful Life)	26
Debt to Operating Revenues	2.1
Annual Debt Service Coverage	2.4
Days Cash on Hand	451
System Size: (O&M, \$000)	17,479
Debt Service (\$000)	5,151
Net Revenues (\$000)	13,932
Net Funded Debt (\$000)	54,944
Total Revenues (\$000)	33,200

Source: Moody's Investors Service

Exhibit 20

2020 medians US combined water and sewer utilities by rating category

Selected Indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	111%	95%	83%	94%	N/A
Asset Condition: (Remaining Useful Life)	26	27	24	29	N/A
Debt to Operating Revenues	1.9	1.9	2.4	5.5	N/A
Annual Debt Service Coverage	3.29	2.52	2.0	1.5	N/A
Days Cash on Hand	827	521	359	148	N/A
System Size: (O&M, \$000)	98,404	25,513	7,533	666	N/A
Debt Service (\$000)	22,492	7,498	2,353	1,969	N/A
Net Revenues (\$000)	85,347	20,352	4,609	4,876	N/A
Net Funded Debt (\$000)	261,193	71,604	24,803	9,128	N/A
Total Revenues (\$000)	181,675	43,221	13,278	10,840	N/A

Source: Moody's Investors Service

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REPORT NUMBER 1327644

Exhibit CF-4

OUTLOOK

6 December 2022



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Local Government – US

2023 Outlook – Stable with reliable revenue sources and robust reserves

Summary

The outlook for US local governments — cities and counties, K-12 school districts and water and sewer enterprises — remains stable for 2023 as traditionally reliable revenue sources and healthy reserves will blunt the effects of a slower economy and high inflation. Management will also remain largely a sector strength with a track record of maintaining credit quality amid adverse economic conditions. Financial challenges from inflation will linger, including rising employee wages and construction costs. Adjusted pension liabilities will fall with higher interest rates, though 2023 pension contributions will remain relatively steady.

» **Revenue growth will slow, but key revenue sources will provide stability.**

Aggregate revenue for cities and counties, schools and utilities will increase by 3% to 4% in 2023, or about half the growth rate expected in 2022. Property tax revenues will benefit from a typical lag between changes in market values and assessed values for tax purposes. The state funding environment for schools remains strong, while water and sewer enterprises will benefit from reliable rate increases, albeit at a slower pace.

» **Reserves will provide financial flexibility.** Helped by federal pandemic aid, increased liquidity will provide cities, counties and school districts with a buffer against the effects of inflation and a weaker economy. Water and sewer enterprises also have robust cash on hand, providing flexibility to manage escalating costs.

» **Strong governance will help issuers manage the economic downturn.** Local government management is typically strong with a history of adapting to budgetary flux, signaling an ability to avoid credit deterioration in 2023. Combatting cyber risks, an increasing expense, will remain a challenge.

» **Rising construction costs and employee compensation will remain budgetary challenges, though pension liabilities will lessen.** Inflation will increase employee wages and drive higher construction costs. Higher capital costs will be difficult for some water and sewer enterprises amid a need to address aging infrastructure. Unfunded pension and retiree health obligations will remain substantial, but higher interest rates will cause adjusted liabilities to fall.

» **What could change the outlook.** Revenue growth comfortably above the rate of inflation could lead to a positive outlook, while a material revenue decline could contribute to a revision to negative. An inability of local governments to contain rising costs or increase revenue as expenses rise could also play a role in a change to negative.

Outlook definition

The stable outlook reflects our view of credit fundamentals in the US local government sector over the next 12 months. Sector outlooks are distinct from rating outlooks, which, in addition to sector dynamics, also reflect issuers' specific characteristics and actions.

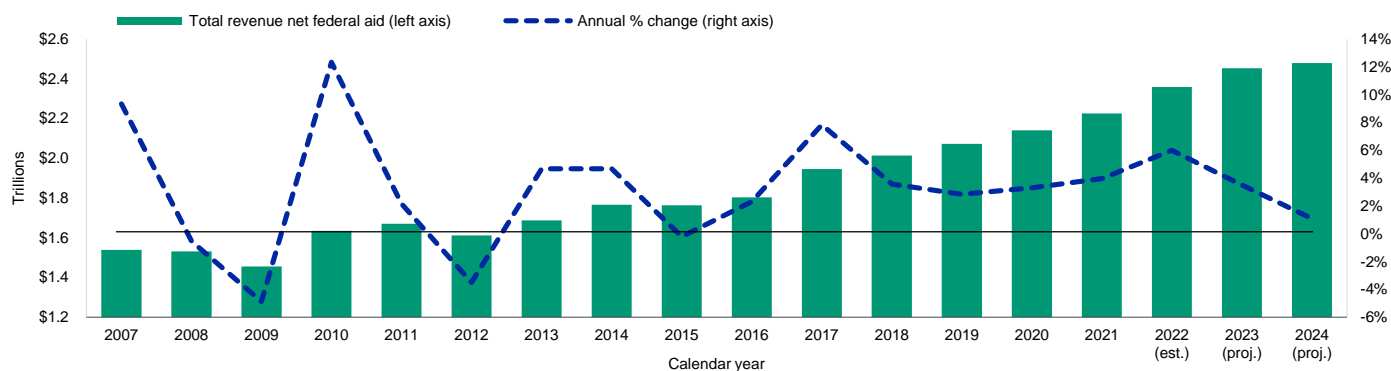
A sector outlook does not represent a sum of upgrades, downgrades or ratings under review, or an average of rating outlooks.

Revenue growth will slow, but key revenue sources will provide stability

Total revenue for local governments — cities and counties, K-12 school districts and water and sewer enterprises — will grow by about 3% to 4% in 2023 (see Exhibit 1), which is less than half the estimated growth rate in 2022 and below increases in recent years. Still, revenue growth in 2023 would represent eight consecutive years of revenue growth, reflecting the strong credit fundamentals of the sector. Our stable outlook is underpinned by the continued flow of traditionally reliable revenue streams: property taxes for cities and counties; state funding for schools; and rate increases for water and sewer utilities, albeit at a slower pace than immediately before the pandemic.

Exhibit 1

Total local government revenue will increase in 2023 and 2024



Total revenue includes governmental and enterprise revenue.
Sources: US Census Bureau and Moody's Investors Service

Slowing revenue growth reflects a variety of macroeconomic challenges, including restrictive monetary policy to address inflation that both weakens demand for housing as mortgage rates rise and potentially decreases sales and income tax revenue if personal and business spending ease. However, municipal entities benefit from a partial hedge against inflation if increased prices translate into a lift in sales tax revenue.

Our stable outlook could move to positive if sector wide revenue growth comfortably exceeds inflation, while it could drop to negative if revenue materially decreases. An inability of municipal entities to manage rising costs or increase revenue to combat rising expenses could also contribute to a negative outlook.

Property tax revenue will serve as source of stability

Property tax revenue, which, in aggregate, accounts for the largest single source of local government revenue at 28% of all revenue, will remain a credit strength as any major falloff lags adverse changes in macroeconomic conditions (see Exhibit 2). Property taxes are based on property values, which generally are adjusted annually or at longer intervals, and any widespread declines in values may take two years or longer to have a material effect on finances. Depending on geography, median home values will remain flat or decline, in

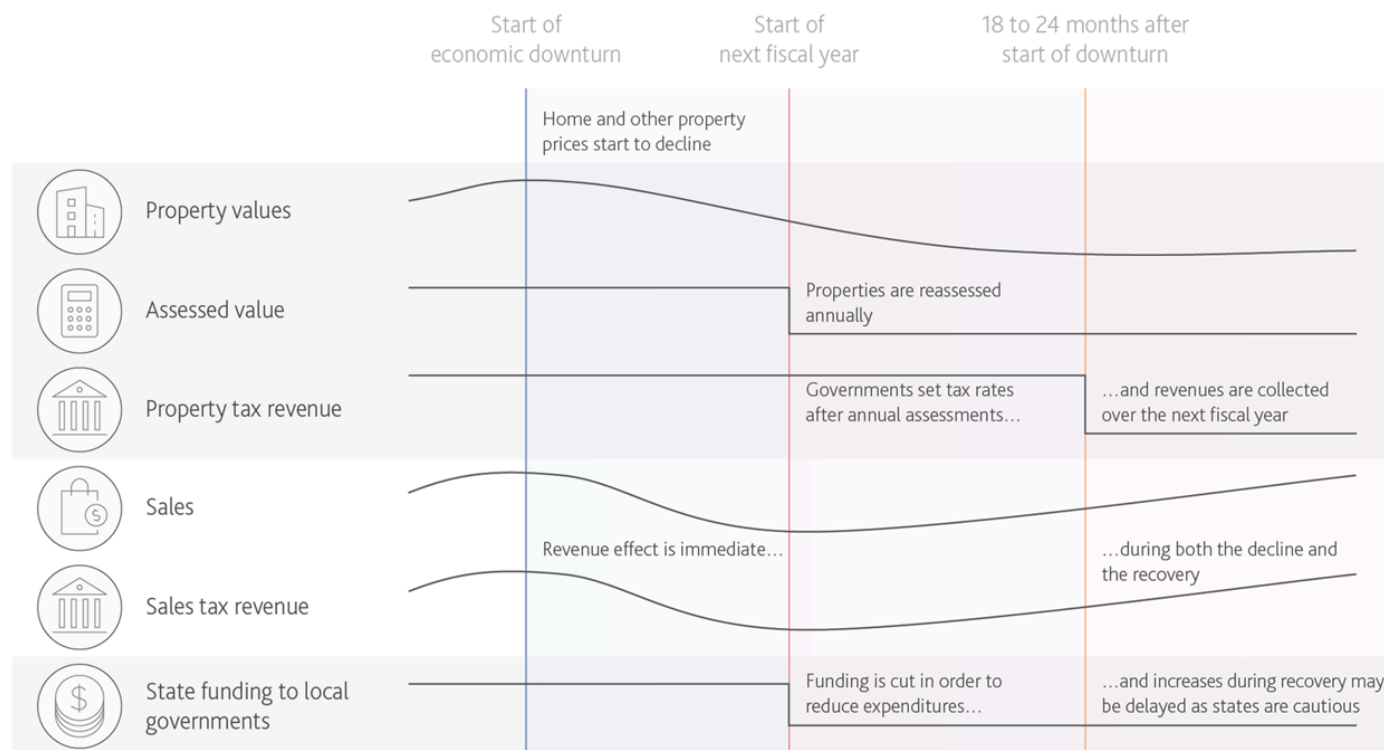
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some cases by up to 10% in 2023, according to Moody's Analytics. But the lag between a decline in valuation and actual revenue effect means local government finances are at least partially insulated from the immediate effects of an economic slowdown.

Exhibit 2

Timing of an economic downturn's impact varies by revenue source

Typical lag time from beginning of downturn to effect on major revenue sources



Source: Moody's Investors Service

Individual states' legal restrictions¹ on raising property taxes will affect the magnitude of property tax fluctuations and the ability to keep revenues level during the economic slowdown. Tax caps can apply to the tax rate, tax levy or both. Local governments that operate under property tax rate caps, such as in Oregon and Florida, are more vulnerable to declines in assessed, or taxable, values because they may not have enough capacity to raise the rate to fully offset valuation declines.

Local governments that have caps on the levy amount rather than the tax rate, such as in Minnesota and New York, are more insulated from declines in assessed values. In states with levy caps, local governments determine the levy dollar amount, and the tax rate is then set based on the taxable values. Therefore, when values decline, there is no impact on receipts because rates automatically increase to yield the levy amount. Still, there are political and practical barriers to tax increases, particularly in places where property values are stagnant or declining.

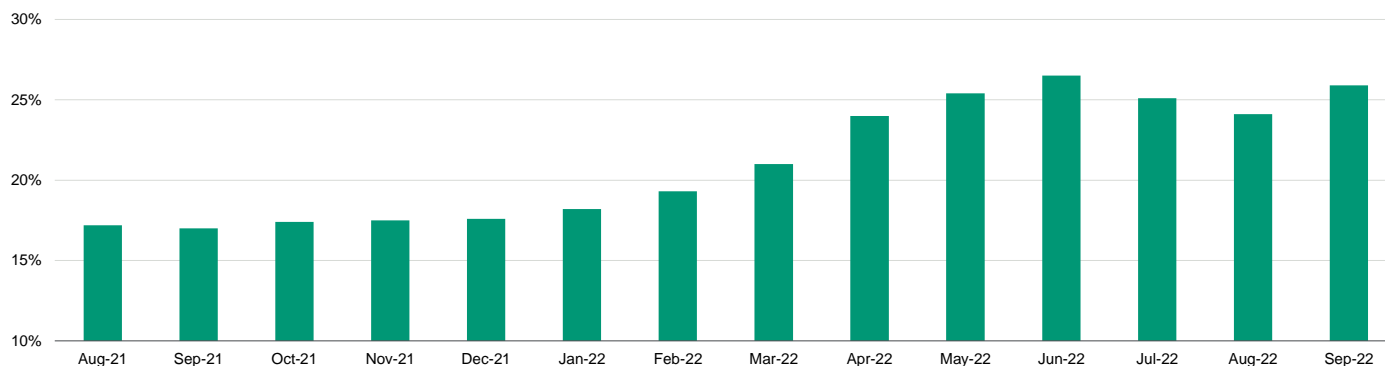
Other important revenue sources, such as sales taxes and state aid, are affected more quickly by changing market conditions in a downturn. Sales tax revenue is affected by changing consumption patterns and, with recent widespread layoffs and the weaker economy, consumer demand stands to lessen and negatively affect tax collections. However, the unemployment rate remains near a 30-year low, providing some protection against a mass falloff in nominal sales tax and income tax revenue, which can be key sources of revenue for some local governments. While the amount of state aid to local governments can be hurt by a slump in state revenue, we don't expect a slowdown in state revenue in 2023 to lead to cuts in state aid, partly due to states' robust reserves.

Housing affordability remains a concern for local governments. In extreme cases, unaffordable housing will force people out of towns and cities to other, more affordable communities, resulting in lower populations, lower tax revenue, and a smaller tax base. The National Association of Realtors' Housing Affordability Index compares the mortgage payment on the median priced home in

the country against median family income (MFI). The index spiked in June 2022 (see Exhibit 3) when median principal and interest payments represented 27% of MFI, up from 15% in 2020. Following the June 2022 peak, mortgage payments relative to incomes decreased, before ticking up again in September 2022. Based on our expectations of slowing inflation in 2023, housing will become slightly more affordable as we expect MFI to grow modestly while mortgage rates stabilize.

Exhibit 3

National Association of Realtors Housing Affordability Index hit a peak in June 2022



The National Association of Realtors' index reflects the median principal and interest payment for the median priced home in the country divided by median family income. As an example, in June 2022, the median mortgage payment represented 27% of median family income. In August 2021, mortgage payments represented a significantly lower 17% of income.

Source: National Association of Realtors

K-12 districts will benefit from a strong state funding environment

Many K-12 school districts face tighter budgets and erosion of reserves amid declining enrollment, rising wages, staff shortages and learning loss from the pandemic. Yet state funding, a leading revenue source along with property taxes, is robust. For example, year-over-year increases for fiscal 2023 top 7% in states such as New York and Pennsylvania and 15% in Michigan (see Exhibit 4).

Exhibit 4

Many states have continued to increase K-12 spending in fiscal 2023

The 10 states with the highest number of Moody's-rated school districts

State	Fiscal 2023 increase	Budget notes
California	2.9%	To support fiscal stability for districts with declining enrollment, local control funding will be determined by the greater of each district's prior-year or current-year average daily attendance or an average of the three prior years.
Illinois	4.6%	The fiscal 2023 budget includes a \$598.1 million increase in early childhood education grants and state tax holidays for groceries and gas.
Michigan	15.2%	The state's education budget includes a per-pupil funding increase to a record high \$9,150 as well as an additional \$408 million for a weighted funding model for higher-need students, \$1.7 billion for educator retention and \$600 million for recruitment to address teacher shortages.
Minnesota	5.1%**	The biennial budget increases per-pupil funding to \$6,800, the highest ever.
New York	7.1%	The fiscal 2023 budget includes an 8.1% increase in Foundation Aid and a guarantee to increase every district's Foundation Aid by a minimum of 3%.
Ohio	7.1%*	The biennial budget marks the first phase of a Fair School Funding Plan, which includes an equalizing mechanism for districts with higher poverty. Average per-pupil funding has increased to about \$7,200 from about \$6,020.
Pennsylvania	7.7%	The budget includes \$225 million for "Level Up" funding for economically distressed districts and a \$100 million increase for special education.
Texas	5.6%*	The biennial budget includes a \$1.5 billion increase in Foundation Aid and increasing contribution rates to the Teacher Retirement System (7.75% in fiscal 2022 and 8.0% in fiscal 2023).
Washington	11.9%*	The biennial budget includes \$27.8 million to offset reductions in state aid linked to enrollment declines and includes increased funding for special education and teacher retention to combat declining enrollment.
Wisconsin	3.5%*	The biennial budget eliminates delayed general aid payments, distributing 100% of general aid during the applicable school year. Revenue limits remain flat, so state increases shift the composition of school districts' revenue away from local sources, such as property taxes, but does not increase the amount of operating revenue available.

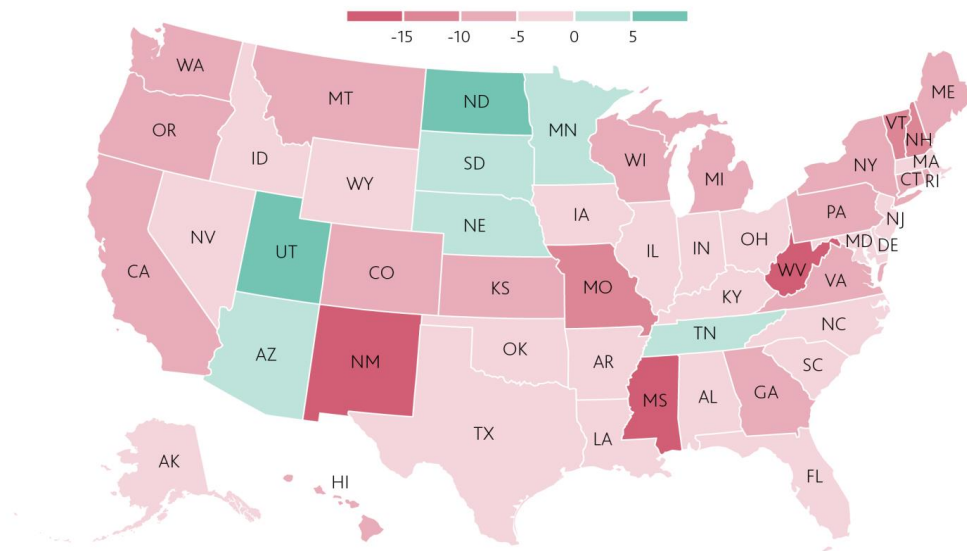
*2021 to 2023 biennial budget increase; **2023 to 2025 biennial budget increase

Source: Moody's Investors Service

While state revenue growth is slowing, state finances will likely remain strong enough to avoid cuts in school funding in fiscal 2024 (which begins in mid-2023 for most states) in part because state reserves are so strong. If the state funding environment weakens, districts in states with funding formulas based on enrollment that have had drop-offs in students stand to lose funding. The [National Center for Education Statistics](#) projects national public school enrollment will decrease by 4.4% through 2030, primarily due to declines in the school-age population (see Exhibit 5). Only seven states and the District of Columbia will have increases.

Exhibit 5

Public K-12 enrollment projected to continue declining between 2022 and 2030
National decline estimated at 4.4% through 2030



Data includes both traditional public schools and public charter schools.
Sources: National Center for Education Statistics and US Department of Education

School districts less dependent on state funding face a reduced risk if a state's finances weaken. State funding can vary as a share of revenue even within states, as states have their own funding formulas based on a variety of factors, including resident wealth. For districts with wealthy tax bases, local property tax revenue makes up a larger percentage of revenue than state funding. For districts with less wealthy tax bases, fluctuations in state aid are a greater risk, particularly in districts with declining enrollment.

Water and sewer utilities face revenue-raising challenges driven by affordability concerns

Water and sewer enterprises will continue to benefit from rate increases in 2023, though at a slower pace compared with the years immediately preceding the pandemic. Municipal utilities have independent rate-setting authority, but rate increases will remain moderate to ease the burden on consumers impacted by the weaker economy, muting revenue growth compared with historical trends.

While there are multiple causes, many water and sewer enterprises endured revenue declines in fiscal 2021 (the latest data available), in part due to moderations in rate hikes. The fiscal 2021 median total revenue increase for water and sewer enterprises we rate (for which we have data) was 2.4%, down from a 4.1% average median increase over the prior five-year period. In addition, 35% of the enterprises had revenue falloffs in fiscal 2021 versus a 22% average for the prior five-year period.

Affordability will continue to affect utility rate-setting nationwide in 2023 and management will likely face public and political resistance to implementing sizable rate increases to meet escalating operating and capital spending challenges. The American Society of Civil Engineers has estimated that "up to 36% of households will not be able to afford the cost of drinking water by 2024" based on the Environmental Protection Agency's affordability standard.²

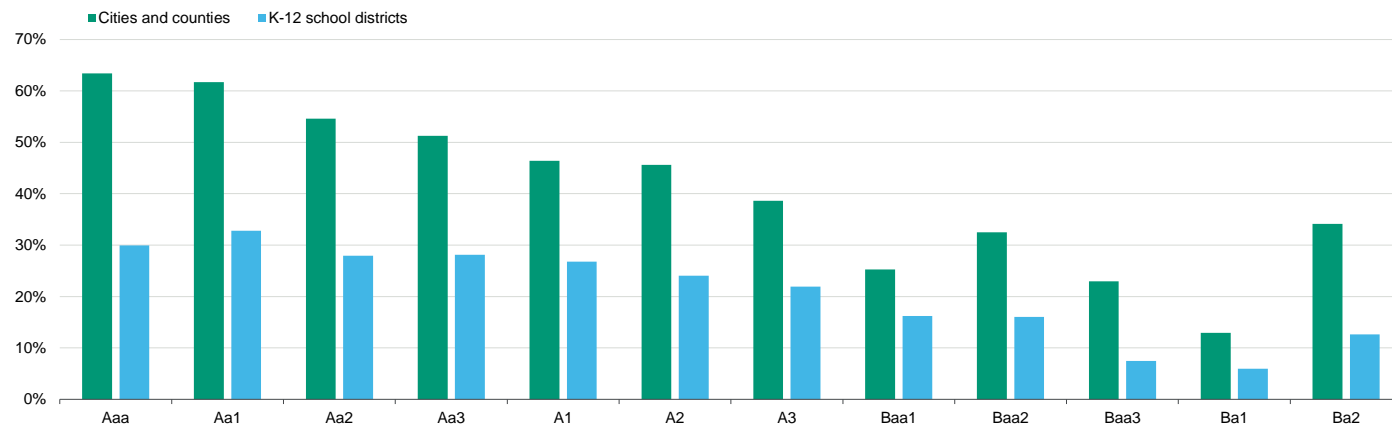
Further, even as utilities begin to reinstitute shutoffs, past-due balances have accumulated. While various programs at the local, state and federal levels are designed to provide arrearage relief to ratepayers, overdue bill collections will take longer than usual.

Reserves will provide financial flexibility

Strong reserves built up in recent years (see Exhibit 6), partly due to federal pandemic aid, will provide cities, counties, and schools with financial flexibility to manage inflation and rising interest rates. Unspent federal pandemic aid that needs to be allotted by late 2024 will add to the flexibility, though another mass infusion of federal aid is unlikely.

Exhibit 6

Median available fund balance ratio for local governments and K-12 districts remain strong across most rating categories



Under some state regulations, K-12 districts are more limited than cities and counties in the amount of fund balance they can carry from year to year, which is one reason for the lower balances across the rating categories.

Source: Moody's Investors Service

Water and sewer utilities also enter 2023 well positioned to navigate through a weaker economic environment as balance sheets are reinforced by robust levels of liquidity. Median days cash on hand for enterprises we rate continued to improve in fiscal 2021 to 534 days (the latest data available) and exceed the level prior to the pandemic of 475 days in 2019, highlighting the emphasis management teams have placed on liquidity as a hedge against ongoing economic uncertainty and rising operating and capital costs. Some cities and counties manage their own water and sewer enterprises, meaning aggregate cash and net transfers can affect liquidity.

Strong governance will help issuers manage the economic downturn

City, county and school district management has a track record of by and large adjusting effectively to economic turmoil, signaling an ability to preserve credit quality amid the current changing macroeconomic conditions. The success comes despite considerable hurdles to raise revenue such as the need for voters to approve budgets and tax hikes in some cases.

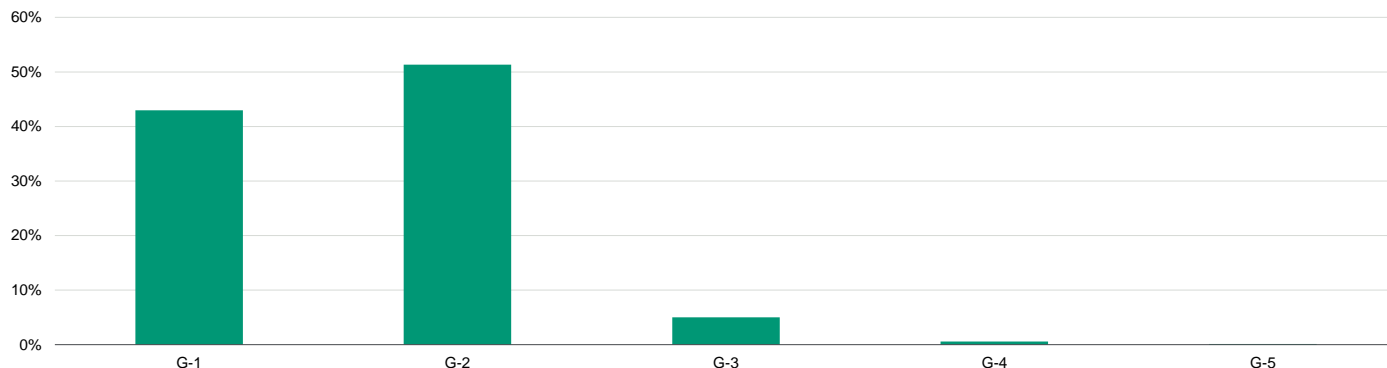
Characteristics of solid management include the development and implementation of effective fiscal, economic and social policies as well as the ability to adjust spending without a material loss in services in the face of economic turmoil. Multiyear financial planning and maintaining debt affordability are also marks of effective governance.

Our assessment of environmental, social and governance (ESG) factors demonstrates management's largely successful track record. For cities, counties and school districts with a public ESG score, 94% have either a G-1 or G-2 issuer profile score, indicating governance is either a positive consideration or risks stemming from governance are neutral to low (see Exhibit 7).

Exhibit 7

Cities, counties and school districts demonstrate strong governance

Most cities, counties and school districts with public ESG scores have either G-1 (positive) or G-2 (neutral to low) considerations



Data as of November 2022

Source: Moody's Investors Service

Water and sewer management teams have experience regularly managing challenges posed by revenue volatility, in some cases caused by climate events such as drought that are increasing. Management advantages include independent rate-raising authority, the essentiality of water and sewer services and typically solid legal covenants. Still, the independent rate-raising authority comes with practical and political constraints on rate hikes, which intensify during a weak economy. The current turbulence will prompt management teams to deploy various strategies in an effort to drive revenue growth. [Las Vegas Valley Water District, NV](#) (issuer rating Aa1 stable), for example, has for years incorporated indexed, inflationary rate increases (subject to annual caps) into its rate structure.

Cyber risk is a growing concern

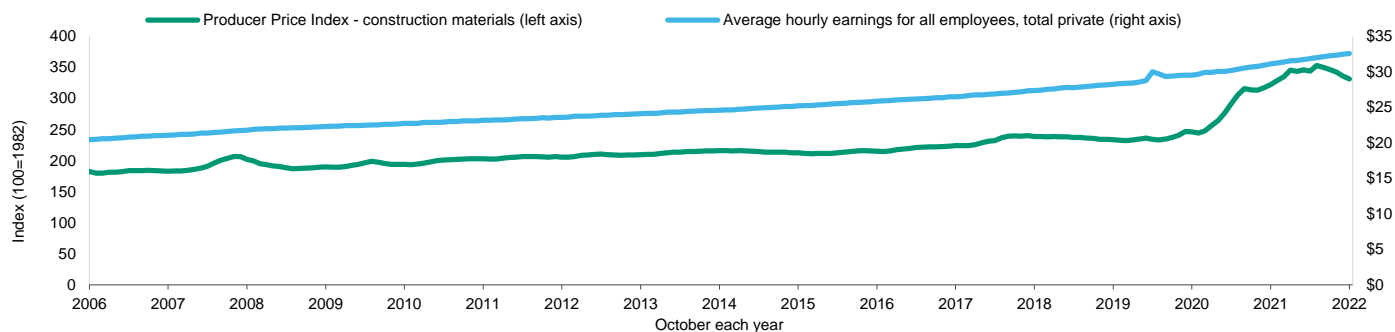
While the cost of cyberattacks have generally been manageable, management's focus on minimizing cyber risk will become increasingly important. Local governments continue to grapple with multiple challenges involving cyber insurance: stricter underwriting standards, increasing premiums and demand outweighing expected supply. As a result, obtaining cyber insurance has become increasingly difficult, increasing local governments' exposure to potential financial losses associated with cyberattacks. [Based on our cyber-risk scoring](#), we score regional and local governments as having "Moderate" overall cyber risk exposure, while critical infrastructure entities such as water and sewer utilities have a "Very High" overall cyber risk exposure.

Rising construction costs and employee compensation will remain budgetary challenges, though pension liabilities will lessen

Building materials and labor costs remain above historical levels (see Exhibit 8), forcing some issuers to confront cost overruns while others delay projects outright. Higher borrowing costs also threaten to markedly affect capital plans.

Exhibit 8

Rising costs of construction materials and labor are driving up expenses for capital projects



Hourly earnings are seasonally adjusted; Producer Price Index is not.

Source: US Bureau of Labor Statistics via Federal Reserve Bank of St. Louis

[Richardson Independent School District, TX](#) (Aaa stable), for example, is facing a more than 10% cost overrun on \$750 million in projects funded by a bond program approved by voters in 2021. In order to address the shortfall, the district faces a decision whether to hold a vote prior to the next planned election in 2026 to obtain approval to issue additional debt to cover the overages, or simply reduce the scope of projects. Similarly, inflation has increased costs by 30% versus original estimates for [Paris, TX's Water and Sewer Enterprise's](#) (A3) new wastewater treatment plant.

For water and sewer enterprises, the cost increases come at a time when the utilities are confronted with greater needs associated with aging infrastructure, including adverse effects tied to the increase in the frequency and severity of extreme weather events, and regulatory requirements to replace lead service lines and remediate PFAS (per- and polyfluoroalkyl substances). A recent infusion of federal dollars will help address some of the needs. Longer term, though, without continued and consistent increases in federal dollars, the burden of investing in water and sewer infrastructure will fall largely on ratepayers.

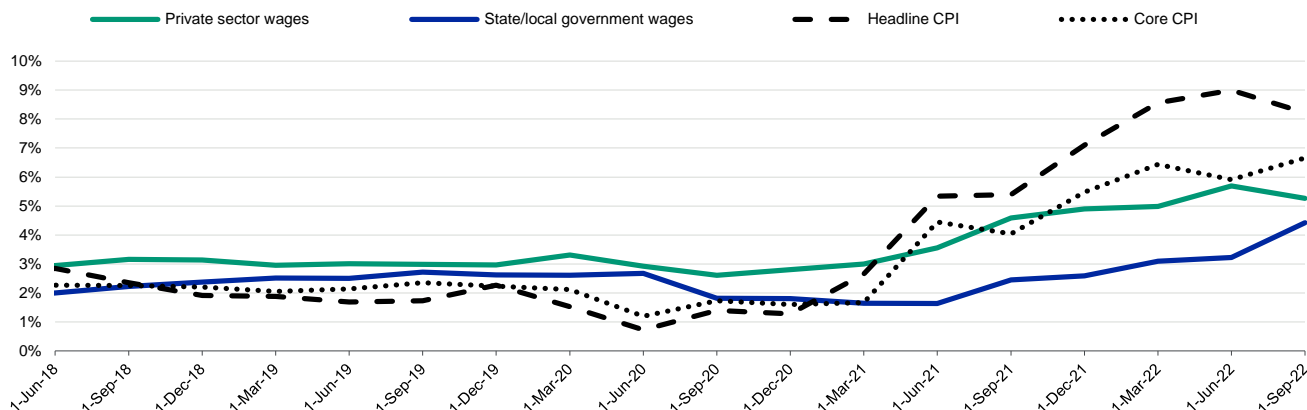
Compounding cost increases will only intensify if renewed supply-chain issues take hold. Overall, until sharp expense increases ease, long-range financial and capital planning will remain challenging.

Public sector labor costs will remain an expense driver

Cities, counties, school districts and water and sewer enterprises face higher labor costs as employee compensation increases to attract and retain workers amid a tight labor market and private-sector competition. Wages for state and local government workers, which includes teachers, are trailing CPI (see Exhibit 9), likely contributing to current and prospective employees' demands for higher compensation. Even if inflation moderates, employment-related budget squeezes will not ease immediately because budgets are generally enacted once a year.

Exhibit 9

Wage growth for state and local government employees is growing, driving up expenses



Source: US Bureau of Labor Statistics

Rising interest rates offer opportunities to tackle pension challenges, while investment volatility and inflation will remain risks

Rising interest rates are pushing down local governments' pension liabilities to a greater extent than volatile investment performance is constraining asset accumulation, resulting in lower adjusted net pension liabilities (ANPLs). Falling ANPLs signal lower point-in-time costs to governments in the event they wish to transfer a portion of their pension obligations to a third party, such as an insurance company, or pay off legacy obligations to their retirement system(s). The rising rate environment also provides US public pension systems with an opportunity to reduce their investment portfolio volatility by increasing allocations to fixed-income securities with a less detrimental effect on investment return potential than in recent years. Most governments and US public pension systems have thus far shown little appetite for such material de-risking moves, but activity along these lines could increase, especially if interest rates continue to rise.

Very strong pension investment returns in 2021, combined with investment losses in 2022, will produce relatively stable pension costs for governments over the next two years. Governments continue to depend on high allocations to volatile equity and alternative

investments to produce returns they hope will largely offset the budgetary costs of providing defined-benefit pensions. US public pension assets have suffered from declining public equity market values, which will be compounded in many cases by value declines for private equity and other alternative assets which are reported on a lagged basis.

Beyond the direct challenges to governments, such as construction costs and rising wages, inflation will also indirectly drive pension risk. To the extent that governments increase employee wages beyond actuarially assumed levels, new unfunded liabilities will be created. The challenge for retirees stemming from inflation will also drive political and practical pressure on some governments and their retirement systems to restore or grant new pension cost-of-living adjustments (COLAs), pushing up liabilities and costs. Rising healthcare costs will also translate into higher insurance premiums, which will in turn push up retiree healthcare (OPEB) costs and liabilities for some local governments.

Pandemic-induced learning loss adds to school district expenses

Learning loss from the pandemic, which has disproportionately affected students from lower-income areas, will continue to increase expenses. The [National Assessment of Educational Progress](#)' 2022 testing found declines in math and reading proficiency among 4th and 8th grade students in its first full assessment since the pandemic, with lower-income students experiencing larger declines in proficiency. Many districts, however, still have significant unspent federal pandemic aid, which needs to be allocated by late 2024, to address the problems and help with other expenses. With another round of major federal funding unlikely, districts may need to continue funding programs launched with pandemic relief money with their own budgets.

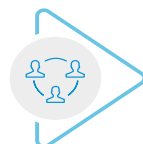
Moody's 2023 global credit themes affecting the US local government sector

Exhibit 10



Higher rates, slower growth

- » Traditionally reliable revenue sources and healthy reserves will blunt the adverse effects of a slower economy and high inflation.
- » Financial challenges posed by inflation will linger, however, including rising employee wages and construction costs.
- » Adjusted pension liabilities will fall with higher interest rates though 2023 pension contributions will remain relatively steady.
- » Local government management is typically strong with a history of adapting to budgetary flux.



Social challenges

- » With inflation rising, consumer affordability will continue to affect rate-setting and, in turn, revenue for water and sewer enterprises as management will likely face public and political resistance to implementing sizable rate increases.
- » Learning loss from the pandemic, which has disproportionately affected students from lower-income areas, will continue to increase expenses for school districts.

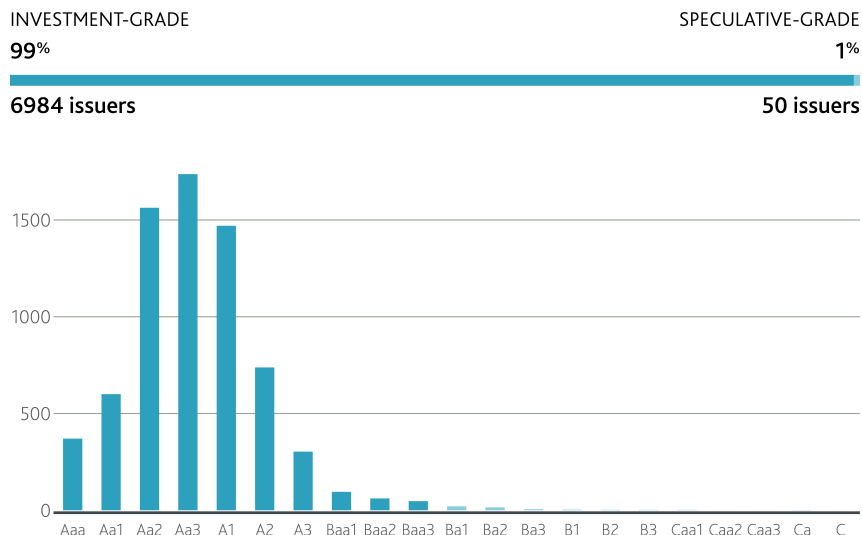
Source: Moody's Investors Service

Appendix

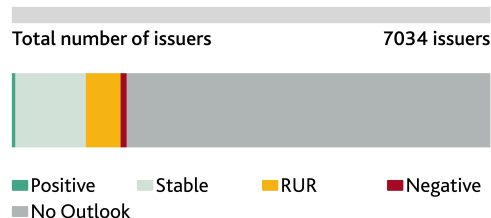
Exhibit 11

Rating and outlook distribution for local governments Cities, counties, K12 districts and water/sewer as of November 23, 2022

RATING DISTRIBUTION BY NUMBER OF ISSUERS



OUTLOOK DISTRIBUTION



Higher number of RUR outlooks primarily pertains to the November 2, 2022, [US Cities and Counties Methodology](#) publication. RUR stands for rating under review.
Source: Moody's Investors Service

Moody's related publications

Outlook

» [States - US: 2023 Outlook - Stable as strong reserves, governance counter economic volatility](#), December 5, 2022

Sector In-Depth

» [Local Government - US: Period of high inflation and interest rates will test ability to raise property tax revenues](#), December 1, 2022

» [State and Local Government - US: Sales taxes provide partial hedge against inflation](#), July 13, 2022

» [Public Finance - US: US public finance issuers not immune from pressure if inflation persists past 2022](#), March 8, 2022

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

- Occasionally, these legal restrictions are modified. For example, New York had no property tax cap until adding one in 2011. In 2019, Texas changed its property tax cap to require voter approval for any increases greater than 3.5% (down from 8% prior).
- According to the society, the "EPA standard for affordability is that households spend no more than 2% on drinking water and 4.5% of median household income on both drinking water and wastewater services."

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Exhibit CF-5

Outlook For U.S. Municipal Utilities: Stable, Though Risks Are Rising

January 12, 2023

Sector View: Stable

Although cost pressures are mounting, cash reserves have grown, and rate-setting flexibility is strong. But there are some pockets of credit pressure, especially for utilities with substantial deferred maintenance or limited economic underpinnings.

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What We're Watching -- U.S. Municipal Water And Sewer Utilities



Extreme weather

Storms, drought, and rising temperatures will necessitate infrastructure investment to support resiliency and reliability.



Labor considerations

Shortages and retirement may challenge operational and financial performance—even influencing regulatory compliance.



Rate structure

Given rising fixed costs, reliance on volumetric rates may increase financial volatility. Prudent rate structures are credit-supportive.



Aging assets

Failure to invest in underlying infrastructure will continue to have material financial consequences.



Federal environment

Ambitious regulatory goals should improve health and safety but pose execution challenges and may increase leverage ratios.



Economic considerations

Persistent inflation, supply chain issues, interest rates, and recessionary headwinds may compound financial issues and reduce rate-making flexibility.

Source: S&P Global Ratings.
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Outlook For U.S. Municipal Utilities: Stable, Though Risks Are Rising

Chart 1

U.S. Municipal Water And Sewer Sector: By The Numbers

15 disasters exceeding
\$1 bil. in damages in 2022
(through October)



\$744 bil.

estimated cost to bring wastewater and
drinking water infrastructure into
compliance with federal regulations



\$7.6 bil.

value of treated water lost
due to leaks



91%

utilities surveyed that have
emergency preparedness plan

28%

utilities that have cyber
intrusion planning



136%

increase in water and sewer rates
since 2000

Sources: National Oceanic and Atmospheric Administration; Environmental Protection Agency; American Society of Civil Engineers; American Water Works Association; Bipartisan Policy Center.
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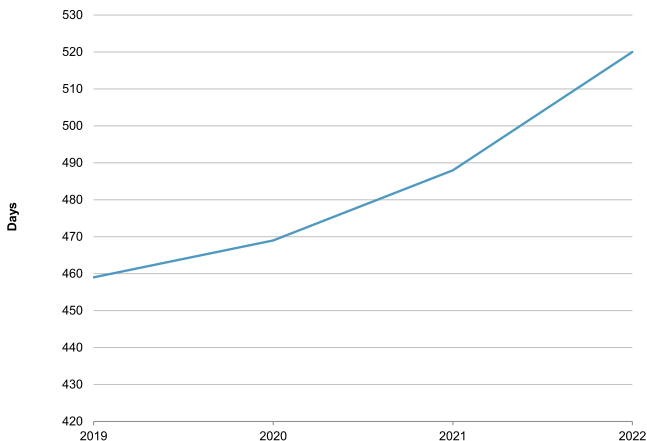
The pandemic was credit neutral, as many utilities were able to cut or defer costs while continuing to meet state and federal health and safety requirements. Moreover, access to federal cash helped support year-end balances even as some utilities deferred rate increases. In fact, because many utilities outperformed expectations, with demand rebounding to pre-pandemic levels more quickly than anticipated, we saw a relatively large number of upgrades over the last year. However, as most of these upgrades were to credits that were exhibiting significant positive credit momentum prior to the pandemic, we do not expect the recent rate of upgrades to continue. Without disciplined rate increases, some utilities may face a fiscal cliff.

The rapid escalation in operating costs over the last 12 months--with prices of chemicals, electricity, and pipes, valves, and other replacement parts rising at levels we haven't seen over the last decade--contributes to our view of potential fiscal strain. Further, the payment culture has changed in some markets, the result of economic stress and the decision by some utilities to limit collection practices such as shutoffs and liens.

Outlook For U.S. Municipal Utilities: Stable, Though Risks Are Rising

Chart 2

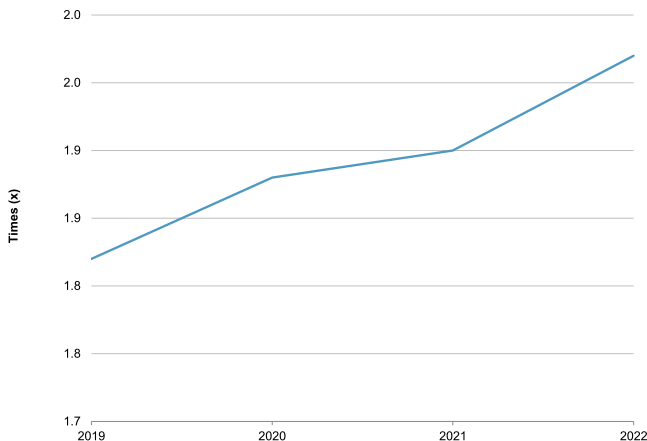
Median Days Cash On Hand



Source: S&P Global Ratings
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Chart 3

Median Coverage



Source: S&P Global Ratings
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At the same time, infrastructure needs in the sector are substantial, both with respect to hardening efforts and state-of-good-repair investment. As 2022 demonstrated, inadequate infrastructure investment can result in catastrophic costs and resulted in several downgrades. We continue to observe a clear financial cost to deferred maintenance; further, we believe the reduced reliability associated with infrastructure failures increases political risk and harms ratepayer relationships as well. We will continue to focus on the sufficiency of operational and fiscal management policies and practices, especially given the rising operating risks in the sector. Vulnerable practices may cap the rating outcome given the operational and financial implications of asset failure--which have recently resulted in health and safety risks, litigation, and ratepayer discord.

Given that many pipes were installed in the 19th century, many utility assets are nearing the end of their useful lives. Although we saw certain utilities electing to defer capital spending during the pandemic, overall, the rate of pipe replacement and repair is growing. In 2015, utilities were replacing, on average annually, 0.5% of their pipes, but by 2019, the replacement rate modestly increased to between 1% and 4.8%, a rate that matches the lifecycle of the asset (according to American Society of Civil Engineers standards). While considerable progress has been made and historic federal funding is expected to supplement rate revenue, the gap between available funds and infrastructure need is meaningful, estimated by the Environmental Protection Agency (EPA) to be over \$80 billion. Rising climate and regulatory demands will also drive up capital requirements.

Escalating construction costs are also expected to contribute to weaker financial metrics in 2022-2023 and beyond, especially as bids continue to come in 20% to 30% higher than what many utilities were forecasting just a year ago, which we have observed has driven some issuers to seek project delivery methods other than the traditional design-bid-build method, which can also add risk. While federal support is at historical levels, the benefit is being partly eroded by inflation and rising interest rates. Even so, we believe federal support may be the catalyst that propels several

Outlook For U.S. Municipal Utilities: Stable, Though Risks Are Rising

large-scale water supply projects forward. Given that much of the identified capital needs within the sector are either regulatory-driven or necessary from a climate resiliency or water supply diversification perspective, we expect rising capital costs to eventually be passed through to consumers if not this year, then certainly eventually. We expect limited positive rating action in 2023 given the economic headwinds and sector-specific challenges.

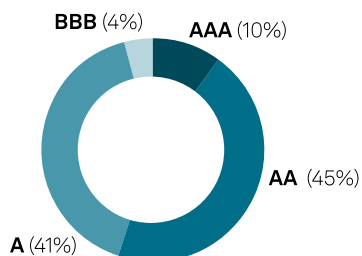
2022 Rating Performance Was Largely Positive

Positive rating actions outpaced negative in 2022, primarily driven by criteria implementation and sustained improvements in financial performance. As a result, the median rating increased to 'AA-' from 'A+'. Negative rating actions were primarily driven by weak management and financial deterioration, generally reflecting rising operating expenses and delayed rate increases. Negative outlooks are concentrated at the lower end of the investment grade spectrum, as shown in chart 4.

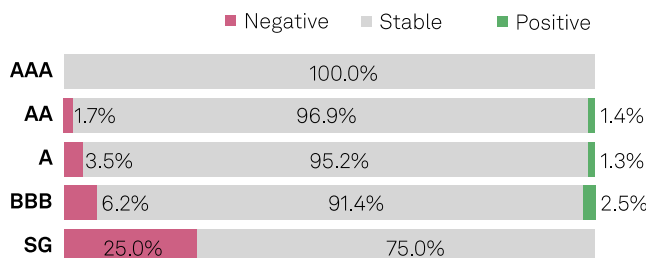
Chart 4

Rating And Outlook Distribution

Rating category distribution



Outlook distribution



Rating and outlook actions

Upgrades to downgrades

2:1

Favorable to unfavorable outlook revisions

1.6:1

Data as of Oct. 31, 2022. SG--speculative grade. Sources: S&P Global Ratings. Copyright © 2023 by Standard & Poor's Financial Services LLC. All rights reserved.

Sector Top Trends In 2023

Will inflationary pressures and higher rates persist?

Construction cost inflation is reaching levels we have not seen in decades. The Producer Price Index figure for building materials and supplies increased 38% between November 2021 and November 2022. In addition to increased project costs, we expect construction cost inflation will result in higher bids from contractors, larger contingencies in new contracts along with wider cost escalation ranges for materials, and a shift away from fixed-price contracts. While materials costs may begin to stabilize as supply chain issues subside, the shortage of skilled labor may be more enduring given the systemic shortage of new workers entering the construction trades, which will keep labor costs elevated.

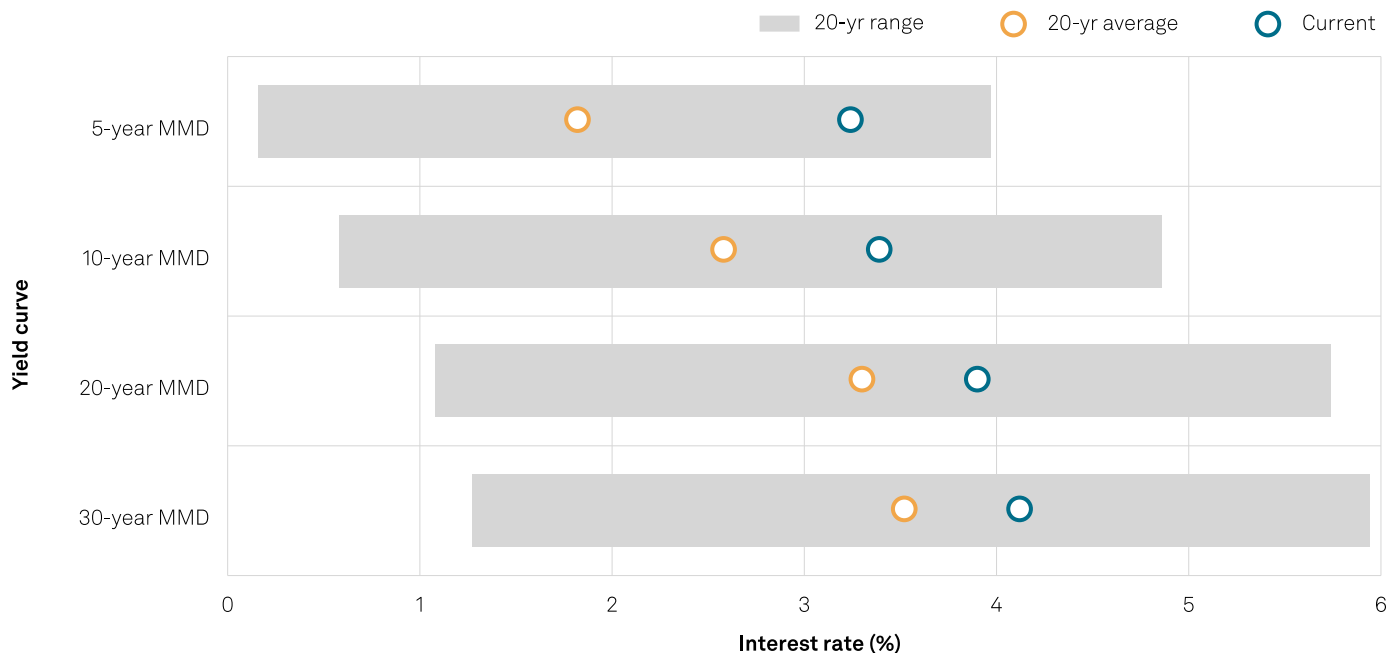
Outlook For U.S. Municipal Utilities: Stable, Though Risks Are Rising

Further, tax-exempt borrowing rates increased nearly 200 basis points year-over-year. To put this into context, a \$100 million, 30-year issuance is now \$2 million per year more expensive and \$60 million more expensive (in future dollars) over the life of the debt. A \$1 billion project costs \$20 million more per year or \$600 million over the life of the debt. This dynamic has arrived at an inopportune time, as capital needs are mounting. Federal loan costs are also escalating. Many issuers have benefited from low-cost federal funding through the Water Infrastructure Finance and Innovation Act (WIFIA) loan program. To date, WIFIA has closed 95 loans totaling \$16 billion in credit assistance to help finance over \$35 billion for water infrastructure projects. Since inception, loan requests have well exceeded program capacity, highlighting the importance of the program to the sector. Given that the cost of borrowing is tied to treasuries, which are roughly 175 basis points higher than a year ago, we expect WIFIA costs to rise commensurately. Even so, we believe the WIFIA program still provides attractive features such as the deferred repayment, prepayment at any time without premium, and only a one basis point spread on the Treasury's State and Local Government Series rate.

Chart 5

Tax-Exempt Municipal Credit Spreads Are Widening

Wider credit spreads and higher interest rates will likely keep borrowing costs high in 2023 and could delay deferred maintenance investment for critical infrastructure



Source: Municipal Market Data, current rate as of Nov. 25, 2022.
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In addition to rates increasing, credit spreads are also widening considerably, increasing financing risks for issuers lower on the credit spectrum. Widening credit spreads may result in significantly higher relative borrowing costs, further pressuring already weak credits on the lower end of the investment grade portfolio or lead to greater deferred maintenance if market access is threatened. While we believe it is possible that the scope of some projects may be reduced or

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cancelled as the cost of materials and labor escalate, given that a sizable proportion of the sector's projects are non-discretionary, utilities may not have the flexibility to wait out the current environment. We believe the effect will be higher capital budgets and thus rate increases, potentially threatening affordability for issuers in lower income areas--many of whom have the greatest capital investment needs. We expect to stress capital plans and financial forecasts to account for these headwinds and assess whether issuers have the financial capacity to significantly increase their cost basis.

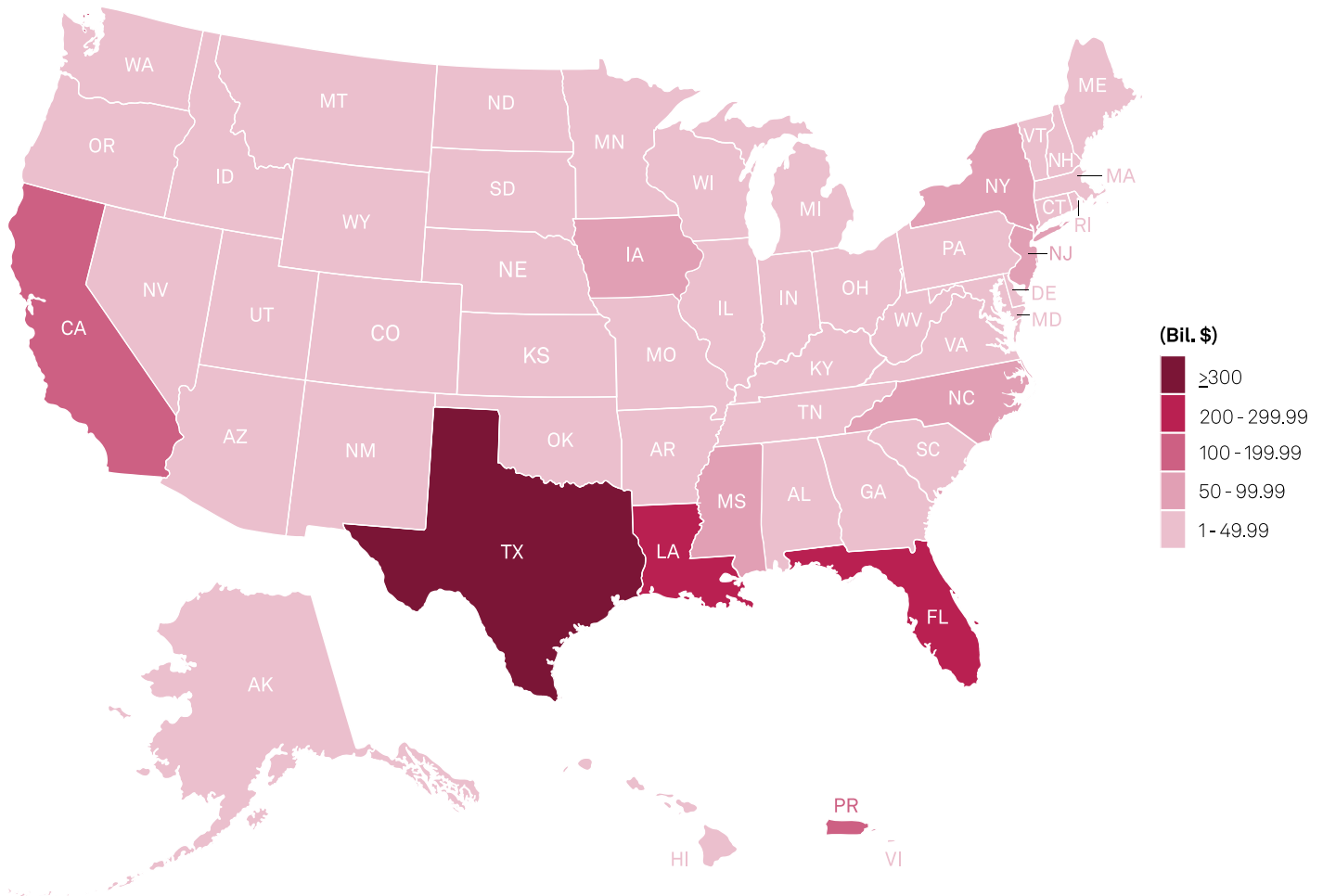
How will climate considerations influence financial performance?

Utility operations and financial performance are inherently linked to weather and other climate hazards. The EPA cites drought, storms, flooding, source water quality, and sea level rise as current and future climate threats in the utility sector. Wildfire incidence is also a rising concern for utilities--especially in the West. Adaptation and mitigation efforts are critical and usually require greater initial investment, typically without the knowledge of how effective these measures will be in offsetting the long-term risks from the exposure. For example, the cost to develop new or alternative water supplies to mitigate drought risk can be orders of magnitude more expensive than traditional supply. Failure to prepare for climate events can have severe operational and financial implications for utilities, influencing supply and demand as well as operating and capital costs. Climate events can also influence the underlying economy and service area, including population migration or relocation, employment shifts, or difficulty obtaining insurance which can reduce home values (affecting issuers that receive property tax revenue). From 1980 through 2022, climate related disasters have cost states \$2,298 billion (see chart 6).

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Chart 6

1980-2022 Billion-Dollar Disasters Cost By State
CPI-Adjusted



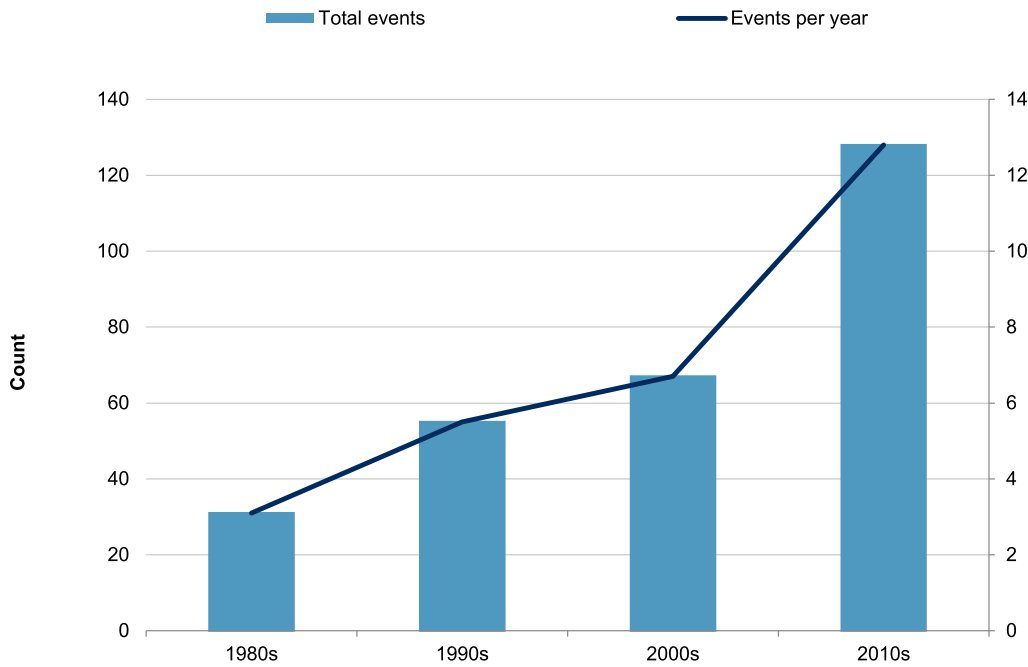
Through Oct. 11, 2022. Source: National Oceanic and Atmospheric Administration. Copyright © 2023 by Standard & Poor's Financial Services LLC. All rights reserved.

With storms, droughts, and other climate events increasing in frequency and magnitude, events previously deemed unprecedented are becoming the norm. For example, uneven precipitation, aridification, and extreme heat are expected to continue to challenge the western region's water supply, necessitating significant changes to how utilities in the western states use, store, and conserve water, as detailed in our report "Western U.S. Drought: Declining Supply, Rising Challenges," published Aug. 16, 2022, on RatingsDirect. We believe there is a rising likelihood for federal intervention and potential water rights litigation, which increases supply uncertainty and may have negative implications for issuers with significant exposure to Colorado River supply. Similarly, adverse weather, such as hurricanes, extreme temperatures (both hot and cold), and floods have also compromised infrastructure, not only in Jackson, Miss. following heavy rains, but also after the flooding and mudslides in Kentucky and Missouri, and catastrophic damage caused by hurricanes Ian and Fiona--three other severe weather events that caused more than \$1 billion in damage in 2022. Significant investment will be required to mitigate and adapt to climate related challenges, which needs to be planned for well-before a climate emergency takes place.

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Chart 7

Billion-Dollar Climate Events



Source: National Oceanic and Atmospheric Administration
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We believe that most of our rated U.S. public finance water and sewer utilities are well positioned to meet these challenges. Financial capacity in the sector is extremely strong, including median coverage of 1.97x, liquidity of 519 days on hand, and manageable leverage of 36% debt to capitalization. We view liquidity as critical to bridge reimbursements and revenue loss during recovery and rebuild. As we noted in "Hurricane Ian: Most Municipal Utility Ratings, Bolstered By Significant Liquidity, Are Expected To Be Unaffected," published Sept. 29, 2022, rebuild and recovery in the hardest hit areas can take months, and some communities may be displaced, requiring liquidity to cushion reduced collections and to bridge the period until Federal Emergency Management Agency loans are available. Most of the issuers in areas with hurricane exposure tend to have extraordinarily strong reserves. Considerable management acumen is critical for utilities with above-average event risk. In the higher-grade portion of the portfolio, issuers have robust risk management, forecasting, and infrastructure maintenance, which contributes to the stability of the sector during periods of heightened climate events. Supportive rate structures are also beneficial for credits exposed to physical climate risks. The flexibility to manage demand and stabilize financial stress from lower usage is important in managing scarcity, for example. From a credit perspective, we view rate structures that promote cost recovery and revenue stability positively.

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While most utilities will be adept at managing through the current environment, we believe issuers with narrow financial margins or limited rate-setting capacity could experience a disproportionate effect on their credit ratings from these challenges. Affordability may increasingly become a challenge for utilities, given the magnitude of required system investment and the significantly higher cost of developing alternative supplies, compounded by inflationary pressures and a higher interest rate environment. Further, those with marginal liquidity are more exposed to financial stress and covenant breaches if a climate-related event weakens demand due to population displacement or usage restrictions.

Will recessionary pressure and cost escalations result in rate affordability challenges?

Utilities are typically operated as self-supporting enterprise funds with revenues generated primarily through user rates and charges. In general, we believe utility rates and charges benefit from being recalibrated at least annually to reflect rising labor and material costs, as well as the potential influence of economic cycles and hydrology on demand. Well-managed utilities also set rates to ensure full cost recovery, including adequate renewal and replacement investment as well as consideration of proposed or future regulatory requirements, and typically manage this risk with appropriate financial performance metrics. Utilities that fail to do so are most exposed to credit stress over time. However, as utility cost of service increase rapidly, concerns over affordability are growing, which means that finding the right balance between how costs are allocated among customer classes is of critical importance, as is the overall demographics and purchasing power of the population served.

Rate increases have been consistently outpacing inflation for a decade. Despite this trend, market position and affordability within the sector has been strong. If a utility raised its rates in 2022, the average water and sewer bill increased by 8%. The average water and wastewater rates in our portfolio are \$43.95 and \$50.98, up from the prior year by 3% and 2%, respectively, which we consider low based on recent cost inflators. We anticipate these numbers will grow in the short term, which suggests likely coverage deterioration in 2023. Given the recessionary influence, rapidly escalating costs, and the increasing income disparity, we expect affordability to weaken and lead to the potential for reduced rate-setting flexibility, especially in areas where disadvantaged communities may be shouldering a disproportionate share of utility costs. About 7% of the sector could see weakening in our assessment of market position if rates were to increase by at least 10%.

With less discretionary income available, communities with relatively high poverty rates or low income levels may have more difficulty effectuating rate increases that fully recover costs. Within our portfolio, 36% of the rated utilities have more than 15% of their customer base at or below the poverty line. We have also observed greater member discord within wholesalers given differing demographic characteristics among members. We believe these dynamics could lead to greater rate-setting challenges. For utilities with significant portions of the customer base at or below the poverty line, customer assistance programs can reduce social risks and improve credit stability. We believe customer assistance programs can reduce political opposition to rate increases, improving the timeliness of implementation and reducing delinquencies. Customer assistance programs can be more challenging for smaller utilities given that there is a higher per-customer

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cost. Further, some utilities are prohibited from such programs given cost of service requirements.

We will continue to monitor the influence of federal, state, and local programs and how managers balance the critical infrastructure investments needed with customer rate affordability and the effect this has on rate-setting and thus financial performance.

Given the rising regulatory demands, will federal support provide meaningful benefit?

As public health and safety is the foundation of the sector, the regulatory landscape is a critical consideration. The sector is vastly different than it was 50 years ago when the Clean Water Act was promulgated. The EPA has ambitious regulatory objectives for lead and copper pipe replacement and nutrient removal. In addition, health advisories have been released for several emerging contaminants, such as PFAs, signaling that increased restrictions are imminent. From a credit standpoint, we are evaluating whether stricter standards will increase capital requirements and operating costs for treatment for utilities with meaningful exposure. We expect compliance monitoring costs to increase across the sector. We expect to also assess how expensive it will be to address both federal and state regulatory requirements, and what funding will be available.

S&P Global Ratings tends to look at regulatory compliance through a lens of financial affordability, transparency to the rate base, and progress meeting critical milestones, regardless of whether those milestones are outlined in a consent decree or other mandate. We recognize that there may not be a "one size fits all" approach to compliance, since there are so many factors that influence cost and the compliance timeline, from physical constraints at the treatment plant to density of the service area, and size. Nonetheless, from our perspective, reporting and disclosure is tantamount.

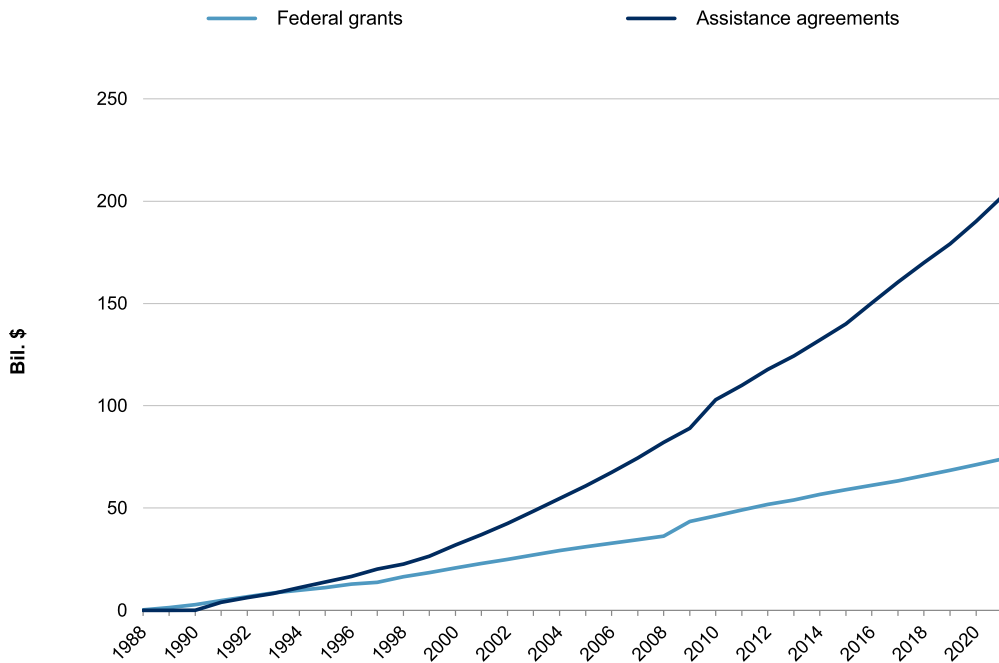
Broadly, the Infrastructure Investment & Jobs Act (IIJA) is expected to be credit supportive with respect to regulatory pressures--with dedicated funding for emerging contaminants and legacy issues such as lead. There is also significant funding for climate resiliency projects and small and disadvantaged communities which we view positively, given the potential for utilities serving these areas to have less rate making flexibility. Congress has directed that most IIJA funding for water projects be administered through state revolving loan fund (SRF) programs for drinking water and wastewater. SRFs are administered jointly by the EPA and state, tribal, and territorial agencies.

Compared to cumulative SRF federal grants totaling almost \$75 billion through the 2021 federal fiscal year, the \$43 billion of IIJA funding to be administered through the SRF programs from 2022-2026 provides significant assistance for local systems. Most of the funds maintain a state match requirement of either 10% or 20%, providing additional leveraging of federal funds. Combining federal grants with state match, SRF bond proceeds, and recycling of assistance agreement repayments, SRFs are expected to aid communities in an amount well more than total federal grants.

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Chart 8

SRF Grant And Assistance Agreement History (Cumulative)



Source: U.S. Environmental Protection Agency
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While IIJA, SRF grants, and USDA Rural Development loans have increased federal investment in water and sewer infrastructure, it is still a small portion of utility infrastructure funding, and we do not expect IIJA to be a panacea since authorization and appropriation risks remain. Further, federal provisions such as "Buy American" and the Davis-Bacon wage guarantee can also be challenging for project execution, though waivers are available in some cases.

Are labor concerns enduring?

A growing number of utilities have cited a shortage of qualified professionals due to retirement and difficulty recruiting or retaining employees. Water and sewer employees carry out specialized tasks, critical to public health and safety. An estimated one-third of the 1.7 million workers in the sector are projected to be eligible to retire in the next 10 years. Additionally, technology is advancing, increasing the need for workers with sophisticated training and expertise. Insufficient staffing can be costly given the need to increase overtime pay and the inefficiencies associated with reallocating workers. Operational issues also stem from worker shortages including safety risks and compliance and reporting violations. Many major utilities have double-digit vacancy

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rates which we believe is unsustainable. We are monitoring labor strategies to determine how issuers are positioned and whether succession planning promotes critical knowledge transfers. We expect labor costs within utilities to increase at a higher rate than in recent years given the competitive job market and the need to retain skilled employees with critical roles. We assess labor strategy through the organizational effectiveness factor within our Operational Management Assessment. Lack of succession planning will generally limit the sub-score to no better than a standard.

How Will Credit Quality Be Affected?

Forward-looking financial data will be increasingly relevant. Given the recessionary factors, including inflation, we expect to weigh forecast years more heavily than historic data when we believe it is more indicative of future trends. When issuers do not have forecasted data, we will incorporate projected coverage and liquidity assuming reasonable inflationary expectations. This is critical to understand the trajectory of the credit.

Balanced credits may fare better in the current environment. We will evaluate the enterprise and financial profiles, as those that have been less balanced in their overall credit profile may experience more pressure. Those credits that were more reliant on their strong financial performance to offset a more limited economy, for example, may be more vulnerable to rating pressure. At a particular rating, some utilities may have some flexibility to generate lower margins than historical levels given our holistic review of credit characteristics.

Transparency will be increasingly important. Most issuers in the water and sewer sector rated by S&P Global Ratings do not publicly report quarterly budget-to-actual performance trends and, in fact, many do not have audits until 270 days after the fiscal year end, creating a material reporting lag. While we may rely on our own forecasts to ascertain past-but-not-yet-reported financial performance, we expect issuers to disclose unanticipated events that may adversely influence credit quality, such as a flood, major pipeline or main failure, or extended boil-water notice, if the event is likely to affect operating margins. Transparency and accountability are influential credit drivers that can mitigate forward-looking risks and add credibility to issuer forecasts, as discussed in "Management Matters: As Risks Rise Across The Water And Sewer Sector, The Importance Of Transparency Surges ," published June 24, 2022. Failure to disclose potential risks could indicate that management does not have a full focus on its risk profile and may be less nimble in responding to these risks. In addition, insufficient risk disclosure can weaken relationships with key stakeholders, such as governing boards, market participants, and--most importantly--ratepayers. This potential discord can threaten confidence in management, hindering rate flexibility. In addition, although rare, insufficient, or misleading disclosure can result in fines, higher cost of borrowing, or limited market access, which may influence financial capacity and flexibility and thus credit quality. While ongoing transparency and disclosure practices are explicitly linked to only one component in our criteria, they influence nearly every aspect of our credit rating, informing our view of management's planning and leadership as well as the ability to respond quickly to an emergency. During the past two years, over 40% of the negative rating actions (outlook revisions and downgrades) in the water and sewer

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sector have resulted from weak transparency, lack of accountability, or risk management. We expect this trend to continue.

Small utilities may be more exposed. We continue to view smaller utilities as having greater exposure to credit pressures given, on average, staff limitations, infrastructure deficiencies, and smaller (and often declining) rate bases across which to spread fixed costs. As we anticipated in last year's sector view report

("Outlook For U.S. Municipal Utilities: Stable, With Expanding Operating Margins," Jan. 19, 2022) smaller utilities accounted for 100% of the multi-notch downward rating transitions in 2022. We expect this dynamic to continue for several reasons. Smaller utilities are no less exposed to event risk or regulatory pressures than their larger counterparts yet have more limited staffing, resources, and management practices on average. Further, economies of scale benefits are not as easily recognized by smaller utilities as costs are borne by fewer customers and often significantly longer pipe per customer. Liquidity impairment also tends to happen more quickly for smaller utilities given the lower nominal amount of liquidity--despite many smaller utilities having relatively high liquidity on a day's cash basis. Finally, transparency and disclosure tend to be more limited and less timely given smaller staff and more lenient policies.

This report does not constitute a rating action.

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Exhibit CF-6

RATING METHODOLOGY

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US Municipal Utility Revenue Debt Methodology

This rating methodology replaces the *US Municipal Utility Revenue Debt* methodology published in October 2017. We have added a section on "Other Considerations." We have also made editorial changes to enhance readability. These updates do not change our methodological approach.

Introduction

In this rating methodology, we explain our general approach to assessing credit risk of essential service US municipal utility revenue bonds, including the qualitative and quantitative factors that are likely to affect rating outcomes in this sector.

The primary factors that drive our credit analysis of revenue bonds issued by municipal utilities that provide essential services are the size and health of the system and its service area, the financial strength of its operations, the legal provisions governing its management, and the strength of its rate management and regulatory compliance.

We discuss the scorecard used for this sector. The scorecard¹ is a relatively simple reference tool that can be used in most cases to approximate credit profiles in this sector and to explain, in summary form, many of the factors that are generally most important in assigning issuer-level ratings to issuers in this sector. The scorecard factors may be evaluated using historical or forward-looking data or both.

We also discuss other considerations, which are factors that are assessed outside the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. In addition, some of the methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.² Furthermore, since ratings are forward-looking, we often incorporate directional views of risks and mitigants in a qualitative way.

As a result, the scorecard-indicated outcome is not expected to match the actual rating for each issuer.

¹ In our methodologies and research, the terms "scorecard" and "grid" are used interchangeably.

² A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Our presentation of this rating methodology proceeds with (i) the scope of this methodology; (ii) the sector overview; (iii) the scorecard framework; (iv) a discussion of the scorecard factors; and (v) other considerations not reflected in the scorecard. The appendix shows the full view of the scorecard factors, sub-factors, weights and thresholds.

Scope

This methodology is used to assign ratings to debt instruments where the primary pledge and source of repayment are revenues generated by US municipal utilities providing monopolistic services essential to public health and functional economies. The approach described in this methodology applies to six basic categories of US municipal utilities: water distribution, gas distribution,³ electric distribution,⁴ sanitary sewerage, stormwater disposal, and solid waste disposal.

This methodology does not apply to debt issued by regulated water utilities, regulated electric and gas utilities and networks, electric generation and transmission cooperatives, power generation projects; nor does it apply to other types of public utilities, such as telephone, cable television, or parking. This methodology also does not apply to utility revenue debt whose rating is based on a general promise of a state or local government to pay the debt (e.g., a general obligation pledge or a full faith and credit pledge).⁵

Sector Overview

The pledge and source of repayment for a municipal utility revenue bond is typically defined in a bond resolution or a trust indenture, which acts as a contract between the utility and its bondholders. The resolution or indenture most often includes a lien on the net revenues of the utility system after the payment of regular operating and maintenance expenses.

US municipal utilities provide many different services whose rates or fees are pledged to the repayment of debt. The utilities mostly fall into one or more of six basic categories:

- » **Water utilities** take water from the ground, a river, a lake, or in special cases the ocean, treat it to a potable standard, and distribute it to customers for drinking, cleaning, and commercial, industrial, or agricultural use. These utilities can be involved in any or all of the functions of water supply: water treatment, long-distance transmission and retail water distribution. Some water utilities have no treatment capacity and purchase potable water wholesale.
- » **Gas utilities** take natural gas from a wholesale pipeline, odorize it for safety detection and pressurize it for delivery to customers through a pipe network for uses such as heating, cooking or commercial and industrial applications.
- » **Electric utilities** purchase electricity from wholesale suppliers and deliver it to residential, commercial and industrial customers for a wide range of power uses.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

³ This methodology covers municipal gas distribution utilities. These utilities typically purchase their supply from natural gas producers or intermediaries, and the gas is delivered via natural gas pipeline to the municipality's distributions system. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

⁴ Only those municipal electric utilities that generate less than 20% of their own power are rated using this methodology. We rate public power utilities using different methodologies. For information, see our methodology that discusses US public power electric utilities with generation ownership exposure and also our methodology that discusses US municipal joint action agencies. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

⁵ A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

- » **Sanitary sewer** utilities collect and treat wastewater, discharging it into a waterway or injecting it underground, and landfilling or incinerating the residual sludge. Some sewer utilities with no treatment capacity gather wastewater and transmit it to another utility that treats it.
- » **Stormwater** utilities collect and treat rainwater before discharging it into a body of water such as an ocean or a river. While every city or county addresses stormwater drainage as an integral element of its streets and highways, the stormwater systems that require capital markets financing are typically large in scale and are necessary to avert flooding from heavy seasonal rainfall.
- » **Solid waste** utilities collect residential or commercial refuse and dispose of it through landfills, waste-to-energy plants, or other waste-disposal processes. A solid waste system can be complete or collection-only, relying on another municipal or private entity for long-haul removal and disposal through landfill or incineration.

Essential-service utilities typically operate as departments, boards or independent authorities of US states or local governments.

States and subdivisions of states, such as counties and cities, often issue bonds where the primary pledge and source of repayment are the net revenues generated by a utility system operated directly under government auspices, such as a city water department. In other cases, states or state subdivisions create an independent authority or special purpose district that operates the system and issues the bonds.

The credit quality of essential-service utility revenue bonds has generally been strong, based on the fundamental strength of utilities, which include the following characteristics:

- » The provision of essential services, usually in a government-protected monopoly;
- » Typically unregulated and independent rate-setting authority;
- » The ability to discontinue service to delinquent accounts and in many cases to put a lien on the property for nonpayment;
- » Utility cost burdens that are typically low relative to household income and to tax burdens;
- » A generally strong federal and state regulatory framework that is designed to keep utilities functioning in order to protect public health and achieve environmental goals;
- » A "special revenue" designation that may insulate a utility from a parent's bankruptcy.

Scorecard Framework

The scorecard in this rating methodology is composed of four factors. All of the sub-factors comprise a number of sub-factors. The scorecard also includes 20 notching factors, also known as below-the-line adjustments, which may result in upward or downward adjustments in half-notch or whole notch increments to the preliminary scorecard-indicated outcome.

EXHIBIT 1

US Municipal Utility Revenue Debt Scorecard Overview

Factor	Factor Weighting	Sub-factor	Sub-factor Weighting
System Characteristics	30%	Asset Condition (Remaining Useful Life)	10%
		System Size (O&M)	7.5%
		Service Area Wealth (Median Family Income)	12.5%
Financial Strength	40%	Annual Debt Service Coverage	15%
		Days Cash on Hand	15%
		Debt to Operating Revenues	10%
Management	20%	Rate Management	10%
		Regulatory Compliance and Capital Planning	10%
Legal Provisions	10%	Rate Covenant	5%
		Debt Service Reserve Requirement	5%
Total	100%	Total	100%

Source: Moody's Investors Service

The scorecard does not include or address every factor that a rating committee may consider in assigning ratings in this sector. We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way. Please see the "Other Considerations" section.

Discussion of the Scorecard Factors

In this section, we explain our general approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators.

To arrive at a scorecard-indicated outcome, we begin by assigning a score for each weighted sub-factor. Based on the scores and weights for each sub-factor, a preliminary scorecard-indicated outcome before notching factors is produced.

We also assess the notching factors. Our assessment of these notching factors may result in upward or downward adjustments to the preliminary outcome that results from the weighted scorecard factors. The most common notching factors related to each of the weighted scorecard factors are discussed below. In some circumstances, there may be notching for a credit event or trend that is not captured by the weighted scorecard sub-factors or the listed notching factors. We may also choose to make adjustments to the historical inputs to reflect our forward-looking views of how these statistics may change.

Below, we discuss each factor and subfactor, as well as the notching factors that we consider within each category of this methodology.

Factor: System Characteristics (30%)

EXHIBIT 2

System Characteristics (30%)

		Aaa	Aa	A	Baa	Ba	B and Below
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
System Size (7.5%)	Water and/or sewer / Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median

Source: Moody's Investors Service

Why It Matters

This factor on the scorecard assesses a utility's capacity to fund its operations and capital needs based on the health of its capital assets, the size and diversity of its operations, and the strength and resources of its service base.

The scope of this factor is broad. Each of the sub-factors contributes to an analysis of what magnitude of expenditures is necessary to keep the system functioning, and how large, diverse, and flexible the available resources are to meet those expenditures.

Sub-factor: Asset Condition (10%)

Input: Net fixed assets divided by most recent year's depreciation, expressed in years

The condition of a utility's capital assets determines its ability to comply with environmental regulations and continue delivering adequate service with existing resources.

Depreciation is an accounting concept that acts as a proxy for the rate at which a utility's plant and equipment are aging. Central to our analysis of capital adequacy is an assessment of how utilities "fund depreciation," meaning make capital replacements and repairs to address aging plant and equipment.

The consequences of failing to fund depreciation can be costly. Implicit in this measure is the concept of deferred capital investment. Utilities that delay investing in their systems, replacing aging plant and equipment, and modernizing their facilities often find it more expensive to do so later. Capital investments are ordinarily more expensive when deferred.

Further, systems whose facilities deteriorate often run afoul of environmental regulations. The failure to fund depreciation, which will manifest as a declining useful remaining life, can lead to sewage overflows, inflow and infiltration problems, or non-compliant wastewater discharges, resulting in civil fines, litigation, or regulatory consent decrees. These are usually more expensive than funding

depreciation through a prudent multi-year capital plan that replaces assets as they deteriorate or break down.

The inherent differences between types of utilities are manifested in their component parts, which can have very different useful lives. Because a solid waste utility is largely automotive-based, with collection vehicles and earth-moving equipment at the landfill, the useful life of its assets will be well under 20 years, compared to a water utility whose distribution mains and reservoir have useful lives of 40 to 100 years. We generally acknowledge these differences, which may be reflected in our scoring of notching factors.

For utilities whose asset condition ratios are not determinable, such as utilities that utilize cash accounting and do not report net fixed assets or depreciation, we are likely to assess the sufficiency of capital assets based on other available information.

Sub-factor: Service Area Wealth (12.5%)

Input: Median family income of the service area, expressed as a percentage of the US median

Most of the costs of operating a utility and maintaining its capital assets are borne by ratepayers. The income of the residents of the service base conveys the capacity of its rate-payers to bear higher rates to fund operations and capital upgrades.

Utilities that serve lower-income ratepayers may have more difficulty implementing higher rates, if utility costs consume a considerable share of residents' budgets. The US Environmental Protection Agency (EPA) considers wastewater costs exceeding 2% of median household income to be a heavy burden, for example, a threshold that would be reached more quickly for a utility serving lower-income ratepayers.

We believe MFI is the best proxy for the wealth of a service base, but other indicators such as the poverty rate, unemployment, home foreclosures, per capita income, and median home value supplement our analysis of ratepayer capacity.

Sub-factor: System Size (7.5%)

Input: Most recent year operations and maintenance expenditures, expressed in dollars

Larger systems tend to be more diverse and enjoy economies of scale. The size of a system implies the flexibility and resilience not only of its operations, but also of its service base.

Small systems present a number of risks. They are less likely to have redundancies, which allow a system to shut down some of its operations in an emergency or to make repairs without interrupting service. Small standalone water or sewer systems will typically depend upon a single supply of water or a single sewage treatment plant. They are more likely to be exposed to a concentrated customer base. They are more susceptible to the departure of a single large customer. An unexpected capital need is likely to be more costly relative to its annual budget. The collective engineering and scientific expertise is likely to be less robust than a larger system's.

We use different breakpoints for different types of systems in this subfactor, recognizing that not all types of utilities have the same cost structure. For instance, an electric distribution system is more expensive to run than a stormwater system. A distribution-only water system is likely to have a lower,

more predictable cost base, but also depend on an external system for water supply and pay prices largely out of its control.

Utilities that are wholesalers to municipal government customers may exhibit operating stability not captured by size or service area wealth. Many of a utility's risks may be shifted to its municipal customers if their service contracts prevent these customers from switching providers or decreasing payments. If service contracts are so strongly worded and unconditional that municipal customers would have to pay the utility's debt service under any circumstances, then the utility's bonds may effectively represent a claim on the combined credit quality of the municipal governments.

For utilities that are exclusively wholesalers to municipal customers, we typically consider the credit quality of large customers ("participants") and the nature of the participants' pledge to the utility. For bonds secured by a utility's net revenue pledge, we incorporate the strength of the large municipal customers' credit quality as an important factor in the utility's revenue base. For utilities whose pledges are essentially a pass-through of the municipal customers' underlying pledges, we may rate their bonds using our public sector pool programs and financings methodology, recognizing that bondholders enjoy a direct claim on the underlying municipalities' ability and willingness to pay.⁶

Notching Factors Related to System Characteristics

Additional service area economic strength or diversity: We would use this adjustment, upward or downward, if the MFI statistic incompletely or inaccurately depicts that capacity of the service base to bear higher rates.

Significant customer concentration: A large exposure to a single user or industry, or a small number of users, poses substantial risks that might not be captured in MFI. We may notch down if a large share of a utility's revenues comes from one or a small number of customers, or from a single industry. We would be more likely to use this adjustment for volatile, unpredictable, and mobile industries than for longer-standing, more stable ones. We are less likely to consider a wholesale customer as a factor contributing to concentration, as it is purchasing on behalf of end-users.

Revenue per customer greatly over/under regional average: Revenue per customer conveys additional information about users' capacity for higher rates that might not be captured in MFI. We might notch upward or downward if revenue per customer implies higher or lower ability to increase rates than MFI suggests.

Exposure to weather volatility, extreme conditions or market fluctuations: Large amounts of rain that infiltrate pipes or storms that destroy equipment are examples of credit risks that could result in downward notching. Weather can also affect the prices that distribution systems pay third-party providers for electricity or natural gas.

Resource vulnerability: Water, gas, and electric distribution utilities sell a product whose availability can be limited or expensive in some cases. For instance, a water provider in a drought-stricken region may have to purchase expensive third-party water, resulting in declines in billable flow due to conservation efforts. We may notch down if the availability of water, an adequate gas supply, or a dependable source of electricity is vulnerable or in doubt.

Sizeable or insufficient capacity margin: Our useful remaining life calculation is designed to assess the quality of existing capital assets, but it does not measure the adequacy of a system's capacity relative

⁶ A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

to demand. Areas that are growing need more water, gas, and electricity, and place greater demands on wastewater and trash disposal utilities. Systems that are close to capacity may face greater capital costs to expand in the future, suggesting larger debt burdens and posing additional risks that may result in downward notching. Alternately, systems with ample capacity may be notched up, given the lack of capital spending requirements implied by the excess capacity. Further, excess capacity can sometimes imply a revenue-generating opportunity, since utilities can often sell their product or service to other parties. We are less likely to view excess capacity as a positive if it is caused by a declining user base.

Unusual depreciation practices relative to industry norms: Utilities typically have some flexibility to determine the depreciation schedules of their assets. Utilizing unreasonably long useful lives or employing other practices that distort depreciation schedules would also distort our remaining useful life calculation. We may notch down if an unreasonable depreciation schedule is inflating a utility's remaining useful life. Likewise, we may notch up if an unusually rapid depreciation schedule understates remaining useful life.

Factor: Financial Strength (40%)

EXHIBIT 3

Financial Strength (40%)	Aaa	Aa	A	Baa	Ba	B and Below
Annual Debt Service Coverage (15%)	> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)	> 250 Days	250 Days ≥ n > > 150 Days	150 Days ≥ n > > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)	< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x

Source: Moody's Investors Service

Why It Matters

The financial health of a utility determines its flexibility to respond to contingencies, resilience against potential short-term shocks, and cushion against a long-term unfavorable trend.

We measure or estimate utilities' financial health by looking at cash and other liquid reserves, the burden that debt places on operations, and the magnitude by which revenues are sufficient to meet expenditures.

Sub-factor: Annual Debt Service Coverage (15%)

Input: Most recent year's net revenues divided by most recent year's debt service, expressed as a multiple

Debt service coverage is a core statistic assessing the financial health of a utility revenue system. The magnitude by which net revenues are sufficient to cover debt service shows a utility's margin to tolerate business risks or declines in demand while still assuring repayment of debt. Higher coverage levels indicate greater flexibility to withstand volatile revenues, unexpected outflows, or customer resistance to higher rates.

Utilities usually enter into a rate covenant under which they pledge to achieve a given level of debt service coverage each year. The covenant helps ensure that the utility utilizes its assets to generate sufficient income to pay bondholders.

The analysis of a utility system's debt service coverage demands ample context. If debt service escalates in future years, then the utility's current net revenues may be sufficient to cover debt service this year, but not in the future. Systems with greater revenue stability can operate comfortably at lower coverage levels. Systems with greater capital needs are likely to incur more debt, which will lead to increased debt service and decreased coverage. The debt service coverage calculation is the basis for a comprehensive analysis of a utility's financial flexibility and trend over the long term.

Rate covenants define a calculation method. These calculation methods vary, for example in the inclusion or exclusion of connection fees. Our coverage calculation will frequently differ from the coverage utilities report for purposes of complying with their rate covenants. Frequently, our analysis will consider several types of coverage, including maximum annual debt service (MADS) coverage, annual debt service coverage, coverage with and without connection fees, and coverage as calculated for the rate covenant. For entry on the scorecard, we include connection fees (when pledged) in revenues, recognizing that these are pledged revenues that are usually generated annually and are an important source of funding for expansion. If connection fees are particularly volatile, or if they represent an inordinate share of revenues, we may adjust below the line.

Sub-factor: Days Cash on Hand (15%)

Input: Unrestricted cash and liquid investments times 365 divided by operating and maintenance expenses, expressed in days

Cash is the paramount resource utilities have to meet expenses, cope with emergencies, and navigate business interruptions. Utilities with a lot of cash and cash equivalents are able to survive temporary disruptions and cash flow shortfalls without missing important payments. A large cash balance can also partially compensate for the lack of a debt service reserve fund. A low cash balance indicates poor flexibility to manage contingencies.

We include in this measure any cash or cash-equivalent that is both unrestricted and liquid. The measure does not include cash held in a debt service reserve fund, unspent bond proceeds, or cash that is restricted for capital.

Sub-factor: Debt to Operating Revenues (10%)

Input: Net debt divided by most recent year's operating revenues, expressed as a multiple

A utility's debt profile determines its leverage and fixed costs. Systems that carry a lot of debt have less ability to reduce costs if demand shrinks, and are generally more challenged to achieve higher debt service coverage.

A greater debt burden may also prohibit a utility from funding necessary capital upgrades, if a covenant prevents the issuer from incurring the debt necessary to fund those upgrades.

"Net debt" is a utility's long-term debt minus its debt service reserve funds.

Notching Factors Related to Financial Strength

Debt service coverage (annual or MADS) below key thresholds: A debt service coverage ratio below 1 times is an important threshold, because coverage below 1 times indicates the utility is not fully covering debt service with income generated from operations. If a utility fails to achieve 1 times coverage, we may notch down to reflect the financial imbalance of the utility's operations. Another key

threshold that would likely prompt us to notch down is if coverage were to fall below the utility's coverage covenant, even if that covenant is higher than 1 times. Management's willingness and ability to operate the system for bondholders' benefit is a crucial credit consideration, and a breach of covenant calls that willingness and ability into question. A coverage level that impedes the issuance of additional bonds under the utility's additional bonds covenant could also prompt us to notch score down, if we think it would prevent the utility from funding necessary capital upgrades.

Constrained liquidity position due to oversized transfers: It is common for utilities to transfer cash to their general governments regularly, either to share overhead costs, make payments in lieu of taxes for occupied property, or to help fund shared infrastructure. It is also common for parent governments to tap utilities' cash to fund General Fund operations. We may notch down if these types of transfers are large and begin to strain its own liquidity. We are more likely to make this adjustment if the general government is operationally reliant on utility transfers and has the authority to increase them, particularly if the general government is struggling financially. Even if a utility has never transferred cash to its parent, such transfers remain a possibility,⁷ one of the reasons for the relationship between a revenue rating and the GO rating of its general government.

Outsized capital needs: A utility with significant capital needs will likely need to incur additional debt not communicated in the existing debt metric. We may notch downward for utilities under regulatory consent decree, or otherwise with great capital needs, that are likely to increase their debt levels.

Oversized adjusted net pension liability relative to debt, or significant actuarial required contribution underpayment: Employees of public utilities are usually members of a municipal pension plan. Most utilities either sponsor their own plan or participate in another entity's plan and are responsible for funding their share of the plan's pension liabilities. We may notch down if this liability is especially large, or if the utility has underfunded its contributions.⁸

Significant exposure to puttable debt and/or swaps, or other unusual debt structure: The risks of a debt portfolio can be magnified if it is significantly composed of puttable debt. Utilities generally set rates with the intention of covering operating expenses and debt service in the current year. A debt put, accelerated amortization under a term-out, or other unexpected calls on a utility's resources can impose immediate and substantial, unbudgeted cash outflows and upend that intention. We may notch down, potentially by several notches, if the composition of a debt portfolio, or cash-flow demands or unfavorable valuation of a swap, indicates a greater degree of risk than the scorecard debt metric.

⁷ Unless the utility's flow of funds is closed-loop. A closed-loop flow of funds is stronger than an open one for this reason.

⁸ For a description of how we calculate or estimate adjusted net pension liability, please see our cross-sector methodology that describes our adjustments to pension data reported by Governmental Accounting Standards Board (GASB) issuers.

Factor: Management (20%)

EXHIBIT 4

Management (20%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Management (10%)	Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory Compliance and Capital planning (10%)	Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning

Source: Moody's Investors Service

Why It Matters

While the legal provisions of the indenture or other bond documents may establish the minimum level of financial margin at which a utility must be run, the utility's management determines the actual level at which it is run.

Utility management refers to the dynamics of setting rates, planning for capital spending, budgeting for annual expenditures, and complying with environmental regulations. All of these factors interplay with one another to determine the credit strength of a utility system.

The scorecard captures two crucial aspects of management: rate-setting and capital planning. These two aspects encompass most of what is important in running a utility: keeping the system in good working order, and paying for it.

Sub-factor: Rate Management (10%)

User rates are the primary, and sometimes only, mechanism utilities employ to pay for their operations.

Ideally, rates increase marginally and steadily, rather than choppily. It is common for utilities to split their rates into a "base" charge (flat rate charged to all users) plus a "volumetric" charge (per unit costs based on flow/usage). Utilities funded to a greater extent by the volumetric charge face greater risks, since volume can be economically sensitive or decline because of a shift in consumption patterns.

Management's track record at setting rates appropriately and increasing them when necessary drives this score. We tend to give higher scores to utilities that set rate structures under which increases are automatic, and do not require annual approval for implementation.

Embedded into this factor is the length of time required to implement a rate increase. Many public utilities enjoy the authority to set their own rates and can enact a rate increase in short order by majority vote of the governing board. Some utilities must give the public a few weeks' or months' notice before increasing rates, or choose to do so by policy or practice. Some utilities require state approval to increase rates. Utilities that need state approval often have to file a rate case subject to public objection, and in some cases the state takes a long time to approve them or denies the full rate increase.

The longer it takes a utility to implement a rate increase, the less flexibility it has to quickly generate new revenues when faced with cash flow shortfalls.

Sub-factor: Regulatory Compliance and Capital Planning (10%)

The public utility sector is heavily regulated. Most public utilities are regulated by federal as well as state agencies.

The EPA enforces the Safe Drinking Water Act for water distribution utilities, the Clean Water Act for sanitary sewer and stormwater utilities, the Resource Conservation and Recovery Act for solid waste disposal systems, and the Clean Air Act for electric utilities. These statutes, and the methods employed to enforce them, are continually evolving, often intensifying over time. Additionally, many states have passed their own environmental regulations and are active enforcers.

This scorecard factor assesses utilities' compliance with relevant regulations and their plans for the capital expenditures required to comply in the future.

In addition to achieving environmental compliance, proper capital planning ensures the continued delivery of the product or service and the ongoing generation of revenues.

In our assessment, we look for indications of potential compliance gaps, such as environmental litigation, a delay in renewing a permit, or a consent decree with a state or federal enforcement body.

Notching Factors Related to Management

Unusually strong or weak capital planning: Continued violations of environmental laws and the associated litigation can impose extraordinary costs on utilities. We may notch down if these costs threaten to overwhelm a system's resources, in the form of a large consent decree, lawsuit, or other costs. Alternately, we may notch up if a utility's capital planning is particularly sophisticated or forward-looking. More sophisticated and forward-looking capital management is more important for systems facing resource vulnerability or extreme weather volatility.

Factor: Legal Provisions (10%)

EXHIBIT 5

Legal Provisions (10%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Covenant (5%)	> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x		≤ 1.00x
Debt Service Reserve Requirement (5%)	DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety		

Source: Moody's Investors Service

Why It Matters

The legal provisions of a public utility revenue bond form the backbone of its security.

When a municipality assigns its General Obligation pledge to a bond, it has promised to use any revenues or resources at its disposal to pay debt service.

A utility revenue bond enjoys no such open-ended pledge, making the legal edifice of the bond critical to bondholder security. Most commonly, the pledge for municipal utility revenue bonds is a lien on the net revenues of the system. Occasionally, bondholders enjoy a lien on the gross revenues of a system. We ordinarily do not consider a gross revenue pledge as materially stronger than a net revenue pledge, because systems need to pay operating and maintenance costs in order to remain functional.

The linchpin of a bond's legal structure is its covenants: the contractual compulsions the municipal utility agrees to when issuing the bonds.

Utilities abide by many different types of covenants. We consider three to be the most important: the rate covenant, the additional bonds test, and the debt service reserve fund. Also crucial in the analysis of a revenue bond's legal structure is whether the flow of funds is open-loop (accessible by another government entity) or closed-loop.

Strong covenants bind the utility to utilize its assets to benefit bondholders by operating with a comfortable financial margin, not taking on too much debt, and maintaining adequate cash available to pay debt service. Weak or nonexistent covenants allow the utility to operate on a thin margin or even at a net loss, incur a lot of leverage, transfer its money to other government entities, or maintain inadequate cash, in ways that are detrimental to bondholders.

Covenants specify the minimum factors management must contractually abide by. Utilities frequently exceed the minimum. Many of our ratings represent the expectation of performance at levels that exceed the covenants.

Sub-factor: Rate Covenant (5%)

Input: Covenant governing net revenues (operating revenues minus operating expenditures net of depreciation) divided by annual debt service, expressed as a multiple

The rate covenant is a pledge to set rates such that net revenues will be sufficient to cover debt service at a prescribed level. For example, a covenant may bind a utility to ensure that net revenues cover debt

service by 1.2 times. If net revenues fall short of this covenant in one year, the utility must raise rates to achieve a compliant coverage level the following year.

The rate covenant takes many forms. Some utilities pledge for net revenues to cover current year annual debt service by a given level. Others pledge to cover average annual debt service throughout the life of the bonds at that level. A strong coverage requirement would be for net revenues to cover maximum annual debt service (MADS) by a certain level.

Some rate covenant formats are materially weaker than this. Some utilities allow a “rolling” calculation, which includes outstanding cash from prior years' surpluses as part of the resources available to cover debt service. Many rate covenants allow connection fees to be included in available operating revenues.

The rate covenant coverage thresholds are based on a covenant that is an annual debt service coverage calculation. Using the notching factors described below, we may adjust, upward or downward, for any departures from this format.

Sub-factor: Debt Service Reserve Requirement (5%)

Input: Debt service reserve requirement

Many issuers agree to hold a specified amount of cash or other resources in a debt service reserve fund (DSRF), which the trustee can tap to pay debt service in the event that net revenues are inadequate. The DSRF covenant ordinarily requires the utility to replenish any draws from the DSRF.

The DSRF protects bondholders by assuring the payment of debt service even if net revenues fall short in one year.

DSRF funds can be funded with cash, or with surety policies from an insurer. We generally consider cash to be superior to a surety, although this is unlikely to materially affect the assigned rating as long as the surety provider is rated investment grade.

One commonly used DSRF requirement is known as the “three-pronged test.” Under tax law, the Internal Revenue Service limits the earning of interest on proceeds of a tax-exempt bond unless the invested proceeds comply with the three-pronged test. Under that test, the DSRF must be the lesser of 10% of principal, MADS, or 1.25 times average annual debt service. A DSRF set at the three-pronged test is usually weaker than one funded at MADS.

Revenue bonds have been issued without a DSRF in the past. This has resulted in a number of utilities with some bonds secured by a DSRF and other parity bonds secured by the same lien but no DSRF. We have rarely distinguished ratings between these parity bonds. The DSRF is a last-resort security measure, and most utilities comply with their coverage covenants and never have to tap their DSRF. We are most likely to distinguish between DSRF-secured bonds and bonds with no DSRF if the system holds narrow liquidity. A system operating with abundant liquidity can use its operating cash to meet debt service shortfalls, effectively executing a similar function to the DSRF. The combination of narrow liquidity and no DSRF exposes bondholders to greater risks of interrupted debt service payments and is therefore more likely to be reflected in ratings.

For a utility whose debt is mostly, but not all, secured by a DSRF, we will still enter the DSRF requirement into the scorecard. For a utility whose debt is mostly not secured by a DSRF, we will adjust the DSRF entry downward.⁹

Notching Factors Related to Legal Provisions

Coverage covenant other than annual debt service: The thresholds for the rate covenant sub-factor is based on net revenue coverage of annual debt service. A “rolling” coverage covenant that includes outstanding cash, or some other modification that weakens the meaning of the covenant, may prompt us to notch down. Conversely, a MADS coverage covenant may prompt us to notch up.

Structural enhancements/complexities: The scorecard is designed to capture covenants as they are most commonly constituted but cannot account for the myriad structures and complexities that arise in bond transactions throughout the sector. Enhancements such as a lock-box structure for debt service may lead us to notch up. Other shortcomings, such as a weak additional bonds test or the inclusion of cash in a coverage covenant, may lead us to notch down. Any characteristic of the legal provisions of a bond transaction may lead us to conclude that the scorecard does not adequately capture its risk profile, resulting in notching or on a rating that is different from the scorecard-indicated outcome.

Other Considerations

Ratings may reflect consideration of additional factors that are not in the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors include financial controls and the quality of financial reporting; the quality and experience of management; assessments of governance as well as environmental and social considerations; and possible interference from other levels of government. Regulatory, litigation, liquidity and technology risk as well as changes in demographic and macroeconomic trends also affect ratings.

Following are some examples of additional considerations that may be reflected in our ratings and that may cause ratings to be different from scorecard-indicated outcomes.

Environmental, Social and Governance Considerations

Environmental, social and governance (ESG) considerations may affect the ratings of municipal utilities. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.¹⁰

Municipal utilities may be directly exposed to extreme weather events due to climate change, such as flooding or droughts, and this may affect credit quality. Government facilities or investments in physical assets could be affected by physical risks and by other sources of environmental risk. Utility systems providing service to coastal communities or communities that are greatly susceptible to drought are highly exposed to environmental risks. Environmental hazards, such as hurricanes, can result in significant system damage requiring unexpected capital spending for repairs, while longer-term environmental trends, such as rising sea levels or prolonged drought conditions, can cause more prolonged pressure on system budgeting and spending priorities.

⁹ For example, if 1/3 of a utility's debt is secured by a DSRF funded at MADs and 2/3 is not secured by a DSRF at all, we may enter the DSRF requirement as a Baa.

¹⁰ A link to a list of our sector and cross-sector methodologies can be found in the “Moody's Related Publications” section.

Social considerations such as staff turnover, aging workforce, labor shortages or unrest or changes in the demographics of a municipal utility's service area, the income level of its customers and the affordability of housing may influence credit strength.

Some governance considerations are reflected in the Rate Management and Regulatory Compliance and Capital Planning qualitative sub-factors, including revenue-raising flexibility and capital planning. Additional considerations may include debt management, multi-year fiscal planning and the timeliness of information disclosure. Weak or opaque governance can negatively affect a municipal utility's performance, which can reduce customer willingness to support rate increases and can also constrain a municipal utility's access to capital markets. Conversely, very strong governance can lead to high customer satisfaction that reduces public resistance to rate increases and capital investment.

ESG considerations are not always negative, and they can be a source of credit strength in some instances. For example, access to clean water, options for the safe disposal of wastewater, and a strong labor market and generally affordable housing can drive strong revenue trends and foster utility system growth. External support, such as state or federal government funds for natural disaster relief, can help mitigate the credit impact of ESG exposures.

Regulatory Considerations

Issuers in the municipal utility sector are subject to varying degrees of regulatory oversight. Effects of these regulations may entail limitations on operations, higher costs, and higher potential for technology disruptions and demand substitution. Regional differences in regulation, implementation or enforcement may advantage or disadvantage particular issuers.

Our view of future regulations plays an important role in our expectations of future financial metrics as well as our confidence level in the ability of an issuer to generate sufficient cash flows relative to its debt burden over the medium and longer term. Regulatory considerations also play a role in our assessment of an issuer's cost recovery framework, competitiveness and willingness to recover costs with sound financial metrics. In some circumstances, regulatory considerations may also be a rating factor outside the scorecard, for instance when regulatory change is swift.

Likelihood of Receiving Extraordinary or Ongoing Support

Some municipal utilities receive extraordinary support from their component local government or a higher level of government, such as the state, typically to help the municipal utility avoid a default on debt obligations. The circumstances surrounding extraordinary support for a municipal utility are often specific to the situation. In some cases, a state or local government may provide meaningful financial or managerial support to a municipal utility undergoing stress, thereby bolstering a weak fundamental credit profile and materially lowering the risk of a payment default. Conversely, a temporary infusion of funds may bolster financial performance in the short term but leave a municipal utility exposed to rapid financial deterioration if the aid does not continue. We typically assess whether the support will be ongoing and sufficient to stabilize the municipal utility. We also consider the associated benefits or risks of dependence on such support. Alternatively, many municipal utilities receive annual funding or low-interest loans from the federal, state or local government. This type of funding is often earmarked, and we do not consider it to be extraordinary support.

Parent Government Credit Quality

While some public utility systems are independent of a particular municipality,¹¹ municipally-owned utility systems typically have enduring credit linkages with their parent government. Important linkages often include a legal structure that could draw the utility system into a general government municipal bankruptcy, combined or intermingled financial operations, shared debt or pension obligations, and mutual or affiliated governance or management. Additional linkages that typically pertain to municipally-owned utility systems, including common boundaries, a common economic environment, and common demographics and income levels, may also apply to some independent utilities. As a result of these credit linkages, the credit quality of a municipally-owned utility's parent government and that government's ability to meet its general obligations are important considerations in the rating assigned to a municipally-owned utility.

Shared credit characteristics between a municipality and an owned utility often affect the metrics used to assess scorecard factors, including the notching factors. For example, a utility system's practice of transferring excess funds to its parent government is likely to be reflected in the assessment of its financial strength, especially in the Days Cash on Hand sub-factor. However, there can be credit linkages between a utility and its parent government that are not fully reflected in the scorecard. Based on these linkages, a municipally-owned utility's revenue rating is typically not higher than two notches above the issuer or general obligation rating of the parent government. Scenarios where a utility's revenue rating may exceed the issuer or general obligation rating of the parent government would be in cases where there is clear information indicating a de-linkage of credit profiles, for example in a distress scenario where it is clear that debt service will continue to be paid on the revenue debt despite a default or impending default of the municipality's general obligation debt. An additional potential example could be a case where a utility has a meaningfully larger service territory than the parent government's boundaries and benefits from a more robust economic environment than the parent.

Financial Controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. The quality of financial statements may be influenced by internal controls, including the proper tone at the top, centralized oversight of operations, and consistency in accounting policies and procedures. Auditors' reports on the effectiveness of internal controls, auditors' comments in financial reports and unusual restatements of financial statements or delays in regulatory filings may indicate weaknesses in internal controls.

Additional Metrics

The metrics included in the scorecard are those that are generally most important in assigning ratings to issuers in this sector; however, we may use additional metrics to inform our analysis in specific cases. These additional metrics may be important to our forward view of metrics that are in the scorecard or other rating factors.

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in a municipal utility's fundamental creditworthiness, which may cause actual ratings to be lower than the scorecard-indicated outcome. Event risks — which are varied and can include natural disasters, sudden changes in state law or regulation, material litigation, pandemics or cybercrime events — can have a material credit impact on even a stable municipal utility.

¹¹ For example, we typically consider a stand-alone utility authority or special purpose district utility system that is not directly owned by a state or local government to be independent of a municipality.

Treatment of Different Liens on a US Municipal Utility's Net Revenues

It is common for utilities to issue debt secured by different liens on their net revenues. Senior bonds are secured by a first lien on net revenues, and subordinate bonds or loans secured by a subordinate, or junior, lien. Sometimes, utilities will issue debt secured by a third lien or lower.

Our practice is to evaluate the likelihood of default and the expected recovery in the event of default for each lien independently.

This will most commonly result in a rating distinction of one notch for each lien of subordination. In other words, if a municipal utility's senior lien is rated Aa3, its subordinate lien will most likely be rated A1 and the third lien will most likely be rated A2.

The reason for the typical one-notch-per-lien distinction is that subordinate liens are marginally more likely to default than senior liens, and subordinate liens' expected recovery in the event of default would be lower. Senior liens are typically afforded stronger legal protections under utilities' indentures, senior-lien debt service is usually paid earlier in the flow of funds, and the first lien would likely enjoy a better claim in bankruptcy.

For most investment grade municipal utilities, the probability of default for any lien is small, and so the notching distinction is driven primarily by a greater expected loss severity in the unlikely event of a default. This is comparable to our approach for ratings distinctions for different debt classes of investment grade corporations, where ratings distinctions are driven by differences in expected loss severities.¹² In contrast to corporates, however, there often is not an explicit cross-default of senior municipal debt in the event of a subordinate payment default.

In some instances, we may conclude that an investment grade municipal utility's subordinate lien has a default probability and expected loss severity that is nearly as low or just as low as the senior lien (in which case we may not make a ratings distinction), or a default probability and expected loss severity that is materially higher than the senior lien (in which case we may make a ratings distinction of more than one notch).

Such a conclusion would be based on the municipal utility's management of its system with respect to its liens, and the characteristics of the legal framework governing the liens: rate covenants, additional debt provisions, and cross-default and acceleration provisions in a senior lien's variable rate debt resulting from a default on the subordinate lien, for example. If a utility has only a very small amount of senior lien debt, we may choose not to distinguish between liens.

The distinctions among a municipal utility's liens become starker when it faces a material likelihood of default or bankruptcy. For these situations, the different characteristics of the liens are likely to drive greater disparities in default probabilities and expected recoveries for disparate liens. Thus, we are more likely to employ ratings distinctions other than one notch for speculative grade municipal utilities' different liens as the Loss Given Default approach drives more of the analysis.

In nearly all instances, the ratings on the different liens of the same utility will remain closely related. The reason for this is that municipal utilities are actively managed enterprises that continually need to generate net revenues sufficient not only to cover debt service but also to fund capital needs. Even if senior lien coverage is strong, a utility that is unable to pay its junior lien debt service is not generating excess funds for capital investment and does not have capacity for capital borrowing. Thus, while subordinate liens face greater default probability and higher loss expectations based on their first-loss positions, an increased likelihood of default on a subordinate lien implies an increased likelihood of insolvency for the utility as a whole.

For this reason, we enter the debt-oriented inputs into the scorecard on a consolidated basis. For the debt to revenues factor, we enter total debt (senior and junior). For the debt service coverage factor, we enter total debt service coverage. It is the municipal utility's ability to cover all of its debt service with net revenues that determines its viability as a going concern. Even for a senior lien with a large coverage factor by net revenues, a narrow coverage of all debt service implies pressure to maintain healthy operations and generate funds sufficient for capital reinvestment.

¹² For more information, see our cross-sector methodology that describes the alignment of corporate instrument ratings based on differences in security and priority of claim. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Limitations

In the preceding sections, we have discussed the scorecard factors and many of the other considerations that may be important in assigning ratings. In this section, we discuss limitations that pertain to the scorecard and to the overall rating methodology.

» Limitations of the Scorecard

There are various reasons why scorecard-indicated outcomes may not map closely to actual ratings.

The scorecard in this rating methodology is a relatively simple tool focused on indicators for relative credit strength. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

The weights for each factor and sub-factor in the scorecard represent an approximation of their importance for rating decisions across the sector, but the actual importance of a particular factor may vary substantially based on an individual issuer's circumstances.

Factors that are outside the scorecard, including those discussed above in the "Other Considerations" section, may be important for ratings, and their relative importance may also vary from issuer to issuer or from instrument to instrument. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.¹³ Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, and the assignment of short-term ratings.

We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way.

» General Limitations of the Methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Municipal utilities may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for an issuer's future performance; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as scorecard inputs or in other considerations, typically diminishes. Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, disruptive technology, or regulatory and legal actions. In any case, predicting the future is subject to substantial uncertainty.

¹³ A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Appendix: US Municipal Utility Revenue Debt Scorecard

EXHIBIT 6

		Aaa	Aa	A	Baa	Ba	B and Below
Numerical score		0.5 to 1.5	1.5 to 2.5	2.5 to 3.5	3.5 to 4.5	4.5 to 5.5	5.5 to 6.5
System Characteristics (30%)							
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation:	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
System Size (7.5%)	Water and/or Sewer/ Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median
Financial Strength (40%)							
Annual Debt Service Coverage (15%)		> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)		> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)		< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x
Management (20%)							
Rate Management (10%)		Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory Compliance and Capital Planning (10%)		Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning
Legal Provisions (10%)							
Rate Covenant (5%)		> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x		≤ 1.00x ¹⁴
Debt Service Reserve Requirement (5%)		DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety ¹⁵		

Source: Moody's Investors Service

¹⁴ Scores as a Ba.¹⁵ Scores as a Baa.

Adjustments/Notching Factors

Factor: System Characteristics

Additional service area economic strength or diversity

Significant customer concentration

Revenue-per-Customer greatly over/under regional average

Exposure to weather volatility, extreme conditions or market fluctuations

Resource vulnerability

Sizable or insufficient capacity margin

Unusual depreciation practices relative to industry norms

Other analyst adjustment to System Characteristics (Specify)

Factor: Financial Strength

Debt Service Coverage (Annual or MADS) below key thresholds

Constrained liquidity position due to oversized transfers

Oversized capital needs

Oversized adjusted net pension liability relative to debt, or significant under-payment of actuarial funding requirement

Significant exposure to puttable debt and/or swaps or other unusual debt structure

Other analyst adjustment to Financial Strength factor (Specify)

Factor: Management

Unusually strong or weak capital planning

Other analyst adjustment to Management factor (Specify)

Factor: Legal Provisions

Coverage covenant other than annual debt service

Structural Enhancements/Complexities

Other analyst adjustment to Legal Provisions factor (Specify)

Other

Credit Event/Trend not yet reflected in existing data set

Source: Moody's Investors Service

EXHIBIT 7

Scorecard-Indicated Outcome

Scorecard-Indicated Outcome	Aggregate Numeric Score
Aaa	0.5 to 1.5
Aa1	1.5 to 1.83
Aa2	1.83 to 2.17
Aa3	2.17 to 2.5
A1	2.5 to 2.83
A2	2.83 to 3.17
A3	3.17 to 3.5
Baa1	3.5 to 3.83
Baa2	3.83 to 4.17
Baa3	4.17 to 4.5
Ba1	4.5 to 4.83
Ba2	4.83 to 5.17
Ba3	5.17 to 5.5
B1	5.5 to 5.83
B2	5.83 to 6.17
B3 and below	6.17 to 6.5

Source: Moody's Investors Service

Moody's Related Publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings, please click [here](#).

For further information, please refer to *Rating Symbols and Definitions*, which is available [here](#).

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Exhibit CF-7

Criteria | Governments | U.S. Public Finance:

U.S. Municipal Water, Sewer, And Solid Waste Utilities: Methodology And Assumptions

April 14, 2022

OVERVIEW AND SCOPE

- These criteria apply to ratings on and refer to all utilities in scope as municipal water and sewer utilities, including waterworks, sanitary sewer, drainage, stormwater, solid waste systems, and irrigation districts. Also included in the scope of these criteria are combined water and sewer systems for which the above-mentioned services predominate. The issuers and issues in scope typically do not benefit from a guarantee from a state or local government nor are they secured by a general obligation (GO) of a state or local government. In-scope utilities may be units of U.S. local and regional governments (LRGs) or comparable political subdivisions provided that they:
 - Maintain discrete operations, and
 - There are ongoing operations to deliver water and sewer services directly to retail customers.
- The public or municipal enterprises within the scope of these criteria include, generally, those with the following characteristics:
 - The entity is an autonomous political subdivision or a wholly owned department of a political subdivision that may have shared governance and financial reporting, including entities where there is a concession agreement with a private operator;
 - The entity has a public policymaking role, mission, or mandate to deliver an essential service deemed necessary for public health, and is not a commercial entity such as an investor-owned utility or a corporation (whether a bankruptcy-remote or single-purpose entity or not);
 - The entity may receive some contractual payments or appropriations from a related political subdivision such as the general fund of the LRG; and
 - The entity is not registered as a commercial enterprise or public corporation and does not pay dividends (other than to its affiliated general government), establish ownership shares, or access the equity markets.
- While not an exhaustive list, examples of debt rated under these criteria are bonds issued by a city, utility board, retail raw-water service providers such as irrigation districts, and a regional authority that provides primarily retail water and sewer service or solid waste collection, handling, and removal services. Examples of entities that are not rated under these criteria include development districts, investor-owned utilities, project finance, master limited partnerships, and

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limited liability corporations. Investor-owned utilities and corporations are rated using "Corporate Methodology," published Nov. 19, 2013, and "Key Credit Factors For The Regulated Utilities Industry," published Nov. 19, 2013. Master limited partnerships are rated based on "Methodology: Master Limited Partnerships And General Partnerships," published Sept. 22, 2014.

4. Entities whose revenues are derived entirely from sales for resale to other entities, such as traditional wholesale providers or joint action agencies, continue to be evaluated based on the "Wholesale Utilities" criteria, published May 24, 2005.
5. LRGs often own and/or operate other enterprises such as electric systems, gas distribution utilities, or other utility services. Although many of the themes addressed by these criteria could apply in part to those other enterprises, we typically assess non-water and sewer utility operations using other industry-specific criteria. We believe related governments, while generally not directly linked, can directly influence credit quality. If a municipal utility is receiving or could receive financial support from the LRG or, conversely, if the municipal utility is providing or could provide support to the LRG, we account for this in the financial profile.
6. Many LRGs issue their own GO or other tax-secured debt on behalf of the utility. In those cases, this debt, even if practically paid by water revenues, continue to be evaluated using the applicable LRG criteria.
7. We generally believe that in cases of distress utilities do not benefit from an explicit or implicit level of extraordinary support from the U.S. federal government or state government in which they operate. In cases where we consider a utility to be a GRE, these criteria are used to determine the stand-alone credit profile (SACP), which is used as an input to the GRE criteria (see "Rating Government-Related Entities: Methodology And Assumptions," published March 25, 2015) to arrive at an issuer credit rating (ICR).
8. We consider the strength of lease revenue or certificates of participation issued by utilities as equivalent to a pledge of the same lien of revenues. Therefore, we do not distinguish between these securities. If a utility were to issue appropriation-secured debt that did not meet the above assumptions, we apply "Issue Credit Ratings Linked To U.S. Public Finance Obligor's Creditworthiness," published Nov. 20, 2019.
9. This article is related to "Principles Of Credit Ratings," published Feb. 16, 2011.

KEY PUBLICATION INFORMATION

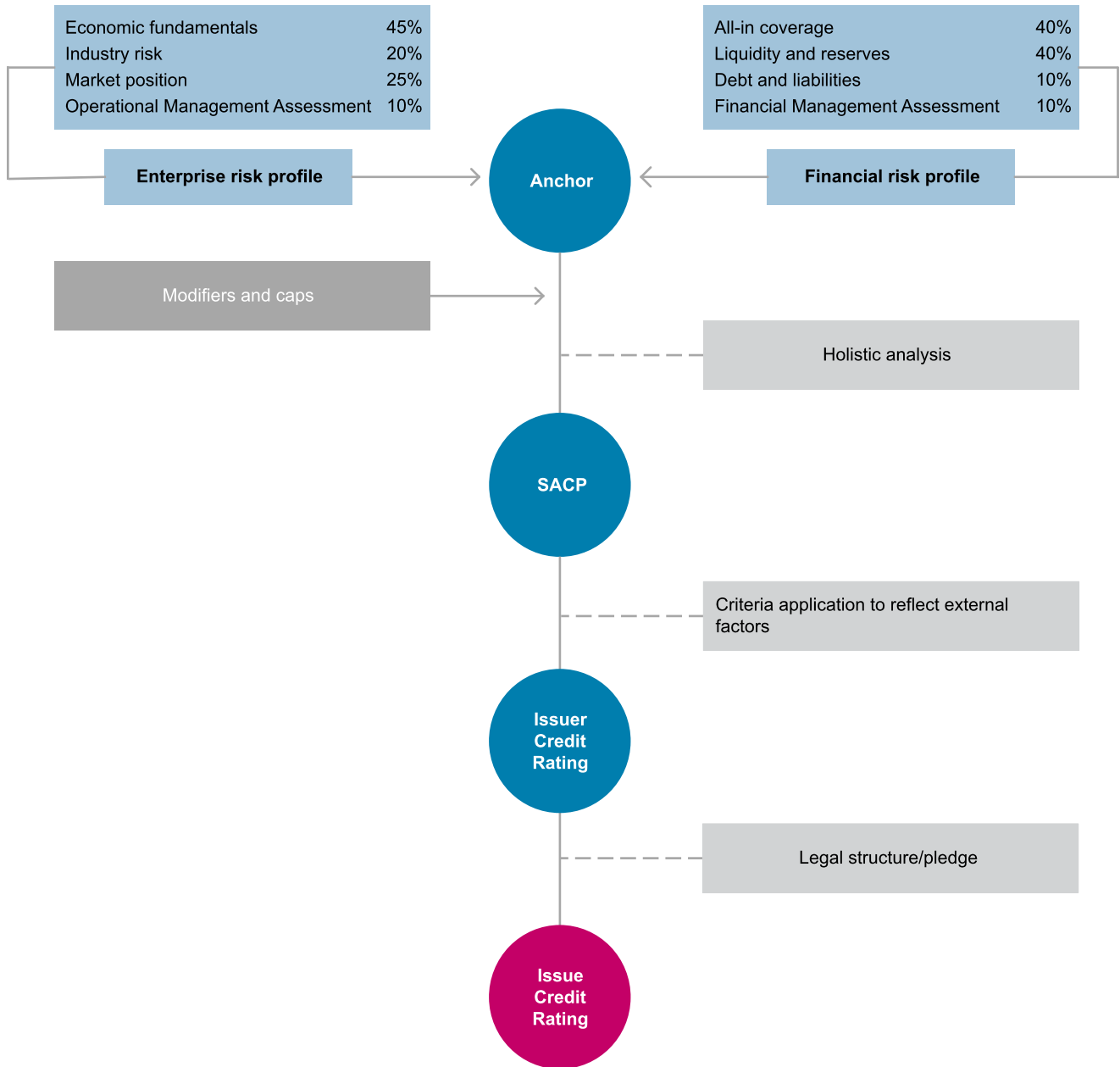
- Effective date: These criteria are effective April 14, 2022, except in jurisdictions that require local registration. In those jurisdictions, the criteria are effective only after the local registration process is completed.
- This updated methodology follows our request for comment, titled "Request for Comment: U.S. Municipal Water And Sewer Utilities: Methodology And Assumptions," published Dec., 14, 2021. For the changes between the RFC and the final criteria, see "U.S. Municipal Water, Sewer, And Solid Waste Utilities: Methodologies And Assumptions," April 14, 2022.
- These criteria supersede the criteria articles listed in the "Fully superseded criteria" section at the end of this article.

METHODOLOGY

10. These criteria use the same general framework as our criteria for other municipal enterprise sectors. Specifically, these criteria assign ratings using a framework that considers enterprise risk (enterprise risk profile) and financial risk (financial risk profile). Chart 1 depicts how the enterprise and financial risk profile assessments interact to arrive at the anchor.

Chart 1

Analytical Framework For Municipal Water And Sewer Utility Ratings



Source: S&P Global Ratings.
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11. The anchor results from the combination of the enterprise and financial risk profile assessments in table 1. We use lower-case letters in table 1 to highlight that the anchors are not ratings themselves, but rather initial indicative credit levels suggested by the enterprise and financial risk profile assessments. In cases where table 1 presents two anchors, the choice between the two anchors is based on our view of the future performance of the factors in the enterprise and

financial risk profiles.

12. After we determine the anchor, we use modifiers. Such modifiers can positively or negatively affect the anchor suggested by table 1. Then we apply our holistic analysis to reach an SACP. A holistic analysis is part of determining the SACP because that helps us capture a comprehensive analysis of creditworthiness. The holistic analysis can have a one-notch impact up or down. When we determine an adjustment of one notch up or down is warranted, it may be based on factors including our forward-looking view of an issuer's operating and financial performance. It may also reflect a comparable ratings analysis when relevant, or strengths or weaknesses not fully reflected through application of the criteria framework as it pertains specifically to the issuer.
13. We use the term SACP to reflect the outcome from table 1 plus any relevant modifiers and caps described in the Primary Credit Factors section and the holistic analysis described earlier. For more information about SACP, see our criteria "Stand-Alone Credit Profiles: One Component Of A Rating," published Oct. 1, 2010. Next, we analyze the influence of external factors such as sovereign risk (i.e., ratings may be constrained by the sovereign rating on the country in which the utility is domiciled) -- see "Ratings Above The Sovereign: Corporate And Government Ratings—Methodology And Assumptions," published Nov. 19, 2013; and the potential for extraordinary support or intervention from a related government or entity -- see "General Criteria: Rating Government-Related Entities: Methodology And Assumptions," published March 25, 2015.
14. Once the effect of any external factors is incorporated, we arrive at the ICR. The ICR reflects the general creditworthiness of the entity and does not incorporate the pledge or covenants provided to bondholders for any particular debt instrument. In the final step of our analysis, if we are rating a specific debt instrument, we review the legal structure of the instrument, including the pledge and covenants, to determine the issue credit rating. This analysis most often results in an issue credit rating that is the same as the ICR. However, the two may differ in some circumstances. For ratings below 'B-', see "Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings," published Oct. 1, 2012, as well as "Timeliness Of Payments: Grace Periods, Guarantees, And Use Of 'D' And 'SD' Ratings," published Oct. 24, 2013.
15. Issue credit ratings, including subordinate-lien debt, are determined based on our view of the ICR and the legal/covenant package, as more fully described in "Assigning Issue Credit Ratings Of Operating Entities," published May 20, 2015. Further information regarding our view of debt security and covenants is provided below.

OVERALL FRAMEWORK FOR RATING MUNICIPAL UTILITIES

16. These criteria are used to assign credit ratings to utilities based on quantitative and qualitative analysis of a range of economic, financial, operational, management, and debt factors, including those related to environmental, social, and governance (ESG). The analytical framework is articulated around two major components: the enterprise risk profile and the financial risk profile. The enterprise and financial risk profile assessments are determined by combining (see chart 1) and then rounding to the whole number the weighted average of the individual factors. The anchor results from the combination of the enterprise and financial risk assessments as shown in table 1.

Table 1

Determining The Anchor

Enterprise risk profile	Financial risk profile					
	1	2	3	4	5	6
	Extremely strong	Very strong	Strong	Adequate	Vulnerable	Highly vulnerable
1 Extremely strong	aaa	aa+	aa-	a	bbb+/bbb	bb+/bb
2 Very strong	aa+	aa/aa-	a+	a-	bbb/bbb-	bb/bb-
3 Strong	aa-	a+	a	bbb+/bbb	bbb-/bb+	bb-
4 Adequate	a	a/a-	a-/bbb+	bbb/bbb-	bb	b+
5 Vulnerable	bbb+	bbb/bbb-	bbb-/bb+	bb	bb-	b
6 Highly vulnerable	bbb-	bb	bb-	b+	b	b-

1.The anchor results from the interaction between the enterprise and financial risk profile assessments. Potential adjustments to the anchor are noted in tables 31 and 32 including a holistic adjustment. 2. For ratings below 'B-', see "Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings," published Oct. 1, 2012, as well as "S&P Global Ratings Definitions." 3. In certain cases, the anchor in table 1 contains two options for a given combination of enterprise and financial risk profile assessments. In those cases, we would use our expected view of the utility's future performance to determine which of the two anchors to use.

- 17. Where the enterprise and financial risk profiles contain subfactors, each factor and subfactor will be assessed on a numerical scale, with '1' being the strongest outcome, and '6' the weakest.
- 18. If the quantitative metric evaluating a particular factor falls at or near a cut-off point, we may assign the stronger assessment if trends are improving or we believe future metrics or attributes will improve, or weaken the assessment if trends are weakening or we believe future metrics or attributes will deteriorate.
- 19. The initial assessment for each factor may be adjusted based on qualitative factors that may be present or lacking for each characteristic or condition. Tables 4, 17, 19, 21, and 22 describe some of the most common qualitative factors that could adjust each of the respective initial assessments. The maximum net adjustment to the initial assessment is generally two points. For example, if the initial assessment is '3' and there are two favorable adjustments and one unfavorable adjustment identified, the final assessment for that factor would be '2.' The liquidity and reserves assessment, however, can be capped at '5' or worse regardless of the initial assessment.
- 20. The criteria also include various modifiers and caps (see tables 31 and 32) as well as the ability to raise or lower the anchor by one notch based on our holistic adjustment to establish the SACP. The ICR may be influenced by the rating on the U.S. or its associated country risk, as well as the assignment of issue credit ratings and use of subordinate-lien debt.

ENTERPRISE RISK PROFILE ASSESSMENT

- 21. The factors that are evaluated for the enterprise risk profile assessment are summarized in table 2. We combine these assessments to determine the initial enterprise risk profile assessment.

Table 2

Description Of Enterprise Risk Profile Factors

Economic fundamentals (45% of enterprise risk profile assessment)

Economic fundamentals measure the strength of the utility’s service area economy, including the utility’s demographics; trends related to the customer base; and how crucial the utility’s principal customers are to operating revenues.

Industry risk (20%)

The industry risk evaluation aims to evaluate the external environment in which municipal utilities operate and its relevant characteristics, including cyclical, competitive risk, and growth environment.

Market position (25%)

The market position measures the relative affordability of utility rates given the income indicators and relative poverty of the service area, as well as comparability of rates with those of peers in the region or state.

Operational Management Assessment (OMA; 10%)

The OMA evaluates our view of the effectiveness of utility management in ensuring that there is alignment of operational, environmental, strategic, and financial goals to support the system’s success.

- 22. The descriptors of outcomes for the overall enterprise risk profile are based on the scale shown in table 3. The criteria do not round to a whole number until arriving at a final enterprise risk profile.

Table 3

Descriptors For Enterprise Risk Profile Factors

Assessment	Description
1	Extremely strong
2	Very strong
3	Strong
4	Adequate
5	Vulnerable
6	Highly vulnerable

FACTORS THAT AFFECT THE ENTERPRISE RISK PROFILE

Assessing economic fundamentals

- 23. The assessment of economic fundamentals provides insight into the employment, socioeconomic, and demographic environment in which the utility operates as well as the health of the service area economy relative to that of the U.S. as a whole.
- 24. The assessment of economic fundamentals is based on two measures: median household effective buying income (MHHEBI) of the service area as a percentage of the U.S. and the trend in economic output of the service area, as measured by its real (inflation-adjusted) gross county product. If the service area spans multiple counties, these criteria pro rate the metrics based on the estimated population in each county as a percent of the total service area population.
- 25. The two components are combined (see table 4) to determine an initial economic fundamentals assessment. Positive and negative qualitative factors are then evaluated for applicability to achieve the final economic fundamentals assessment. The cumulative net effect of all

adjustments is limited to an improvement or worsening of two points to the initial assessment.

Table 4

Assessment Of Economic Fundamentals

Current median household effective buying income (% of U.S.)	Real gross county product, relative rate of change last two years, plus projected next two years*		
	Stronger than U.S. rate of GDP annual growth by 1% or more	Within +/- 1% of U.S. rate of GDP annual growth	Weaker than U.S. rate of GDP annual growth by 1% or more
125% or more	1	1	2
100%-125%	1	2	3
75%-100%	2	3	4
35%-75%	3	4	5
35% or lower	4	5	6

Examples of qualitative factors positively affecting the initial assessment include:

Efficiencies and natural economies of scale associated with being a larger utility.

Broad and diverse employment base, or ratepayers living in the service area have access to such a base.

Unique key local employer, such as a university or military base, that serves to stabilize the economy, even if skewing income indicators unfavorably.

Examples of qualitative factors negatively affecting the initial assessment include:

Unemployment rate of the county of 10% or worse.

A steadily declining population, or dependent population of more than 55%. These social capital issues typically indicate an outsized percentage of the population that is not part of the labor force and may therefore have heightened sensitivities to utility bill affordability concerns.

The lack of efficiencies and natural economies of scale because the utility is smaller.

Employment sector concentration, or inauspicious prospects exist for a key major local employer within the next 36 months.

The 10 largest customers account for 25% or more of operating revenues, or the top one is 10% or more.

Each applicable qualitative factor changes the initial assessment by one point (with the exception of the economies of scale adjustor, which can result in a one-half point change), but the net total of all adjustments would generally improve or worsen the initial assessment by no more than two points. *For example, if the base/current year is Y0, the time period examined would be Y0-1 (actual, full-year); Y0 (annualized estimate); Y0+1 (forecast) and Y0+2 (forecast).

- 26. For service areas in which there are no specific MHHEBI data available, the data from the next-largest measurable geographic unit will be used. For example, if the service area is that of a small unincorporated portion of a county and if those data are not available, the MHHEBI of that county will be used. An exception could be if there is clear evidence that the service area incomes and macroeconomic trends are materially and measurably different from the geographical unit at large, in which case we will use the best available data. Certain natural operating efficiencies and economies of scale are often present in larger utilities. Examples may include physical redundancies or the ability to spread fixed costs over a greater number of gallons sold or solid waste transported, processed, or buried. These criteria define a utility's size based on average

annual gross operating revenues of the three most recent audited fiscal years. In our calculation of operating revenue, we may also include real or potential property tax revenue and the revenue of combined systems, such as electric and water revenues if the water/sewer utility is the predominant entity. Table 5 outlines the applicable adjuster that is combined with the result from table 4. Typically, we apply the simple average of the three years. However, should there be, in our view, a sustained trend indicating a divergence from the average, we will generally assign a stronger assessment if revenues are increasing, or we believe they will increase. A weaker assessment generally is assigned if revenue trends are weakening, or we believe they will decline.

- 27. Drainage-only utilities are excluded from this adjuster, as we believe they have inherently lower operating risk and usually smaller revenues by their nature. Irrigation districts are addressed separately below.

Table 5

Economies Of Scale Qualitative Factor

Total operating revenues (mil. \$)	Change to initial assessment
More than 150	(1.0)
Between 75 and 150	(0.5)
Between 25 and 75	0
Between 5 and 25	0.5
Less than 5	1

- 28. Solid waste systems tend to be smaller, on average, relative to other utilities. When the negative characteristic associated with smaller size, reflected in relatively lower operating revenue, is offset by comparably better efficiency due to a system's affiliation with a larger family of systems (such as water and sewer), it may partially or fully offset an initial negative assessment but will not result in an assessment better than neutral ('0' in table 5).
- 29. We assess whether the utility's service area participates in a larger, broad, and diversified economy at the federally defined metropolitan statistical area (MSA) level. The determination is based on an evaluation of employment diversity, employment growth, and the employment base. Participation in a strong MSA would generally lead to a one-point improvement in the initial assessment. Conversely, no adjustment would be applied if we deem the MSA as weak or if the service area is not within a defined MSA. If the MSA is described as moderate, applying the broad and diverse positive adjustment may still be applicable if the macroeconomic trends of the MSA and our expectations for future performance in the next two years are reasonably likely to cause existing metrics to improve.
- 30. The diversification of the utility's service area's economic structure is important to assess the potential volatility of its employment base and its resilience to stresses. An example of a deep, broad, and well-diversified economy would be employment-sector distribution that closely resembles that of the U.S. at large. This depth and diversity could lessen the impact on the utility's operating revenues better than an economy with more exposure to a single employer or industry, or only a few employment sectors. A small and concentrated, or shallow economic base also tends to be more exposed to external factors and macroeconomic cycles.
- 31. If employment in an individual sector--excluding education and health; government; and transportation, trade, and utilities--represents more than 30% of the nonfarm employment base, the local economy is deemed to be highly susceptible to that employment sector. Therefore, a one-point weakening of the assessment would be applied. An example would be a small town that does not participate in an MSA and has a major manufacturing component in the local labor force.

32. Regardless of the employment sector or nature of its business, if a major local employer has publicly announced that within the next 36 months it will reduce or completely shutter operations within the service area or we expect it to do so, a one-point unfavorable adjustment would be warranted.
33. If we determine there is not a broad and diverse economy, the presence of a major employer can still sometimes act as a stabilizing force, possibly even adding context to lower income indicators. In such a case, a favorable adjustment of one point may be applied. Examples of major employers include higher education institutions; health care facilities; military installations; or even, more rarely, a large and stable corporate presence. Employment and customer base characteristics typically have a close correlation with a utility's operating revenues. If a small number of customers provide a large amount of revenues, the utility could be exposed to revenue volatility. Therefore, when the top 10 customers contribute 25% or more of total operating revenues, or the top customer accounts for 10% or more of total operating revenues, the assessment is weakened by one point.
34. For irrigation districts and comparable raw-water providers for which the end-use customer is agriculture or agriculture-related--such as ranches or dairy farms--MHHEBI and relative economic performance are less meaningful. These economies commonly have inherent limitations given the dominance of farming in the local economy, and non-municipal consumptive use patterns. Therefore, for these issuers, our default initial economic fundamentals assessment is '3', although negative, but not positive, qualitative factors that adjust the initial assessment could still be applicable.

Assessing industry risk

35. Consistent with "Methodology: Industry Risk," published Nov. 19, 2013, we consider industry risk for water and sewer utilities covered under these criteria based on a scale of '1' to '6' with '1' being the strongest. The industry risk assessment applies to all entities rated under these criteria regardless of the state in which they operate. We generally consider the industry risk for water and sewer utilities, including irrigation districts but excluding solid waste systems, as very low, the most favorable assessment possible. We derive the industry risk assessment based on a (2) low risk cyclical risk and a (1) low competitive risk and growth assessment based on the following characteristics of the water and sewer utilities industry as relevant to the industry risk factors:
- Cyclical risk assessment of '2' based on S&P Global Ratings' review of historical economic cycles and peak-to-trough changes in revenues and margins for regulated utilities. Economic cycles can affect nonrecurring revenues such as impact fees and spur priorities in the capital improvement plan (CIP) but weather, not the economy, is generally the largest single determinant of a favorable or unfavorable variance to budget in any single fiscal year; and
 - Very low competitive risk of '1', owing to legal and practical barriers to entry in almost all jurisdictions, and that as an essential service there is no substitution risk.
36. For solid waste systems, we consider the industry risk assessment as low, which equates to '2', or very strong, on the six-point scale we use for these criteria. We derive the industry risk assessment from the (2) low risk cyclical risk assessment and (2) low competitive risk and growth assessment and characteristic of:
- Cyclical risk assessment of '2' based on S&P Global Ratings' review of historical economic cycles and peak-to-trough changes in revenues and margins for environmental services;
 - Economic cycles can spur priorities in the CIP. Population and business growth are generally the largest determinants of a favorable or unfavorable variance to budget in any single fiscal

year; and

- Low competitive risk of '2', owing to legal and practical barriers to entry in almost all jurisdictions. However, while solid waste systems are an essential service, there is some substitution risk. Solid waste systems' peer industry is environmental services, as described in our industry risk criteria. This reflects both the slightly lower, although still high, essentiality of solid waste services, as well as the breadth of issuers in scope, ranging from traditional carting to recycling services.

37. Although uncommon, limitations on rate autonomy would likely be measured elsewhere, such as in financial performance if the timeliness and magnitude of requested versus granted rate cases leads to deterioration in credit quality.

Assessing market position

38. The relative poverty rate is an important social credit factor because service areas that have not just lower MHHEBI levels, but disproportionately higher percentages of the population located in the lowest quintiles of the MHHEBI distribution curve, may exhibit greater sensitivity to perceived affordability even if adjusted for low inflation or a favorable cost of living. Therefore, it is possible that the impact of utility bills and related rate increases is even more profound in those communities compared with communities with stronger economic fundamentals.
39. For water and sewer utilities, consumption patterns are based mainly on climate, precipitation, use of demand-side management and water conservation measures, and economic factors. In addition, solid waste system disposal activity varies from region to region based mainly on population and business growth, use of demand-side management, recycling measures, and economic factors. The market position assessment is based on the actual average monthly residential water and sewer or solid waste bill. The information generally will be based on the most recent audited fiscal year, unless we believe that historical rates are not indicative of future rates. In those cases, we will base the assessment on projected rates.
40. There could be practical limitations to these calculations such as transparent and timely financial reporting and disclosure details, the sophistication of the utility's customer information system database, and the possibility that the utility may deem this information as competitively sensitive and nonpublic. For water and sewer utilities, if the actual average monthly water or sewer bill is not readily available, the market position assessment assumes a residential customer that in one month has used 6,000 gallons of both treated water and sanitary sewer service, conceptually similar to the Environmental Protection Agency's residential indicator. In cases where the utility's chosen unit of billing is measured in hundred cubic feet (ccf), the closest rounded equivalent of 8 ccf is used. For solid waste systems, a monthly household rate is based on estimates using tipping fees and a combination of available factors such as disposal capacity and house size. Any minimum, or base charge or "lifeline rate" is also included in the calculation, as are any related fees, surcharges, or taxes regardless of who is levying them, since the burden ultimately still lays with the customer to pay it.
41. To gauge the annual utility burden on the household, the assumed monthly bill, as calculated above, is multiplied by 12 to estimate the total annual cost to the household for utility service.
42. Relative rate affordability is calculated by dividing as follows: in the numerator is the annual household utility burden as calculated above, and in the denominator the actual MHHEBI of the service area of the utility (or the closest approximation), then multiplied by 100. This produces the cost to the household of its utility expense as a percentage of total disposable income.
43. For irrigation districts, the customer base is primarily farms in agricultural production rather than

residential customers that rely on the system for essential public health needs, and in this context, poverty rates do not apply. However, the pricing power of many irrigation districts is constrained by the more elastic demand for water from these businesses, and in many cases the availability of alternative supply sources, such as groundwater produced from privately owned wells. Therefore, for these issuers, the default initial market position assessment is '3', although negative, but not positive, qualitative factors that adjust the initial assessment could still be applicable should they, in our view, affect the system's revenue-raising flexibility.

- 44. For drainage utilities rated under these criteria, rate structures tend to be exclusively either one of two types:
 - A flat monthly charge tied to a residential property as the base unit of billing, with larger properties or parcels assessed as if they were equivalent to multiple residential properties. For example, a strip mall may be treated for billing purposes as if it were five equivalent residential units. For those utilities whose charges are based on a flat fee, we assume the fee assessed to a single-family residential property; or
 - A fee based on the actual impervious surface area of the property. S&P Global Ratings' assumption for the monthly bill is based on a residential property. For those utilities whose charges are based on impervious surface area rather than a flat fee, we assume 2,000 square feet of impervious surface area.
- 45. Tables 6, 7, and 8 summarize how the criteria evaluate the market position of the utility, driven by the rate affordability and relative poverty rate. Table 6 applies to water, drainage, or solid waste systems. Table 7 applies to sewer-only utilities. Table 8 applies to water and sewer/drainage utilities. Positive and negative qualitative factors are then evaluated for applicability to achieve the final market position assessment. The cumulative net effect of all adjustments is limited to an improvement or weakening of two points to the initial assessment.

Table 6

Market Position Assessment, Water-Only, Drainage-Only, Or Solid Waste Systems

Percentage of county's population living in poverty	Annual utility bill as a percentage of median household effective buying income		
	Less than 1%	1%-2%	More than 2%
Less than 10%	1	2	3
10%-20%	2	3	4
20%-30%	3	4	5
More than 30%	4	5	6

For utilities with an initial assessment of 5 or 6 that have recently completed or achieved substantial completion of a historically capital-intensive period, the initial assessment may generally improve by one point.

Table 7

Market Position Assessment, Sewer-Only Utilities

Percent of county's population living in poverty	Annual utility bill as a percentage of median household effective buying income		
	Less than 1.25%	1.25%-2.5%	More than 2.5%
Less than 10%	1	2	3
10%-20%	2	3	4
20%-30%	3	4	5
More than 30%	4	5	6

For utilities with an initial assessment of 5 or 6 that have recently completed or achieved substantial completion of a historically capital-intensive period, the initial assessment may generally improve by one point.

Table 8

Market Position Assessment, Water And Sewer/Drainage Utilities

Percent of county's population living in poverty	Annual utility bill as a percentage of median household effective buying income		
	Less than 2.25%	2.25%-4.5%	More than 4.5%
Less than 10%	1	2	3
10%-20%	2	3	4
20%-30%	3	4	5
More than 30%	4	5	6

For utilities with an initial assessment of 5 or 6 that have recently completed or achieved substantial completion of a historically capital-intensive period, the initial assessment may generally improve by one point.

- 46. Rate affordability without context may under- or over-represent credit strengths. For example, a utility with rates much higher than those of comparable issuers that has already made the capital commitments to address a regulatory mandate driven by past noncompliance with environmental permits would be viewed more favorably than a utility with similarly high rates but that is facing a huge unfunded regulatory mandate. For utilities that have relatively high rates--as defined by an initial assessment of '5' or '6'--but have recently completed or substantially completed an extraordinarily capital-intensive period, the initial market position assessment generally will be improved by one point.
- 47. The criteria do not establish a preference for a particular water and sewer or solid waste rate structure. For example, management may use a flat or fixed rate, volume-based rates, or some combination thereof. We view positively rate structures that allow for cost recovery and stability. In contrast, for solid waste systems, an example of a negative adjustment of typically one point could be applied when a solid waste system relies on flow control ordinances.

Assessing operational risk management

- 48. The OMA consists of a review of the following subfactors, assessed from (1) strong; (2) good; (3) standard; to (4) vulnerable and weighted as shown below to calculate the OMA:
 - Asset adequacy and identification of operational risks (40%);

- Organizational effectiveness, management expertise, drought management, or volume variation risk plan, as applicable (20%); and
- Rate-setting practices (40%).

49. The OMA refers to risks associated with the operation of the utility; financial policy is covered by the FMA. For combined utilities where retail electric is a significant component of revenues, we also reference the retail electric criteria, "U.S. Municipal Retail Electric and Gas Utilities: Methodology and Assumptions," published Sept. 27, 2018.
50. The results from the observed evaluations are converted to a '1' to '6' scale as shown in table 9.

Table 9

Operational Management Assessment (OMA) Conversion To Six-Point Scale

Observed evaluation	OMA	Characterization
1.0-1.2	1	Strong
1.2-1.8	2	Good
1.8-2.5	3	Good
2.5-3.1	4	Standard
3.1-3.6	5	Standard
3.6-4.0	6	Vulnerable

51. The assessment of all subfactors is based on a preponderance of evidence. A utility receives a neutral assessment of standard for any subfactors for which there is insufficient evidence to assign either a positive or negative assessment. However, some subfactors may receive a negative assessment if a utility has a record of failing to disclose key relevant information.
52. There is no favored governance structure for the utility within the criteria. Some municipal utilities are a department or component unit of the local political subdivision, governed by the same locally elected officials as the LRG. Other utilities are governed by an independent or quasi-independent board. The governance structure will be credit-neutral so long as there is demonstration of the ability for management to operate the utility as an ongoing, viable enterprise, largely independent from politics, with professionals who are capably engaged in risk oversight and can balance interests appropriately.
53. Compliance with environmental regulations to ensure public health and safety is one of the basic purposes of a utility. Asset adequacy and identification of operational risks examines how successfully management is faring by owning and operating a public water, sewer, drainage enterprise, or solid waste system (table 11). Water and sewer utilities are subject to federal, state, and municipal regulations and permitting requirements (table 10). However, all utilities may be in various degrees of compliance or readiness. Examples include a long-term water supply that is appropriate in both quantity and quality to serve the existing and likely future customer base, or treatment capacity that is sufficient to meet average and peak day demand. Maintenance of existing assets, including climate resilience, is also a significant component of asset adequacy. Also assessed in this subfactor is the materiality of nonrevenue water.

Table 10

Asset Adequacy And Identification Of Operational Risks Assessment for Water, Sewer, And Drainage Systems

Strong	The utility has in place or is in the process of securing a raw-water supply that is reasonably projected to be sufficient through the life of the bonds. The integrity of the distribution and/or collection system, meters, and raw-water delivery assets is strong, or efforts are ongoing to rehabilitate them. Treatment capacity to meet average and peak day demand is sufficient in virtually every circumstance. Climate risk assessment is incorporated into planning and operations as a potential risk to the system. Water audits based on industry-accepted performance standards are incorporated into the annual budget such that nonrevenue water physical and economic losses are not material. A thorough vulnerability assessment across all critical assets has been performed to industry standards and been completed and incorporated into operations as much as reasonably possible.
Good	The existing raw-water supply is sufficient for the current customer base. The utility may need to enhance the supply sometime beyond the next 20 years, depending on growth and climatology/hydrology, but management has identified this risk in its long-term plans. Inflow, infiltration, and/or raw-water delivery are generally not problematic, or efforts are ongoing to rehabilitate them. Treatment capacity to meet average and peak day demand or flow is sufficient with only rare exceptions. Climate risk assessment is addressed in some key areas, such as supply planning or flood protection. Water audits based on industry-accepted performance standards are done on a regular, if not annual, basis such that nonrevenue water physical and economic losses are small. A vulnerability assessment has been completed to industry standards in most key areas and incorporated where management most deems relevant.
Standard	The existing raw-water supply will likely need to be enhanced within the next 10-20 years, but options for addressing the need have not yet been identified or, if so, have not been fully priced. Inflow, infiltration, and/or raw-water delivery are pronounced but not yet material or are problematic but will be addressed within the current capital improvement plan. Treatment capacity to meet average day demand is sufficient, but peak day demand or wet weather flows create constraints until ongoing projects are completed. Climate risks are identified, but other priorities preclude any immediate actions. Water audits based on industry-accepted performance standards are done only when management deems them necessary, likely evidenced by nonrevenue water economic and physical losses that are material. A vulnerability assessment has been done, perhaps only partially or perhaps not in accordance with industry standards, and implementation has been either partial or not at all.
Vulnerable	The existing raw-water supply and/or treatment capacity cannot currently and consistently meet peak day demand or flows. The raw-water supply is subject to a high degree of regulation and/or litigation, which can quickly introduce long-term uncertainty. Inflow, infiltration, and/or raw-water delivery are problematic and material, or the utility is highly dependent on or susceptible to another water purveyor. Climate risk is not explicitly addressed either in plans or operations. Water audits based on industry-accepted performance standards are not done and nonrevenue water economic and physical losses are problematic. No vulnerability assessment has been done.

Table 11

Asset Adequacy And Identification Of Operational Risks Assessment For Solid Waste Systems

Strong	The system has in place or is in the process of securing disposal capacity that is reasonably projected to be at least 25 years or more. The integrity of the distribution and/or collection system, transfer station, landfill, materials recovery facility, and/or resource recovery facility assets is strong, or efforts are ongoing to rehabilitate them. Treatment capacity to meet average and peak day demand is sufficient in virtually every circumstance. Climate risk assessment is incorporated into planning and operations as a potential risk to the system. Other potential risks to the system are identified and mitigated, including among others, waste flow diversions. Relationships with private haulers, where necessary, are amendable and nonlitigious. Postclosure costs, if applicable, are already being fully funded or plans are to fund them long before closure of the landfill. A thorough vulnerability assessment across all critical assets has been performed to industry standards and been completed and incorporated into operations.
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Table 11

Asset Adequacy And Identification Of Operational Risks Assessment For Solid Waste Systems (cont.)

Good	The existing disposal capacity is sufficient for the current customer base. The system may need to enhance the disposal useful life sometime beyond the next 20-25 years, depending on growth, but management has identified this risk in its long-term plans. Climate risk assessment is addressed in some key areas. Relationships with haulers have had one or more periods of strain; however, waste flow trends tend to be stable. Postclosure costs are being funded as needed with a reserve that is currently being funded from operating revenues. A vulnerability assessment has been completed in most key areas and incorporated where management most deems relevant.
Standard	The existing solid waste system operations will likely need to be enhanced within the next 10-20 years, but options for addressing the need have not yet been identified or, if so, have not been fully priced. Climate risks are identified, but other priorities preclude any immediate actions. Relationship with haulers shows signs of strain and waste flow trends have been erratic. Postclosure costs are not being reserved for but the system has indicated a willingness to fund them before the closure of the landfill. A vulnerability assessment has been done, but perhaps only partially or not in accordance with industry standards, and implementation has been either partial or not at all.
Vulnerable	The existing disposal capacity cannot currently and consistently meet daily demand. The relationship with haulers or other stakeholders is strained and litigious. The system's management relies upon flow control regulations to ensure waste flow trends. The system has no plans to deal with postclosure costs. It is highly dependent on/susceptible to another waste flow purveyor. Climate risk is not explicitly addressed either in plans or operations. No vulnerability assessment has been done. The municipality waste flow has been strained in the past, making it difficult to meet contractual obligations.

- 54. Organizational effectiveness informs our view of governance, management expertise, and risk mitigation through an assessment of policies and practices of key decision makers and staff. Examples include an evaluation of risks associated with cyber security, emergency preparedness, resource planning, drought management or volume variation, and succession planning (table 12). This subfactor also assesses how well utility leaders are able to convey the needs of the utility to external and internal stakeholders in a manner that is likely to allow the utility to maintain stability.

Table 12

Organizational Effectiveness And Management Expertise

Strong	Management communicates the utility's long-term needs and strategic goals, such as funding requirements, approval of crucial projects, and resource planning, to internal and external key officials on a regular, credible, and transparent basis, putting the utility in the best reasonable position for operational continuity. Examples might include ongoing public education campaigns, town halls, dedicated web sites, and social media. Management has considerable knowledge, experience, or a track record of success in operating all of the utility's key business units in an integrated fashion. Internal mentoring and succession plans are common. Management is able to put its strategic planning into practice; therefore, the utility is successful relative to peers. For water, sewer, and drainage utilities, it has its own drought management plan that details how much conservation it would seek depending on a drought's severity while still ensuring revenue requirements are met. For solid waste systems, there is a clear understanding of the composition of the municipality's waste flows and disposal resources.
Good	Public outreach and transparency is a common part of the organizational culture, even if not comprehensive across all key business units. Management has reasonable expertise and experience and has established pathways for succession and continuity where it can; therefore, operational surprises are rare. Management has a good track record of successfully converting strategic decisions into constructive action. For water, sewer, and drainage utilities, it has its own drought management plan that details how much conservation it would seek depending on a drought's severity although how it might meet its revenue requirements in such a scenario is uncertain.

Table 12

Organizational Effectiveness And Management Expertise (cont.)

Standard	Management depth or breadth is limited in some areas, such that the loss of key personnel would create, only temporarily, a learning curve for the new staff but not likely to measurably affect the utility for long. Public outreach is done generally only when necessary, often associated with a large or controversial project. Operational and financial strategies are generally aligned. For water, sewer, and drainage utilities, there is no drought management plan but does operate in a state with a clearly detailed plan that already exists.
Vulnerable	The utility relies on one or only a few key employees or perhaps relies on external consultants. Negative variances are not uncommon. The utility has a history of regulatory or legal infractions beyond an isolated episode or outside industry norms, which introduced an as-yet-unaddressed challenge. Operational and financial strategies may have had one or more major misalignments, limiting the ability to move forward on something important. For water, sewer, and drainage utilities, neither the utility nor the state in which it operates has an existing drought management plan, making resource sustainability as well as meeting financial obligations uncertain.

- 55. Most, but not all, utilities are monopolies with autonomy over their own rates. All have a mission of public health and safety, requiring continuously meeting regulatory standards and also implementing corrective actions when deficiencies occur, all of which spur the need to make adjustments to rates. If the utility is rate-regulated, the history of timeliness on rate cases and the magnitude of what was granted versus requested will be examined. The evaluation of rate-setting practices looks beyond magnitude or frequency of rate adjustments. Instead, we evaluate whether management has acted, in our opinion, in a manner generally supportive of credit quality when tough decisions have needed to be made. Such credibility can also aid community support when such increases are needed, and help protect future rate-making decisions from short-term political manipulation and decrease the potential for rate shock (table 13).

Table 13

Rate-Setting Practice Assessment

Strong	When rate increases have been needed, the decision-making body has been supportive and timely, even to the extent that multiyear, preapproved rate increases are common, if not standard. Financial decisions are prudent, in our view, rather than simply politically expedient and that could possibly be to the detriment of the utility's near-term financial health. Periodic rate studies (internal or external) are common.
Good	Rate considerations are done on a year-to-year planning horizon rather than over a long-term time frame, but generally are apolitically approved if and when necessary.
Standard	The rate covenant and/or additional bonds test are the de facto guide as to when rate adjustments are necessary, but that is still enough for the political decision makers to agree to a rate increase.
Vulnerable	Rate increases are often in reaction to a weakened financial position, including a technical default or some other legal covenant violation, even if the recent debt service payments were made on time and in full. There is clear evidence of recent political decisions to defer or downsize needed rate increases.

Adjusting the initial enterprise risk profile assessment

- 56. Table 14 outlines examples of situations where we would generally adjust the initial enterprise risk profile assessment. On an exceptional basis, there may be additional situations we have not yet observed that could also result in an adjustment to the initial enterprise risk profile assessment.

Table 14

Examples Of Adjustments To The Initial Enterprise Risk Profile Assessment

If	Then
Country risk assessment is '4', '5', or '6'.	Enterprise risk profile assessment generally would be capped at adequate, vulnerable, or highly vulnerable, respectively.

- 57. The relevant credit risks for utilities are also influenced by country-specific risks (see "Country Risk Assessments Methodology And Assumptions," published Nov. 19, 2013). Country risk is the risk an entity faces by having some of its operations or assets exposed to one or more countries. The country risk assessment is determined on a scale from '1' (very low risk) to '6' (very high risk). If the weighted-average country risk assessment is '3' or better, there is generally no positive or negative impact. However, if the country risk assessment were to weaken to '4' or worse, this could affect the enterprise risk profile assessment. Specifically, if the country risk assessment is '4', '5', or '6', the criteria generally assign an enterprise risk profile assessment of no better than adequate, vulnerable, or highly vulnerable, respectively.

FINANCIAL RISK PROFILE ASSESSMENT

- 58. The factors that are evaluated for the financial risk profile assessment are summarized in table 15. We combine these factors to determine the initial financial risk profile assessment.

Table 15

Description Of Financial Risk Profile Factors

All-in coverage (40% of financial risk profile assessment)

Analysis includes examination of historical and preferably generally accepted accounting principles (GAAP)-based results, the current financial condition of the utility, and projected scenarios for the next one to three fiscal years. The focus is on total financial capacity versus total revenue requirements.

Liquidity and reserves (40%)

This factor incorporates all lawfully available cash reserves and external working capital or liquidity sources, including bank lines in force within the life of any short-term obligations.

Debt and liabilities (10%)

This factor incorporates mainly quantitative, but also qualitative, analyses about not just the absolute measure of the utility's indebtedness but also the capacity to incur and support additional debt, especially in relation to maintaining any minimum financial metrics as covenanted to bondholders. Measurable liabilities such as pension and other postemployment benefits (OPEB) can lead to adjustments to this initial factor.

Financial Management Assessment (FMA; 10%)

Analysis includes an evaluation of ongoing management practices and policies that can be supportive of financial performance and continuity, as well as internal controls and reporting. Examples include establishing a minimum level of acceptable working capital, predictability of cash transfers from the utility system, and creating and perpetually updating a long-term financial forecast.

- 59. The descriptors for the overall financial risk profile are based on the scale in table 16.

Table 16

Descriptors For Financial Risk Profile Factors

Description	Corresponding assessment
Extremely strong	1
Very strong	2
Strong	3
Adequate	4
Vulnerable	5
Highly vulnerable	6

60. These criteria use assessments derived from historical and projected financial performance. In most cases, the ratio calculations are based on the three most recent independently audited financial statements. Our analytical assessment of pro forma or projected data will be used for those ratios affected by additional debt issuance or funded from cash reserves, or when we believe that historical financial performance is not representative of expected future performance.
61. For all-in coverage or liquidity and reserve assessments that use multiple years of historical and projected data, each single year receives a preliminary assessment. The preliminary assessments from each applicable year are averaged together to derive one single assessment for that factor.

FACTORS THAT AFFECT THE FINANCIAL RISK PROFILE**Significant additional upcoming debt**

62. If a utility has potentially sizable, but as yet unspecified, capital plans that could result in material additional debt and/or the use of reserves--including when there is or will be high levels of nondiscretionary capital funding, and we determine that such plans have a reasonable likelihood of occurrence but are not specific enough yet to determine pro forma or projected financial metrics--we generally will weaken the entire financial profile by one point. Compelling factors that would likely preserve credit quality include preapproved rate adjustments multiple years into the future, or an existing debt service schedule that allows for the new debt to be layered on in a manner that we believe is unlikely to worsen financial performance.

Assessing all-in coverage

63. All-in coverage is our internally adjusted debt service coverage (DSC) metric that we believe best tracks the use of every dollar of utility operating revenues, regardless of lien position, accounting treatment, or ultimate purpose. It also incorporates recognition of fixed charges or costs, which we define as certain long-term recurring items that are debt-like in nature, even if legally treated as an operating expense. Vertically integrated utilities may not have any fixed costs. An example of a fixed cost would be the take-or-pay minimum payment to the utility's wholesale provider of treated water. Other examples of fixed costs would include rental expenses for a sale-leaseback arrangement, GO debt that we consider self-supporting debt, or other situations that reflect support of off-balance-sheet debt. An example of off-balance-sheet debt is when a related government issues GO debt that is supported by the utility's revenue. We will generally include this portion of the debt that is not supported by any alternative source of revenue in the utility's all-in coverage calculation. All-in coverage also excludes adjustments to fixed costs for small or

nonmaterial financing obligations such as a capital equipment lease for a vehicle or copy machine.

64. These criteria also look to total revenues less expenses (but excluding noncash items), even if the pledge to bondholders is based on gross operating revenues. This is because we assume that the utility must be a viable, ongoing, cash flow-positive enterprise.
65. We deem net transfers out that legally or by practice support debt service of another governmental fund as part of the denominator's self-supporting debt. Cash that does not truly leave the utility, such as a set-aside into a rate stabilization reserve or pay-as-you-go fund are not included as transfers out. Similarly, the application of a rate stabilization fund (RSF) or other cash on hand as a transfer in would not be included in the all-in coverage calculation, although we would note the presence and use of the RSF as a qualitative adjustment to the all-in coverage assessment.
66. The accounting treatments and even provisions in the bond documents vary; for example, transfers are usually a use of surplus net revenues, but sometimes may be treated as an operating expense. The criteria would treat recurring transfers as an operating expense. An annual transfer payment that is consistent in nature, such as one based on a percentage of operating revenues or a fixed dollar amount, is more predictable than one that is not defined and therefore could be as big as the general government decides it should be. For example, an all-in coverage calculation of less than 1x might suggest a net cash withdrawal from the utility fund. Table 17 summarizes the all-in coverage evaluation.
67. In cases where an unconditional take-or-pay minimum, capacity payment, or demand charge does not exist or is not explicit, we will impute what we believe to be a logical and reasonable equivalent for the purpose of calculating all-in coverage. We use the utility's relative contribution to its wholesaler provider's total operating revenues as the basis for the fixed-cost imputation. For example, if the utility being rated accounts for 15% of its wholesale provider's total annual operating revenues, and the wholesaler's total annual debt service payments are \$10 million, then \$1.5 million will be imputed as fixed costs for all-in coverage calculation purposes.

Table 17

Assessment Of All-In Coverage

Initial assessment	All-in coverage
1	1.60x or above
2	1.40x-1.60x
3	1.20x-1.40x
4	1.10x-1.20x
5	1.00x-1.10x
6	Below 1.00x

Examples of qualitative factors positively affecting the initial assessment include:

A significant portion of operating revenues have a high degree of certainty, such as from wholesale sales with take-or-pay minimums, even if those wholesale sales serve to depress total DSC due to cost-of-service rates.

The presence of an RSF that tempers revenue variability and helps ensure adequate fiscal resources during unexpected low revenue periods, so long as the use is infrequent and not offsetting structural budget deficiencies.

Examples of qualitative factors negatively affecting the initial assessment include:

A debt service schedule with large bullet maturities that introduces refinancing risk, or that makes it extremely likely the utility will need significant growth or large rate increases to meet future requirements, such as a deferral of principal repayment far into the future.

Table 17

Assessment Of All-In Coverage (cont.)**Initial assessment****All-in coverage**

DSC that is reliant on new customer fees or nonrecurring nonoperating cash inflows just to achieve a ratio of at least 1x.

Exposure to interest-rate sensitivity via variable-rate debt that is enough to lead to a weaker initial assessment.

A material increase or anticipated increase in required pension or OPEB costs. In making this assessment, we consider risk of acceleration of pension and OPEB payments and likelihood of budgetary stress due to the increase in such payments.

For solid waste systems, the majority of the waste is delivered by the largest customer, generally measured by revenue or tonnage, and we believe that this level of concentration could negatively affect all-in coverage; the majority of revenues are not from tax assessments or collected as part of a combined utility bill and we believe the collection method has or will significantly affect the revenue collection rate; or there is a significant amount of revenue from spot market waste and recyclable sales.

Each applicable qualitative factor changes the initial assessment by one point, but the net total of all adjustments would generally improve or worsen the initial assessment by no more than two points.

68. Some utilities provide mostly retail service directly to the consumptive-use customer, but may also generate operating revenues via sales for resale, or wholesale sales. Wholesale sales are often at a cost-recovery rate with much smaller net operating margins, serving to depress total all-in coverage. For utilities that generally have between 20% and 49% of operating revenues coming from firm (contractual) wholesale sales, a one-point improvement in the all-in coverage assessment would be applied to put the depressed all-in coverage into better context.
69. The planned use of RSF or equivalent designated reserves from time to time could, analytically, temper measurable declines from a trend of stronger financial performance. However, recurring reliance on an RSF in lieu of other measures such as rate adjustments to address imbalances among revenues, expenses, and debt service can be evidence of credit weakness. Utilities that perform down to the level of permissive legal covenants, such as allowing the use of certain cash balances toward satisfying a rate covenant or additional bonds test and potentially creating a weak alignment between revenues and expenses, would see the initial assessment lowered by one point. This is especially true when actual performance indicates insufficient pledged revenues without the use of cash.
70. It is not uncommon for utilities to charge a one-time fee as new accounts are added to the customer base (exclusive of any deposit that may be required), often called a connection or impact fee. The all-in coverage ratio will be stressed by hypothetically removing these nonrecurring items from total revenues, to gauge a utility's relative dependence on these fees just to achieve sufficient financial performance. Such fees are strongest during periods of high growth in the number of accounts. While perhaps they are pledged revenues, impact fees can overstate revenues available for debt service. Conversely, a slowdown or cessation of such growth--especially if not expected by management--could create a precipitous drop in the utility's financial performance and expose vulnerability in the financial risk profile. Achieving a ratio of less than 1x solely from recurring revenues on a consistent basis indicates structural budgetary imbalance and generally would weaken the assessment by one point.
71. These criteria do not establish a guideline as to an allocation of variable-rate debt as a percentage of total long-term debt. However, if all-in coverage by our projections would change between one of the initial assessments to another in table 17 as a result of a change in interest rates, the all-in coverage assessment will reflect the lower/weaker of the two possible outcomes.

Assessing liquidity and reserves

72. The liquidity and reserves analysis measure is days' cash available to the utility as well as the available reserves. As noted above in Assessing Economic Fundamentals for the enterprise risk profile assessment, size is also a factor in the utility's financial risk profile. A utility may have available reserves, for example, that are equivalent to a high days' cash number, yet these reserves may be nominally very small. Both days' cash and available reserves are evaluated based on table 18. The resultant preliminary evaluations are applied to table 19 to produce the initial liquidity and reserves assessment.
73. For example, a utility with \$1.2 million of cash on hand, which for this example equated to 74 days of operating expenses, would receive a '3' for the days' cash ratio, and a '4' for the available reserve levels, based on table 18. When each preliminary evaluation is applied to the matrix in table 19, the initial liquidity and reserves assessment would be at the intersection of (3, 4), or an assessment result of '4.' Qualitative factors, if any, would then be applied to improve or weaken the '4' to arrive at the final liquidity and reserves assessment.
74. The liquidity and reserves assessment is intended to measure how the utility's internal sources, such as cash reserves and cash flow generation, and external sources--namely undrawn capacity under committed lines of credit--provide the working capital to fund immediate needs on an ongoing basis. The undrawn, available portion of committed bank lines maturing beyond the next 12 months is included in available reserves when applying tables 18 and 19; draws are included as a liability in both long-term debt and, if due within the next 12 months, debt service calculations.
75. The liquidity analysis looks not only to cash and equivalents that are unrestricted or unassigned (that is, unencumbered by legally enforceable agreements and not earmarked for specific purposes) and immediately available, but also gives credit to reserves that are designated, but ultimately available, for any lawful purpose. Examples include renewal and replacement funds, RSF, or other similar set-aside (but not truly restricted) cash. The criteria make no distinction between reserves that can only be appropriated by action of the highest decision-making body, or reserves that can be appropriated by simple administrative action, so long as the reserves are ultimately lawfully available for any purpose regardless of the reporting entity's label on it as determined by GAAP. Issuers that do not use a GAAP basis of presentation, or for which the financial statements do not provide a transparent and explicit breakdown of cash, must provide details of their cash position.
76. Cash that we deem to be restricted--for example, a debt service payment to be made, customer deposits, a fiduciary responsibility like a pension or decommissioning fund, and unspent bond proceeds, or that is related to a posting of collateral, among other restrictions--will generally not be included in the analysis of liquidity. Any debt service reserve fund (DSRF) will also be excluded.
77. Intragovernmental borrowing sometimes occurs between the utility and its associated general government, or sometimes even between one division of the utility and another. Cash in other funds in most cases would not be used to calculate the liquidity ratios, since those other funds likely have their own operating requirements. If a utility pools its cash with other major operating funds or governmental units, only cash that is truly the utility's will be counted in the calculation.

Table 18

Liquidity And Reserves Preliminary Evaluation

Preliminary assessment	Days' cash	Available reserves
1	Greater than 150	More than \$75 million
2	90-150	\$20 million-\$75 million

Table 18

Liquidity And Reserves Preliminary Evaluation (cont.)

Preliminary assessment	Days' cash	Available reserves
3	60-90	\$5 million-\$20 million
4	30-60	\$1 million-\$5 million
5	15-30	\$500,000-\$1 million
6	Less than 15	Less than \$500,000

Table 19

Liquidity And Reserves Assessment

Days' cash ratio, preliminary evaluation	Available reserves, preliminary evaluation					
	1	2	3	4	5	6
1	1	1	2	2	3	4
2	1	2	2	3	3	4
3	2	2	3	4	4	5
4	2	3	4	4	5	5
5	3	3	4	5	5	6
6	4	4	5	5	6	6

Examples of qualitative factors positively affecting the initial assessment include:

The utility is a distribution- and/or collection-only system with predictable wholesale costs, reducing the level of working capital the utility needs to maintain.

Examples of qualitative factors negatively affecting the initial assessment include:

Liquidity is skewed by seasonality or is otherwise not indicative of actual average daily working capital levels.

High refinancing risk over the next two-three years.

Exposure to contingent liabilities can cap this assessment at a '5' or a '6'.

For water, sewer, and drainage utilities, the lack of a "pass-through" component to the rate structure if the utility could face the potential of rapid volatility in operating costs, such as raw-water or commodity costs, implying the utility is using its own cash to subsidize changes in expenses.

For solid waste systems, those that contract out one or more operational responsibilities and we believe that the systems are at risk for increases in contracts costs.

For solid waste systems, underfunding of a post-closure care cost fund when, in our view, the cost creates a near-term financial pressure.

Each applicable qualitative factor changes the initial assessment by one point, but the net total of all adjustments would generally improve or worsen the initial assessment by no more than two points unless an assessment cap of '5' or '6' is applicable.

78. In cases where the utility is a distribution- and/or collection-only system and off-balance-sheet obligations are predictable, the utility's working capital requirements, and therefore liquidity levels, may not need to be as high. In those cases, the liquidity and reserves assessment may be improved by one point.

79. As described in "Contingent Liquidity Risks," published March 5, 2012, contingent liabilities

correspond to explicit or implicit obligations that a utility may incur under certain circumstances. These risks could affect the utility's financial position if they materialize and if not otherwise offset by factors such as available liquidity, undrawn capacity under committed lines of credit, or market access. Furthermore, contingent liabilities might arise from a series of smaller risks that, by themselves, may not otherwise appear material, but could cascade in magnitude as proximity to the trigger or timing becomes less remote. These criteria measure both contingent liabilities as a percentage of total long-term debt, as well as available reserves that generally are legally available to mitigate some or all of the potential claims on the utility's available reserves.

80. For utilities assessed as '5' in our contingent liabilities assessment (table 20), the liquidity and reserves assessment is the lower of a one-point worsening of the initial assessment or a cap of '5'. For utilities whose contingent liabilities initial assessment results in '6', the liquidity and reserves assessment is capped at '6'. Any other result is not impactful to the liquidity and reserves assessment.

Table 20

Contingent Liabilities Assessment

Available reserves/contingent liabilities (%)	Contingent liabilities/total long-term debt (%)					
	Less than 20	20-30	30-40	40-50	50-60	More than 60
Above 250	--	--	--	--	--	--
200-250	--	--	--	--	--	--
150-200	--	--	--	--	--	--
100-150	--	--	--	--	--	5
50-100	--	--	--	--	5	6
Below 50	--	--	--	5	6	6

Assessing debt and liabilities

81. For the debt and liabilities assessment, we use debt to capitalization. In cases where the obligor uses securitization debt that meets S&P Global Ratings' criteria for enterprise securitization, see Appendix III.
82. The debt and liabilities assessment is summarized in table 21.

Table 21

Assessment Of Debt And Liabilities

Initial assessment	Debt to capitalization
1	Up to 20%
2	20%-35%
3	35%-50%
4	50%-65%
5	65%-80%
6	Greater than 80%

Table 21

Assessment Of Debt And Liabilities (cont.)

Initial assessment	Debt to capitalization
Examples of qualitative factors positively affecting the initial assessment include:	
A relatively rapid roll-off of the long-term debt, with 65% or more coming due in 10 years or less, assuming there are no bullet maturities within that schedule that would realistically need to be refinanced. Total debt is not reduced by the presence of a DSRF.	
Examples of qualitative factors negatively affecting the initial assessment include:	
For solid waste systems, underfunding of a post-closure care cost fund when, in our view, the cost creates long-term financial pressure.	
An enterprise has large, unfunded defined-benefit pension plan and OPEB obligations. Our assessment includes a forward-looking view of the funding requirements and management’s plans to address such risks. We may make an adjustment if we consider these obligations sizable relative to the overall balance sheet and income statement. We believe a low pension funding ratio could signal elevated risks after incorporating the appropriateness of actuarial assumptions. Similarly, a negative adjustment is more likely to occur when pension contributions are not actuarially determined, based on weak actuarial methods, or when required contributions are not regularly funded. If the enterprise’s pension and OPEB are reported as part of a larger general government, we generally assume the enterprise’s funded ratio is the same, unless more specific information is available for the enterprise (that is, we may use the city’s pension funded ratio when assessing a city-owned and operated system if there is not specific information available).	
Each applicable qualitative factor changes the initial assessment by one point, but the net total of all adjustments would generally improve or worsen the initial assessment by no more than two points.	

Assessing financial risk management

- 83. S&P Global Ratings evaluates established and ongoing management practices and policies in the seven areas under control of management that are most likely to affect credit quality. The FMA, like the OMA, ranges from (1) strong; (2) good; (3) standard; or (4) vulnerable. These areas and their weights are:
 - Revenue and expense assumptions (10% of total FMA),
 - Budget monitoring and interim reporting (10%),
 - Long-term financial planning (15%),
 - Long-term capital planning and asset management (20%),
 - Investment and liquidity policies (20%),
 - Debt management policies (10%),
 - Transparency and accountability (15%).
- 84. To convert the FMA to a '1' to '6' scale, see table 22.

Table 22

Financial Management Assessment (FMA) Conversion To Six-Pont Scale

Observed evaluation	FMA	Characterization
1.0-1.2	1	Strong
1.2-1.8	2	Good

Table 22

Financial Management Assessment (FMA) Conversion To Six-Pont Scale (cont.)

Observed evaluation	FMA	Characterization
1.8-2.5	3	Good
2.5-3.1	4	Standard
3.1-3.6	5	Standard
3.6-4.0	6	Vulnerable

Examples of qualitative factors negatively affecting the initial assessment include:

Weak legal provisions when assigning issue credit ratings.

- 85. The ability of a utility's management team to implement measures on a timely basis that will, in our opinion, proactively shape the utility's financial and operating condition can be crucial to maintaining creditworthiness. The assessment looks at the environment in which financial decisions affecting the utility occur. For example, we would view favorably a utility that exhibits strong risk management aspects including asset management and prioritizing operational needs that are aligned with requisite financial resources and the support of the governing body.
- 86. This assessment is based on a preponderance of evidence. A utility receives a neutral assessment of standard for any subfactors for which there is insufficient evidence to assign either a positive or negative assessment. However, some subfactors may receive a negative assessment if a utility has a record of failing to disclose key relevant information.
- 87. By focusing on a utility's policies and practices, the FMA is not an evaluation of the competency or aptitude of individual finance professionals; nor is it an evaluation of management's ability to handle unique challenges. Moreover, the nature of the utility's governing body, the effectiveness of its governance practices, and issues of public policy involved in utility-related decisions are beyond the scope of this analysis. The FMA analyzes the environment in which financial decisions are made, including how both the ordinary and extraordinary are identified and addressed as relevant to the utility's ability to fund them and to what degree those risks are transparently reviewed and reported to ensure ongoing continuity. Financial results are assumed to manifest themselves in other visible ways and are addressed elsewhere in these criteria. The purpose of the focus on policies and practices is to evaluate the potential for credit quality to move away from what the results currently indicate.
- 88. Transparency and accountability in reporting, regardless of governance structure, is important in order to ascertain key quantitative data. States that require annual audited financial statements increase the likelihood that financial information will be available, and late audits will be noted. The use of GAAP usually enhances reporting detail and consistency across the sector, making it easier to have a sufficiently uniform method of interpretation. States that allow cash accounting tolerate a lower degree of completeness and consistency, and transparency suffers. We believe the review of alternative financings and exposure to contingencies is a key component in understanding the entirety of all the risks and revenue requirements to which the utility is exposed.
- 89. We believe that creditor security can be weakened without a minimum set of covenants that constrains the utility's behavior. If we view the utility's legal provisions as sufficiently weak, the initial FMA would generally be weakened by one point. We believe that in the municipal utility sector those minimums generally include the following covenants:
 - A rate covenant to maintain an annual DSCR of at least 1.0x or higher from recurring or ongoing

revenues. However, where indentures permit the utility to use cash balances to achieve rate covenants, whether the cash is in the form of a rate stabilization account or other available funds, we factor the use of such funds into the rating evaluation as specified above in Assessing All-In Coverage;

- An additional bonds test that places some limits on the amount of increased leverage that will otherwise impair the credit quality of the entity; and
- Provisions establishing remedies for when a rate covenant is violated, such as a review of the current rates.

90. In addition, when the liquidity and reserves assessment for existing rated utilities is '4' or weaker, we generally weaken the FMA by one point if there is no DSRF in an amount equivalent to at least half of the average annual debt service requirements. A DSRF typically provides immediately available supplemental liquidity in the event of pledged revenue insufficiency for the payment on the obligations then due.

- We generally would not recognize the utility as having a DSRF at all if it is only conditionally funded, such as a so-called "springing" DSRF. In such cases, this is, in our view, associated with conditions likely to occur at a time when the utility is least able to afford additional demands on its cash flow.
- A DSRF may be satisfied with an unconditional surety policy or similar arrangement with another financial counterparty. If we believe that the counterparty would be unable to provide funding for the DSRF in a stress scenario, and the counterparty could not be easily replaced on a timely basis, we typically would not recognize the utility as having a DSRF.

91. The following tables detail each of the seven financial practice areas examined by the FMA.

92. The revenue and expense assumptions assessment evaluates if the organization's financial assumptions that support the annual budget and any financial forecast are realistic and well grounded from both long-term and recent trend perspectives.

Table 23

Revenue And Expense Assumptions Assessment

Strong	Weather-normalized, formal historical trend analysis is performed and updated annually for both revenue and expenses; regular effort is made to determine whether one or more factors will cause revenues or expenses to deviate from their long-term trends over the next few years.
Good	Assumptions for most key line items in pro forma reports are analyzed and updated regularly, while others may assume simplistic changes over time such as linear or inflationary growth or flat from year to year.
Standard	Optimistic assumptions exist that, while supportable, add risk; assumptions are based on recent performance, but little evidence of questioning or validating assumptions exists.
Vulnerable	Assumptions neglect likely shortfalls, expense pressures, or other pending issues; assumptions lack prudent validation.

93. The evaluation of budget monitoring and interim reporting examines how, if at all, management reconciles year-to-date progress versus the budget adopted at the beginning of the fiscal year. This component evaluates if there are procedures for reviewing the budget based on updated information and actual-to-date performance to ensure fiscal targets and revenue requirements are met, and to what degree the interim reporting is disclosed.

Table 24

Budget Monitoring And Interim Reporting Assessment

Strong	At least quarterly budget surveillance is maintained to identify problem areas, which are publicly report to the system's governing body.
Good	Semiannual budget reviews exist; management identifies causes for variances between budget and actual performance and reports them to the system's governing body.
Standard	A deviation from the budget is only reported because it has occurred; material variances between budget and actual performance are identified after they have occurred but not captured in projections for the remainder of the fiscal period.
Vulnerable	No formal process exists for regular review and timely updating of budget during the year.

94. The long-term financial planning assessment focuses on whether or not a financial forecast exists, the length of the planning horizon, and if it includes a comprehensive identification of all reasonably likely upcoming revenue requirements to determine how the utility will meet them, such as adjusting rates or implementing cost-containment measures.

Table 25

Long-Term Financial Planning Assessment

Strong	A regularly updated pro forma financial projection exists with a planning horizon of at least three years beyond the current budget year. The forecast includes future impacts onto operating and maintenance (O&M) expenses and total financing obligations--both existing and probable--are identified. Impacts to rates or the ability to generate appropriate levels of pledged revenues through cost containment measures, for example, are clear. Planned use of designated cash reserves may occur infrequently, but structural balance is a clear goal.
Good	Pro forma projections exist and are comprehensive as described for a strong assessment, but are typically over a planning horizon of no more than the upcoming budget year plus one-two years into the future.
Standard	Multiyear projections are done but not updated until the last year of the current forecast. Multiyear projections are done, but with focus only on existing revenue requirements and exclude debt financing that is likely to be issued within the planning horizon, or ignore looming infrastructure investment needs such as growth or regulatory mandates.
Vulnerable	No long-term financial planning exists; O&M planning is done on a year-to-year (or budget-to-budget) basis. Near-term challenges are met with short-term fixes.

95. The asset management and long-term capital planning subfactor assesses if a CIP exists, the length of the planning horizon, how and why projects make the list, and a summary of the most likely funding sources for the identified projects.

Table 26

Asset Management And Long-Term Planning Assessment

Strong	Strategic and comprehensive planning focusing on the utility's infrastructure requirements, physical and other assets, and ability to continue to meet service levels is combined with likely sources of funding for identified projects; the plan and its priorities are regularly updated and transparently communicated. A characterization of strong will include planning not only the current budget year but also for at least five years beyond that.
Good	A comprehensive multiyear capital improvement program exists as described for a strong assessment but the planning horizon is less than five years.
Standard	The current-year capital expenditures are identified in the budget, but any future projects are currently nothing more than a wish list; a multiyear capital plan exists but funding sources are unclear or absent.

Table 26

Asset Management And Long-Term Planning Assessment (cont.)

Vulnerable	Capital planning is done as needs arise, but no more frequently than on a year-to-year (or budget-to-budget) basis.
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96. Seasonal cash flow needs, capital requirements, unbudgeted or unanticipated items, and contingency hedges all suggest at least some level of working capital cushion to be maintained. The investments and liquidity policies assessment evaluates if management has identified preferred cash reserves by way of an adopted policy or even a target. Liquidity policies and targets must be grounded in reality; these criteria would not give credit for a liquidity policy if it is set at a level so far above current or recent financial performance that we would not view it as attainable. Furthermore, this subfactor identifies if there are locally adopted permitted investment guidelines, and if management reconciles and reports on cash and investments with any regularity.

Table 27

Investment And Liquidity Policies Assessment

Strong	The utility has embedded policies on the maintenance of minimum reserves, regardless of whether such reserves are deemed by management to be unrestricted or designated yet available for any lawful purpose; the policies are reflective of realistically attainable and sustainable levels. Permitted investments guidelines or policies exist, even if the utility's policies reflect or even mimic the state's policies. Reports on the utility's investment portfolio are prepared and reported to the utility's governing body at least quarterly.
Good	Targets for reserve levels exist by practice, are tied to meaningful levels, and are generally met or exceeded. While the utility's de facto cash management guidelines may defer to the state's permitted investment statutes, no local policy exists. The utility's management reports on its investments at least semiannually to its governing body.
Standard	Management has a target for a preferred level of cash reserves but it seems to be unrealistic given financial performance, or is so newly defined that it may be many years before such reserves are accumulated. Informal or nonpublished investment policies exist, are tracked by administrative staff but only irregularly or at the end of the fiscal year.
Vulnerable	Absence of informal reserve policies; even if they exist, they have been suspended or ignored. Weakness in cash flow adequacy has resulted in a greater appetite for risk in its investments. Investments are monitored irregularly and an external auditor deems there to be weakness or risk in cash handling and monitoring duties.

97. The debt management assessment evaluates if the utility has in place robust guidelines on the use of debt, excluding any covenant already established in its legal provisions. Examples include minimum savings thresholds for refunding bonds; stated preferences regarding final maturity, structure, and overall tenor of its debt, and the use of variable-rate debt, derivative products, floating-rate notes, or direct placement arrangements. If the debt instrument requires a financial institution counterpart, this assessment looks to any policies the utility may have regarding counterparty risk.

Table 28

Debt Management Policies Assessment

Strong	Debt policies exist and are thorough and well-defined, even if they reflect or mimic state statutes. These policies are widely communicated and followed. While management has a general tendency toward risk-aversion, robust policies and sophistication among key finance officials make it likely that debt instruments that may require heightened levels of monitoring will make surprises a remote occurrence.
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Table 28

Debt Management Policies Assessment (cont.)

Good	Policies exist but may not address some key areas. In the absence of policies, management defers to state statutes that themselves are strong; some of the utility’s financing obligations may be of the type that require a heightened level of monitoring, and management has some reliance on external consultants to help ensure remoteness of risks associated with those particular debt instruments.
Standard	Legal provisions and state laws are the sole guiding influences on management’s use of and attitudes toward debt, or any internal guidelines are not meaningful beyond very basic or minimum debt management or are identified as unwritten goals.
Vulnerable	Absence of basic policies or clear evidence that basic policies are not being followed. Nontraditional financing options are utilized but there is no internalized knowledge, or utility management relies very heavily on consultants to monitor or manage the risk.

- 98. The transparency and accountability subfactor assesses whether or not management has established the independent review of important financial and operational data as well as the quality, regularity, and timeliness of its continuing disclosure practices, even for things that the utility may not be legally required to disclose. Even with annual audited financial statements produced according to GAAP, nonpublic disclosure of an alternative financing such as a direct-placement arrangement would result in an assessment of vulnerable for this subfactor.

Table 29

Transparency And Accountability Assessment

Strong	Management produces annual independently audited financial statements that comply with GAAP. Alternative financings and exposure to contingent risks are voluntarily disclosed as they are entered into, and overall continuing disclosure is deemed as robust and timely.
Good	Management produces annual independently audited financial statements that comply with GAAP. Alternative financings, exposure to contingent risks, and overall continuing disclosure are done, but generally only on an annual basis.
Standard	Management produces independently audited annual financial statements, but on a cash or other non-GAAP basis of presentation. Audits typically are released more than 180 days after fiscal year-end. The disclosure of alternative financings and contingent risk is not always timely but generally updated on an annual basis
Vulnerable	Management produces independently audited financial statements, but cash or other non-GAAP basis of presentation is permitted. Audits typically are late or not produced each year. Regardless of frequency and quality of the audited financial statements, alternative financings and contingent risk are not voluntarily disclosed or overall continuing disclosure is poor and not timely.

Adjusting the initial financial risk profile assessment

- 99. Table 30 outlines examples of situations where we would generally adjust the initial financial risk profile assessment. On an exceptional basis, there may be situations that haven't yet been observed that could result in an adjustment to the initial financial risk profile assessment.

Table 30

Examples Of Adjustments To The Initial Financial Risk Profile Assessment

If	Then
Total indebtedness is likely to increase substantially, but magnitude, scope, and timing are not fully defined.	Final financial risk profile assessment generally will be weakened by one point.

RATING MODIFIERS AND CAPS

^{100.} In certain conditions, the SACP may move a specified number of notches above or below the anchor. Other conditions place a specific cap on the SACP. Examples of these are outlined in table 31 and table 32. In cases when multiple modifiers and caps exist, we would generally adjust the anchor by the net effect of those conditions. In those cases, we typically consider entity-level modifiers and caps before we consider related government modifiers and caps. However, rating caps are absolute, meaning that positive relative adjustments, other than any holistic adjustment, do not allow ratings to exceed the cap. Depending on the severity of the condition, we could assign a rating below the cap. On an exceptional basis, there may be additional situations we have not yet observed that could also result in rating modifiers or caps.

Table 31

Examples Of Modifiers That Generally Cap The SACP

Modifier/cap* that would generally:	Additional comments
Cap the SACP in the 'a' category	
Either the Operational or the Financial Management Assessment is vulnerable.	
Cap the SACP in the 'bbb' category	
Both the Operational and the Financial Management Assessments are vulnerable.	
There is a going concern opinion.	
Negative extraordinary intervention	SACP is generally capped at the lower of the 'bbb' category and the GO rating of the related government.
Cap the SACP in the 'bb' category	
Utility or its related government is recovering from a financial crisis, emerging out of a recent bankruptcy or receivership, or has significant consultant oversight following an event of default.	
Both the all-in coverage and liquidity and reserve assessments result in a '5' or weaker.	SACP is generally capped in the 'bb' category although if we view liquidity as especially vulnerable, the final rating would generally be capped in the 'b' category.
Either the Operational or the Financial Management Assessment is vulnerable and the liquidity and reserve assessment is a '5' or weaker.	
Cap the SACP in the 'b' category	
Both the Operational and Financial Management Assessment are vulnerable and the liquidity and reserve assessment is a '5' or weaker.	
Management demonstrates a lack of willingness to support financial obligations, or we believe the utility may be considering bankruptcy or receivership filing.	SACP on any rated debt not in default generally is capped at 'b' category.

*Depending on the severity of the condition, we could assign a rating below the cap.

EXAMPLES OF MODIFIERS THAT GENERALLY CAP THE SACP

Weak management

101. The decentralized and autonomous nature of U.S. LRGs creates a stronger link between management and credit quality. In cases where either the operational management assessment (OMA) or the financial management assessment (FMA) is characterized as vulnerable, the SACP will generally be no higher than the 'a' category. In cases where both the OMA and FMA are characterized as vulnerable or if an auditor has delivered a going-concern opinion with the most recent review of the utility's or related government's financial position, the SACP will generally be no higher than the 'bbb' category.

Emergence from bankruptcy or receivership

102. A water/sewer utility that has just emerged from bankruptcy or receivership or a period of consultant or governmental oversight, by definition, has just been in a period where the financial risk profile--and possibly the enterprise risk profile as well--is extremely weak. Although an issuer may emerge with an improved financial risk profile after debt forgiveness or other negotiated settlements or restructuring, or under a new management team, the SACP will generally be limited to the 'bb' category until the utility has re-established a two- or three-year record of audited financial performance, at which time we would re-evaluate it using that new financial history as part of the analysis.

Negative extraordinary intervention

103. The line between what may be termed extraordinary and ongoing negative intervention is not always clear. However, examples of negative extraordinary intervention typically occur when the related government exhibits signs of financial weakness or uses various measures to divert resources from the utility. These measures affect the utility's ability to operate as a stand-alone system and may include cash stripping, increased transfers, withholding or delaying payments or appropriations, or adversely changing funding formulas, as a related government's needs rise. In such cases, the utility's SACP will generally be capped at the lower of the 'bbb' category and the GO debt rating of a related government.

Weak total liquidity combined with weak all-in coverage

104. If the utility's all-in coverage as well as liquidity and reserves assessments are both '5' or worse, we will cap the SACP in the 'bb' category, although if we view liquidity as a weakness that cannot be rectified by other available resources, the rating would generally be no higher than the 'b' category. In our view, poor assessments on both these factors imply that the utility has no margin for error in any of its operating, debt service, or capital funds in the event of an unfavorable or unplanned variance to its annual budget.

Weak management of liquidity and reserves

105. Strong management alone can lend itself to operational and fiscal continuity and can serve as a credit stabilizer. In addition, liquidity and reserves provide working capital, funding for unexpected

operational problems, and general budgetary flexibility. In contrast, as when the OMA or FMA is characterized as vulnerable and the liquidity and reserves assessment is '5' or higher, the SACP is generally capped in the 'bb' category. If both management assessments are characterized as vulnerable and the liquidity and reserves assessment is '5' or higher, the indicative and final ratings are generally capped at no higher than the 'b' category.

Weak willingness or capacity to support financial obligations

106. If the utility's or sponsoring governmental entities' representatives take actions that indicate active consideration of bankruptcy in the near term, or if there is a perceived change in the willingness or lack of capacity to honor all long-term, legally binding financial obligations in full and on a timely basis, the indicative and final ratings will generally be capped in the 'b' category. If applicable, we would apply "Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings," published Oct. 1, 2012. Such a condition might be evidenced by way of conversations with management or governance, verifiable reports in the media, public disclosure, or other informational sources we judge to be relevant. The utility's issuer ratings would be 'D' or 'SD' following a default on an actual financial obligation, or in a distressed exchange.

MODIFIERS THAT GENERALLY NOTCH FROM THE ANCHOR

Table 32

Examples Of Modifiers

Modifier/cap* that would generally:	Additional comments
Notch the anchor up	
Median household effective buying income is among the top quintile of the U.S.	SACP generally will be one notch above that suggested by table 1.
Median household effective buying income is among the top 10% of the U.S.	SACP generally will be two notches above that suggested by table 1.
Utility benefits from tax levies.	SACP may be up to four notches higher than that suggested by table 1.
All-in coverage is at or above 3x or days' cash on hand is equivalent to at least 24 months of operating expenses.	SACP generally will be one notch above that suggested by table 1.
Notch the anchor down	
Median household effective buying income is among the lowest quintile of the U.S.	SACP generally will be one notch below that suggested by table 1.
Exceptional operational risk	SACP generally will be one or more notches below that suggested by table 1.
Cap the enterprise risk profile or financial risk profile	
U.S. country risk assessment of '4', '5', or '6'	Final enterprise risk profile assessment is generally capped at '4', '5', or '6'
Total indebtedness is likely to increase substantially, but magnitude, scope, and timing are not fully defined.	Final financial risk profile assessment generally will be weakened by one point.

*Depending on the severity of the condition, we could assign a rating below the cap.

Exceptionally strong or weak income indicators

107. Extremely favorable or unfavorable demographics--measured as well above or below the strongest or weakest initial assessments, respectively--could imply extraordinary flexibility or limitation in a utility's ability to enhance its operating revenues on an ongoing basis. MHHEBI at or above the highest quintile of distribution according to the U.S. Census Bureau's and Bureau of Labor Statistics' joint "Current Population Survey" would generally result in a one-notch rating uplift from the anchor. MHHEBI at or above the top 10% of all households would receive a two-notch rating uplift. MHHEBI in the lowest quintile in the U.S. would generally lower the SACP by one notch.

Benefit from tax levies

108. The number of notches is generally determined by a combination of size and wealth of the district population to the extent that it differs from the economic fundamentals assessment, diversity of the tax base, growth rate of assessment base, significance of tax revenues to total revenues, capacity for increased tax levies (both legally and politically), and durability of the taxing authority. In general, higher notching benefits are applied to those utilities with a strong and growing tax base and where there is a willingness and ability to increase tax levies for operations.

Exceptionally strong financial risk profile

109. We use the term exceptionally strong as defined specifically to mean: all-in coverage at or above 3x or days' cash on hand is equivalent to at least 24 months of operating expenses (without giving favor to an already-existing DSRF, and calculated consistent with our definition of days' cash). In such cases, the SACP will generally be one notch higher.

Exceptional operational risk

110. Generally, the risk associated with value-added processes is captured in our analysis. Should there be, in our view, the presence of exceptional risk associated with the system's activities that is not captured fully in our credit analysis, we generally would lower the indicative rating. The amount of any downward notching would depend upon our assessment of the severity of the operational risk, but would typically be one notch, although in extraordinary cases it could be more.

APPENDIX I: GLOSSARY OF KEY TERMS

111. In our criteria, "utility" refers to a municipally owned utility or other legally authorized political subdivision that provides raw and/or potable water, sanitary sewer, solid waste systems, and/or drainage services at the retail level, or with wholesale (sales for resale) service representing not more than 49% of total operating revenues. The utility is most often, but not always, an enterprise within a larger general government, or an independent utility with its own governing board.
112. "Sewer", "sanitary sewer", and "wastewater" are used as interchangeable terms. "Drainage", "stormwater", and "storm sewer" are used as interchangeable terms.
113. The following terms are based on the definitions provided in "Methodology: Definitions And Related Analytic Practices For Covenant And Payment Provisions In U.S. Public Finance Revenue

Obligations," published on Nov. 29, 2011:

114. **Actual average monthly residential bill.** The total annual residential operating revenues plus any related fees, surcharges and taxes divided by the number of active residential metered accounts. The result is divided by 12 to arrive at the monthly bill.
115. **All-in coverage.** $[(\text{revenues} - \text{expenses} - \text{total net transfers out}) + \text{fixed costs}] / (\text{all revenue bond debt service} + \text{fixed costs} + \text{self-supporting debt service})$. Total net transfers from the utility fund minus transfers into the utility fund, include among other things:
- Transfers that are viewed as general fund resources, such as a payment in lieu of taxes, indirect cost reimbursements, and open-ended transfers;
 - Transfers that reimburse the general fund for pension and OPEB payments the general fund made on behalf of utility employees and retirees;
 - Transfers that fund pay-as-you-go capital expenditures in another governmental fund; and
 - Transfers to support any other governmental operations regardless of the destination fund.
116. **Available reserves.** Unrestricted cash and equivalents plus any working capital that resides on the utility's balance sheet and is lawfully available for any purpose plus any undrawn capacity under committed lines of credit. Examples include emergency and contingency funds, rate stabilization reserves, and other cash that may be designated in purpose but not restricted for debt service, fiduciary purposes, or asset retirement obligations.
117. **Contingent liabilities.** Variable-rate demand bonds, commercial paper, bullet payments due within five years, bonds with mandatory tender dates in five years or less, direct bank debt with acceleration clauses, the potential for a wholesale provider to reallocate its costs to the utility in an unbudgeted or otherwise unpredictable manner or the obligation is not based on an availability payment structure, swap or related termination payments if the current rating is two notches or less from the termination trigger, and other identifiable contingencies.
118. **Days' cash.** A measure of cash, investments, and equivalents, calculated as follows:
- Numerator: Available reserves.
 - Denominator: 1/365th of income statement operating expenses. For operating expenses, depreciation, amortization, and other noncash items, such as those that update a fair value on a derivative or pension obligation, are excluded. Transfers are included in operating expenses.
119. **Debt to capitalization.** A measure of the relative leverage of the utility, as follows:
- Numerator: The sum total of all short- and long-term debt both on the utility's balance sheet and that is allocable to the utility, including draws on credit lines, commercial paper notes and other loans, debt or material obligations, even if not rated by S&P Global Ratings.
 - Denominator: The total debt as calculated in the numerator plus the utility's net position, which we view as public sector accounting's closest approximation of equity.
120. **Dependent population.** The total population of the service area that is younger than 15 years old plus the total population of the same area older than 65 years old.

121. **GAAP.** Generally accepted accounting principles are the common set of accounting principles, standards, and procedures that most governments and utilities in the U.S. follow.
122. **Nonrevenue water.** The sum total of leaks, water that is incorrectly billed (whether because of an inaccurate meter or human error), theft, unbilled, and unmetered water such as that which is used for fire protection or line flushing, and unbilled-but-metered water such as water provided to schools or churches that because of local policy is provided free of charge.
123. **Off-balance sheet.** An obligation for which the utility is legally responsible, but which may appear only in the rated utility's financial statement notes, or another entity's balance sheet, but not within the long-term debt of the rated utility itself.
124. **Other postemployment benefits.** Health care, along with dental, vision, disability, long-term care, and life insurance benefits offered to qualified retirees of the utility.
125. **Self-supporting debt.** Debt is considered self-supported if the debt issued by the related unit of government on behalf of the utility--such as a city issuing GO or priority-lien debt to fund projects for the betterment of its water system--is fully paid by practice from the utility's surplus net revenues. Full self-support means surplus net revenues must be at least as large as the principal and interest payments then-due on that tax-secured debt.
126. **Solid waste systems.** Municipal enterprises that include, generally, one or more of the following characteristics:
- Collection and transport of solid waste;
 - Intermediate handling of solid waste (transfer stations, waste-to-energy systems, material recovery facilities); and
 - Providing final disposal of solid waste (landfill services).

APPENDIX II: AN OVERVIEW OF IRRIGATION DISTRICTS

127. Irrigation districts are special districts that share a broad range of common features with other water districts that we rate; however, certain credit characteristics are materially different and therefore affect our evaluation of credit quality. In contrast to water utilities that primarily provide water for municipal and industrial uses, irrigation districts often have operations that are limited to the production and distribution of water supply for agricultural purposes. Customers of these districts are predominantly farms of varying size for which the cost of water supply is one input into the production of agricultural goods ranging from cotton to almonds. In this context, the service area's income levels and unemployment rates are less meaningful, and we focus more broadly on the fact that the customer base is concentrated in a single industry--agriculture--that can be susceptible to unique risks from poor weather conditions such as drought and frost, or pests, which may materially affect the ability of customers to pay their bills on time and in full.
128. Operationally, irrigation districts often provide a supplemental source of supply rather than a primary source of supply for customers. District activity typically focuses on the distribution of raw water with no treatment required because customers use the water for agricultural production rather than potable consumption. Many, although not all, farms have private groundwater wells that serve as a source of supply, and the cost of water from this source is typically calculated based on the depth to groundwater in the aquifer, the electricity cost to operate pumps to extract groundwater, and a nominal allocation of maintenance expense for the pumps. We believe that the availability of an inexpensive alternative water supply materially constrains an irrigation district's

revenue-raising flexibility, since in the short term we expect that businesses will select the lowest cost of supply, all else being equal. Also, while irrigation districts often have some of the oldest established water rights to a given surface water source, others depend on contractual rights or permanent water rights to supply from large-scale water projects--such as the U.S. Bureau of Reclamation's Central Valley Project or the California State Water Project--that may be subject to allocation methodologies that prioritize supply for municipal uses over agricultural uses due to public health concerns.

129. We have observed that limitations on sources of supply during drought periods may result in volatile DSC patterns, including periods of insufficiency, that are generally inconsistent with the vast majority of rated water utilities and we view as a material credit weakness for this portion of the sector. Furthermore, while capital needs for irrigation districts are often limited to renewal and replacement of existing infrastructure, we have observed that irrigation districts may have unexpected and sizable capital needs for the acquisition of additional water rights or development of water banking capabilities--either internal capability development or participation in an external water bank--that make it very difficult to predict future capital spending patterns.

APPENDIX III: METHODOLOGY FOR ASSESSING THE IMPACT OF SECURITIZED DEBT

130. This appendix addresses the financial adjustments we may make when the issuer's debt portfolios include securitization debt. When the securitization financing meets the elements of our securitization criteria, and there is statutory provision for a mandated recovery of the securitization costs, the securitization effectively makes all consumers responsible for principal and interest payments, and the utility is simply a pass-through entity for servicing the debt. As such, we deconsolidate securitization debt. The rating evaluation of the securitization debt is distinct from these criteria, and is addressed exclusively by our securitization criteria, "Global Methodology And Assumptions For Nonfinancial Future Flow Transactions," published Jan. 16, 2020.
131. Segregated securitized debt that securitizes a portion of an enterprise's revenue debt reduces an issuer's exposure to direct debt obligations because securitization financings create a revenue pledge that is legally separate from the revenues that fund utility operations and debt service because of a statutory authorization that mandates recovery, even when securitization and nonsecuritization charges are billed together on customers' billing statements. At the same time, even where utility financial statements consolidate securitization debt, a securitization financing does not have a claim on utility revenues that fund utility operations and unsecuritized debt service.
132. When securitization financings contain the structural features described in this paragraph, we deconsolidate segregated securitized debt from the utility's financial statements, meaning we remove securitization debt, revenues, and expenses from the utility's financial statements, and we remove the securitization-related debt service from our debt service calculations. The securitization financing must be pursuant to statutes enacted by a government entity constitutionally authorized to mandate recovery of securitization financing costs that are segregated for specialized recovery. Also, the securitization financing structure needs to exhibit protective features, including: an irrevocable, non-bypassable charge and an absolute transfer and first-priority security interest in transition property; periodic adjustments ("true-up") of the charge to remediate over- or under-collections compared with the debt service obligation to ensure collections match debt service over time and do not diverge significantly in the short run; and reserve accounts to cover any temporary shortfall in collections.

133. Specifically, S&P Global Ratings makes the following financial adjustments for segregated securitized debt:
- Adjustment to debt: We subtract the securitized debt from total debt.
 - Adjustment to revenues: We reduce revenue allocated to securitized debt principal and interest. The adjustment is the sum of securitization interest and principal payments made during the year.
 - Adjustment to interest expense: We remove the interest expense of the securitized debt from total interest expense.
 - Adjustment to debt service: We reduce debt service by netting out the securitization debt's principal and interest payments.
134. After deconsolidating segregated securitized debt, we assign our ratings to the utility's unsecuritized debt in accordance with these criteria.
135. Utilities generally act as the servicers for segregated securitized debt and collect securitization debt service requirements for the benefit of securitization debt bondholders. Utilities aggregate these charges on customer bills together with ordinary charges covering operating expenses and unsecuritized debt service. It is our view that customers focus on the total amount of a utility bill, rather than its component parts. We believe that customers do not disaggregate securitization charges from traditional utility charges in assessing whether the utility's traditional charges are favorable or onerous following a securitization. Consequently, while we exclude securitization-related revenue collections, debt, and debt service from the analysis of a utility's financial metrics, we do not make any adjustment for securitization in our qualitative assessments of financial and rate-making flexibility. Therefore, the analysis of a utility's capacity to adjust rates, a fundamental element of the qualitative analysis of utility credit quality, takes into consideration the entire amount of the customer bill, including securitization-related charges.

CHANGES FROM PREVIOUS CRITERIA

136. The criteria fully supersede our previous criteria article, "ARCHIVE: U.S. Public Finance Waterworks, Sanitary Sewer, And Drainage Utility Systems: Rating Methodology And Assumptions," Jan. 19, 2016, by restating that criteria in full and incorporating the targeted changes described in "Request for Comment: U.S. Municipal Water and Sewer Utilities: Methodologies and Assumptions," published Dec. 14, 2021.
137. Specifically, we expanded the scope to include all entities with water and sewer operations, including tax-secured debt issuances that were previously rated under "GO Debt," Oct. 12, 2006. We also consolidated solid waste systems previously rated under "ARCHIVE: Solid Waste System Financings," Jan. 29, 2018 (now fully superseded) into the scope of the criteria by incorporating their sector-specific considerations herein. In addition to several editorial changes to aid readability, we increased clarity around the framework used to drive the SACP and ICR and applied a flexible approach to the caps and notching assessments, which better captures the relevant credit factors associated with the sector.

IMPACT ON OUTSTANDING RATINGS

138. S&P Global Ratings maintains approximately 2,100 ratings on water and sewer utilities. This includes approximately 70 water and sewer utilities previously rated under "GO Debt," Oct. 12,

2006, and approximately 50 solid waste systems previously rated under "Solid Waste System Financings," Jan. 29, 2018. Assuming that the providers maintain their current credit characteristics, testing indicates that approximately 98% of the ratings will remain unchanged; approximately 1% will be raised, generally by no more than two notches; and approximately 1% will be lowered, generally by no more than two notches.

Related Publications

Fully superseded criteria

- Solid Waste System Financings, Jan. 29, 2018
- U.S. Public Finance Waterworks, Sanitary Sewer, And Drainage Utility Systems: Rating Methodology And Assumptions, Jan. 19, 2016

Related Criteria

- Environmental, Social, And Governance Principles In Credit Ratings, Oct. 10, 2021
- Global Methodology And Assumptions For Nonfinancial Future Flow Transactions, Jan. 16, 2020
- Issue Credit Ratings Linked To U.S. Public Finance Obligors' Creditworthiness, Nov. 20, 2019
- USPF Criteria: Assigning Issue Credit Ratings Of Operating Entities, May 20, 2015
- General Criteria: Rating Government-Related Entities: Methodology And Assumptions, March 25, 2015
- Methodology: Master Limited Partnerships And General Partnerships, Sept. 22, 2014
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- Corporate Methodology, Nov. 19, 2013
- Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- Ratings Above The Sovereign: Corporate And Government Ratings—Methodology And Assumptions, Nov. 19, 2013
- Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings, Oct. 1, 2012
- Contingent Liquidity Risks In U.S. Public Finance Instruments: Methodology And Assumptions, March 5, 2012
- Methodology: Definitions And Related Analytic Practices For Covenant And Payment Provisions In U.S. Public Finance Revenue Obligations, Nov. 29, 2011
- Methodology: Rating Approach To Obligations With Multiple Revenue Streams, Nov. 29, 2011
- Principles Of Credit Ratings, Feb. 16, 2011
- Stand-Alone Credit Profiles: One Component Of A Rating, Oct. 1, 2010
- Wholesale Utilities, May 24, 2005

Related Research

- Credit FAQ: All-In Coverage, Transfer Payments, And Credit Quality, Jan. 19, 2016
- Credit FAQ: An Overview Of Standard & Poor's Updated Methodology For Rating U.S. Public Finance Waterworks, Sanitary Sewer, And Drainage Utility Systems, Jan. 19, 2016
- Management Is Key For U.S. Water Utilities To Align Operations And Finances, Jan. 19, 2016
- The Broad And Diverse Economy Adjustment: 2015 Updated Scores For U.S. Metropolitan Statistical Areas Based On Local Government GO Criteria, Dec. 15, 2015
- Alternative Financing: Disclosure Is Critical To Credit Analysis In Public Finance, Feb. 18, 2014
- Credit FAQ: U.S. Public Finance Ratings And Criteria For Ratings Above The Sovereign, Dec. 19, 2013

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Exhibit CF-8

CREDIT OPINION

20 October 2022



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Pittsburgh Water & Sewer Authority, PA

Update to credit opinion

Summary

[The Pittsburgh Water and Sewer Authority](#) (“PWSA” or “the Authority”) (A3 stable) benefits from a large and diverse service area, primarily serving the city of [Pittsburgh](#) (A1 stable), which, favorably, provided relatively stable customer revenues through the pandemic, a credit strength compared to regional peers. The Authority has also benefitted from proactive steps to strengthen two key credit areas - its management and governance, and its financial position. PWSA's governance structure has been materially improved by oversight from the Pennsylvania Public Utility Commission (PUC), initiated in 2018. Though the PUC's rate approval process is a lengthy 270 days, the commission has committed to allowing for rate increases that will both satisfy bond covenants and allow for needed capital improvements. Further, the PUC has helped to ensure timely system maintenance and routine capital investment, in line with broad industry standards. At the same time, PWSA has taken steps to strengthen its internal management structure and build its workforce; also a credit positive.

The Authority's financial position has also improved considerably over the past several years, with liquidity reaching a satisfactory 137 days cash on hand as of fiscal 2021 year end, up from just 23 days cash in 2017. Debt service coverage has likewise strengthened, to 1.44 times when all liens of debt are considered. These metrics compare well to similarly-rated peers, and also to the Authority's own past performance.

Yet certain credit challenges persist, and high leverage will be a continued headwind for the Authority going forward. The Authority's current debt burden is significant, and material additional debt is expected as the Authority progresses on its capital improvement plan. The Authority's current five year plan assumes an additional \$1 billion in debt, before consideration of a yet-to-be-determined consent order for combined sewer overflow remediation. The Authority's ability to maintain a healthy financial position while increasing leverage will be key to future credit reviews. Future reviews will also consider the potential challenges associated with the expected consent order and its impact on overall leverage and customer affordability.

Credit strengths

- » Diverse, urban Pittsburgh service area, supported by strong “eds & meds” presence
- » Considerable size; system assets include water conveyance and treatment, and sewer conveyance that ties to ALCOSAN
- » Significant, recently implemented rate increases boost revenues; PUC oversight brings improvements and controls

Credit challenges

- » Substantial debt burden; debt ratio is 99% and will continue to grow
- » Narrow, though improved, liquidity versus similarly sized peers
- » Projected \$1.4 billion in capital needs over the next five years, to be primarily funded with debt
- » Consent decree to remediate combined sewer overflows not yet finalized

Rating outlook

The stable outlook reflects an expectation of satisfactory liquidity and coverage as leverage continues to increase. The outlook also speaks to an expectation of continued progress on the authority's capital plan.

Factors that could lead to an upgrade

- » Substantial improvement in liquidity that is maintained over several reporting periods
- » Meaningful reduction of debt
- » Sustained improvements in debt service coverage

Factors that could lead to a downgrade

- » Material narrowing of debt service coverage and liquidity position
- » Inability to raise rates sufficiently to meet debt service coverage covenants while also funding significant deferred capital improvements
- » Failure to effectively deploy new revenues to address near term infrastructure and operating needs
- » Substantial new or worsening long-term environmental concerns

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Key indicators

Exhibit 1

Pittsburgh Water & Sewer Authority, PA

System Characteristics

Asset Condition (Net Fixed Assets / Annual Depreciation)	42 years
System Size - O&M (in \$000s)	\$179,900
Service Area Wealth: MFI % of US median	89.23%

Legal Provisions

Rate Covenant (x)	1.10
Debt Service Reserve Requirement	DSRF funded at lesser of standard 3-prong test (Aa)

Management

Rate Management	A
Regulatory Compliance and Capital Planning	A

Financial Strength

	2017	2018	2019	2020	2021
Operating Revenue (\$000)	\$202,996	\$231,734	\$249,049	\$241,997	\$269,121
System Size - O&M (\$000)	\$157,220	\$153,180	\$165,230	\$169,507	\$179,900
Net Revenues (\$000)	\$47,071	\$81,565	\$87,280	\$79,692	\$90,592
Net Funded Debt (\$000)	\$817,394	\$871,040	\$915,696	\$978,458	\$1,064,365
Annual Debt Service (\$000)	\$57,818	\$59,406	\$52,010	\$64,774	\$67,796
Annual Debt Service Coverage (x)	0.8x	1.4x	1.7x	1.2x	1.3x
Cash on Hand	26 days	112 days	143 days	130 days	155 days
Debt to Operating Revenues (x)	4.0x	3.8x	3.7x	4.0x	4.0x

Coverage reflects total annual debt service and the city payment included in operating expenditures.

Source: Moody's Investors Service, audited financial statements

Profile

PWSA is an authority of the city of Pittsburgh, providing water treatment and conveyance to 84% of the city's population of roughly 305,000 residents and sewer conveyance for the entire city.

Detailed credit considerations

Service area and system characteristics: large, stable customer base in Pittsburgh

The Authority provides water distribution and wastewater collection and conveyance for the city of Pittsburgh and neighboring municipalities. The city's diverse economy is a credit positive for the Authority. Favorably, PWSA reported strong revenue collections throughout the coronavirus pandemic and did not experience large scale delinquencies that effected some regional peers, signaling resiliency in the customer base. The Authority's 10 largest customers (3.7% of revenues) include major Pittsburgh institutions, such as the Fox Chapel Water Authority, Allegheny County (Aa3 stable), University of Pittsburgh (Aa1 stable), and Allegheny Health Network. All of the Authority's five largest customers have been in the system for at least 75 years. Notably, given a newly renegotiated cooperation agreement with the city of Pittsburgh in 2019, most city buildings are now metered for water going, with the city paying for water usage - something it had not done previously.

The Authority continues to maintain an ample water supply, providing water to a population of approximately 305,000. The system is permitted to draw up to 100 million gallons per day (MGD) from the Allegheny River, its sole water source, though average demand for water is well below that level, at 70 MGD. The Authority treats drinking water at one plant located on the river, as well as a microfiltration plant at one of its reservoirs. The Authority has capacity to store approximately 3 days' worth of finished water for uninterrupted supply to its customers.

The Authority does not treat wastewater. It transmits all of its sewage to the Allegheny County Sanitary Authority. There is no contractual limit to the amount of sewage that can be conveyed, however, during wet weather events, the existing system frequently overflows and continues to experience unusually large water loss. ALCOSAN is projecting annual rate increases over the next twenty years that will pass through to PWSA customers.

PWSA has made significant strides in improving its governance and management of its organization as well as its physical assets. Ordinary system updates and routine infrastructure improvements had been sorely lacking at PWSA, and years of deferred maintenance have led to cost inefficiencies and exacerbated the natural wear and tear on an already aged system. PUC oversight since 2018 has already served to remediate some of this by establishing guidelines for system improvements based on industry-wide standards. The Authority has also hired more than 155 employees over the last five years - a 63% increase, and has filled key management roles with qualified personnel. This is a significant improvement over Authority operations of just a few years ago where management was mostly outsourced and employment was insufficient to provide for the day to day operations.

The additional operational oversight by the PUC is expected to be a credit positive going forward. Whereas the Authority had used capital deferment as a tool to maintain satisfactory finances and rate increases were heavily influenced by local politics in the past, the PUC has ensured that rate increases are less politicized. Further, while certain capital projects may be slowed to accommodate softening revenue if necessary, a complete sidelining of the capital plan and required maintenance is unlikely.

Debt service coverage and liquidity: recent history of satisfactory financial performance

The Authority's net revenues have been fairly stable since 2018, averaging a net take-down (net revenue / gross revenue) of about 34% over the past three years, as increased revenues have been matched by increased spending for maintenance and capital improvements. PWSA's operating margins are well in line with similarly rated peers and are expected to remain stable as rate increases and further revenue growth is used to fund needed capital spending and a growing workforce payroll.

At fiscal 2021 year end, the Authority reported senior debt service coverage of 1.74 times and total coverage of 1.44 times, well within covenant requirements and solid coverage ratios versus similarly-rated peers. Moody's reports a slightly lower 1.58 times senior lien debt service coverage and 1.34 times all-in coverage, based on a net income figure that includes payments to the city of Pittsburgh as an operating expense. Favorably, coverage has been fairly stable since 2018, when PUC rate oversight went into effect, signaling that rate increases have been effective to maintain sufficient coverage while providing for more normalized operations and investment in system infrastructure.

Rates have been approved through 2023, with the Authority's next rate case planned for 2024. Assuming continued rate increases are approved, management projects senior lien coverage to average 1.7 times over the next five years, with coverage of 1.18 times when all liens of debt are considered. Future reviews will consider whether the Authority is able to maintain satisfactory coverage and adhere to projected financial performance while supporting increased leverage to execute the Authority's sizeable capital plan.

Liquidity

The Authority's liquidity is satisfactory, at 137 days unrestricted cash on hand as of fiscal year end 2021, equating to about \$76 million. PWSA's cash position is considerably weaker than [national water and sewer system median days cash](#) of 450 days as of 2021.

Debt and pensions: elevated debt burden continued credit challenge

The Authority continues to face material pressure to improve its infrastructure given years of disinvestment. Coupled with its own consent decree pertaining to combined sewer overflows during wet weather events, which will be negotiated starting 2021, the Authority will necessarily add to its already elevated debt burden in the near term. PWSA anticipates roughly \$1.4 billion in capital spending over the next five years, largely funded by debt. This will add to leverage substantially, and future credit reviews will focus on the Authority's ability to manage additional debt while maintaining satisfactory cash and coverage metrics; largely dependent on PWSA's ability to increase rates as needed.

The Authority's total debt is equal to 99% of fixed assets as of 2021 year end, well above similarly sized peers. The outstanding debt amortizes slowly, with only 36% of principal scheduled to be repaid in the next 10 years.

Legal security

PWSA's first lien revenue debt benefits from a limited obligation revenue pledge backed by a first lien security interest in and to the revenues of the authority after payment of current expenses.

Debt structure

The majority - 68% - of Authority debt benefits from a first lien pledge on net revenues. Another 11% is subordinate debt, and the remainder is backed by a third lien, which is shared on a parity basis between PennVest and [PNC Bank, NA \(A2\)](#) which provides a revolving credit facility to PWSA. Roughly 22% of the Authority's current \$982 million of debt outstanding (as of September 2022) is variable rate.

The Authority introduced a new indenture in 2017, which strengthened the rate covenant. The requirement is now 125% of senior debt service coverage plus 110% of subordinate debt service coverage. Free cash is no longer used in the coverage calculation. The debt service reserve is funded at the lesser of the three-pronged test.

The Authority materially reduced its variable rate debt outstanding with its Series 2019 A&B issuance. Variable rate debt has been reduced to 22% of the total debt portfolio today, down from 44% prior to 2019. There is one variable rate issuance outstanding currently - the Authority's senior lien Series 2017C bonds, which were last remarketed in December 2020 and are subject to mandatory tender in December 2023. The bonds were remarketed with a rate indexed to SIFMA. Since the fixed-to-floating rate swaps associated with the 2017C bonds were LIBOR-based, the Authority layered on a basis swap alongside the remarketing in order to convert the variable rate received on the swaps to SIFMA from LIBOR, creating an effective hedge for the bonds.

[Assured Guaranty Municipal Corp. \(A1 stable insurance financial strength\)](#) insures the Authority's variable rate bonds and all of the Authority's swaps, except the 2020 basis swap, and provides the surety policy for all debt service reserve funds, except the reserve associated with PWSA's 2013 bonds, which is cash funded. This counterparty concentration may adversely impact the Authority should AGM's credit quality deteriorate.

The Authority maintains \$206 million in outstanding PennVest loans as of September 2022 and an \$150 million revolving credit facility, of which \$102 million is currently drawn. The Authority will apply proceeds from its Series 2022 issuance to pay down the credit line. Given an intercreditor agreement, PennVest and PNC Bank, NA share a third lien priority on system revenues.

Debt-related derivatives

The Authority maintains floating-to-fixed rate swaps in support of its Series 2017C issuance under ISDA Master Agreements with [JP Morgan Chase Bank N.A. \(Aa2 Sr. Unsecured\)](#) (64%) and Merrill Lynch Capital Services (36%), whereby the authority pays a fixed interest rate semiannually (3.79% weighted average) and receives 70% of LIBOR. The Authority layered on a basis swap in 2020 to convert the LIBOR received rate to SIFMA.

AGM provides swap insurance for all swaps. The aggregate swap mark to market is a negative (\$42 million) as of fiscal year end 2021.

The floating-to-fixed rate swaps are included in the parameters of a credit support annex (CSA), though there is no collateral posting requirement unless an Insurer Event occurs. The basis swap is excluded from the CSA. The amortization schedule for each swap mirrors that of the corresponding bonds and the swaps terminate at bond maturity. The basis swap terminates in December 2023 with the next mandatory tender of the Series 2017 C bonds. For all of the swaps, per the 2017 indenture, regularly scheduled swap payments are subordinate to subordinate bond debt service. Early termination is optional for the Authority only, and termination by the counterparty depends upon specified termination events, including the downgrade of PWSA's underlying rating below investment grade. An Authority termination payment would be subordinate to first and second lien debt service payments.

Pensions and OPEB

Most of the Authority's employees participate in the city's pension program. The Authority's share of its pension contribution is now accurately provided for through its renegotiated cooperation agreement with the city. Beginning in 2019, all new full time non-union PWSA employees are eligible to participate in a 401(a) retirement plan and do not have the option of enrolling in the city's municipal pension fund plan.

ESG considerations

Environmental

The Pittsburgh metropolitan area faces a high risk of elevated rainfall levels. Demonstrated elevated rainfall levels in the region have directly impacted PWSA, as wet weather events overwhelm the system's current combined sewer infrastructure. This is the reason for the Authority's consent decree related to combined sewer overflows.

Social

Pittsburgh's population is relatively stable at roughly 301,000 and the five year average annual growth rate of the city's full value is a strong 4.5% as of fiscal 2021, well above the US median of -0.5%. Nevertheless, the city's wealth indicators remain below average with median family income at just 89% of the nation. Poverty is also elevated at 20%. As PWSA has increased rates, it has also implemented a rate relief program for qualifying residents, acknowledging this weakness in its rate base.

Governance

The Authority's current management team has developed a comprehensive plan to bring operations to good working order and to proceed with much needed capital improvements. Strong governance controls at the Authority are evidenced by several years of improved financial performance.

Management views its relationship with the PUC as well as the DEP and EPA as an opportunity for partnership and has proactively sought to engage these agencies as PWSA moves forward with its substantial CIP. This is a definitive, positive change from the Authority's prior actions, and informs our stable outlook on PWSA's current credit profile.

The Authority's Board consists of nine members recommended by a nominating committee, appointed by the Mayor, and approved by City Council. Currently, eight of the nine Board seats are filled. Starting in 2020, city water charges were phased in pursuant to a cooperation agreement; the Authority had provided water to the city at no cost prior to 2020. Among other things, the cooperation agreement also provides for payments between the city and the PWSA to be based upon actual, verifiable, direct expenses, and in accordance with customary utility practices under the PUC Code, and importantly, confirms that payments by the PWSA to the city will continue to be subordinate to all debt obligations of the PWSA.

Pennsylvania's Public Utility Commission began oversight of the authority in April 2018. The PUC is responsible for regulating the Authority's rate making, operating effectiveness, and debt issuance. We expect that the PUC will bring standardization and effective governance to the Authority's future operations. The PUC is required to approve rate increases that will ensure PWSA complies with its bondholder covenants, though we note that the approval process for increases can be lengthy.

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REPORT NUMBER 1345841

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Exhibit CF-9

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Summary:

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Credit Profile

US\$41.865 mil wtr and swr sys first lien rev bnds ser 2022A due 09/01/2052

<i>Long Term Rating</i>	A+/Stable	New
Pittsburgh Wtr & Swr Auth WS (AGM)		
<i>Unenhanced Rating</i>	A(SPUR)/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WTRSWR		
<i>Long Term Rating</i>	A+/Stable	Upgraded

Credit Highlights

- S&P Global Ratings raised its rating on the Pittsburgh Water and Sewer Authority's (PWSA) first-lien revenue bonds to 'A+' from 'A'.
- At the same time, S&P Global Ratings also raised its rating on PWSA's subordinate-lien revenue bonds to 'A' from 'A-'.
- Additionally, we assigned our 'A+' rating to PWSA's series 2022A \$41.8 million water and sewer system first-lien revenue bonds.
- The upgrade reflects the management team's continued maturation and conservative budgeting practices as it works through a \$1.4 billion capital improvement plan (CIP) from 2022-2026, along with seeing continued successful rate cases with the Pennsylvania Public Utility Commission (PaPUC).
- Total debt outstanding will be approximately \$1.08 billion.
- The outlook is stable.

Security

The first-lien bonds are secured by a senior-lien pledge on the net revenues of the authority's waterworks and sanitary sewer system. A fully funded common reserve in the amount of the lesser of maximum annual debt service (MADS), 125% of average annual debt service, or 10% of proceeds provides additional liquidity on the senior-lien bonds; an amendment in 2017 to the master trust indenture permits a surety to be used to satisfy any future series-by-series reserve fund requirement. The 2017 amendments additionally strengthened the covenants by eliminating consideration of the use of certain cash reserves toward compliance with the rate covenant and limiting the frequency with which transfers in from the rate stabilization fund can be used toward meeting the rate covenant.

We have applied our primary utility revenue bond criteria to determine the authority's general creditworthiness and have applied this rating to its senior-lien issues. We rate PWSA's subordinate lien one notch lower based on the application of our criteria "Assigning Issue Credit Ratings Of Operating Entities" (published May 20, 2015, on RatingsDirect) given the open status of the senior lien and the likelihood that PWSA will continue to use the senior lien from time to time.

Proceeds of the series 2022A bonds will be used to pay down \$45 million of the \$101.8 million that PWSA has outstanding on its PNC capital line of credit.

Of the series 2017C bonds, the subseries 1, 2, and 3 will each be associated with a basis swap to the Securities Industry and Financial Markets Association (SIFMA) index rate. The counterpart for this overlay swap is Merrill Lynch Capital Services Inc. with a notional amount of \$216.72 million. In addition, subseries 1 is already synthetically fixed by way of an interest rate swap with JPMorgan Chase Bank N.A.; subseries 2 is synthetically fixed by way of an interest rate swap with Bank of America Merrill Lynch N.A.; and subseries 3 is synthetically fixed using an interest rate swap also with JPMorgan Chase Bank N.A. Although only a point-in-time snapshot and--barring a termination event such as the rating on PWSA falling below 'BBB-'--not an actual liability, those swaps are currently substantially out of the money. Subseries 4 (\$2 million) and the balance on the PNC line (\$101 million) is not hedged.

Credit overview

A very conservative approach to long-term planning has enabled management to successfully get three rate increases from PaPUC, with the last being for two years (fiscal years 2022 and 2023). These rate increases have enabled management to continue funding the CIP while dealing with rising costs from its suppliers. Additionally, management was successful in getting a new stormwater fee approved to assist in funding those projects.

Other factors that support the rating include:

- Pittsburgh's role as the anchor and economic engine for western Pennsylvania, based on an employment base that has reinvented itself from one that once relied heavily on manufacturing and industrial jobs;
- Rates for service that have been pressured over the past decade by the unfunded mandates, and will need to be reviewed by the state's rate regulator, but remain affordable;
- Operational management assessment (OMA) that we view as good even despite the above-mentioned challenges;
- Strong coverage levels of all-in debt service historically and projected;
- Strong on-balance-sheet liquidity, supported further by the available credit line; and
- Financial management practices and policies we consider good.

The rating is limited by extremely high leverage, with \$1.4 billion in capital commitments identified through fiscal 2026 likely to continue to pressure the financial profile.

Environmental, social, and governance

In our view, PWSA has outsize risks related to each of environmental, social, and governance (ESG) factors, although each of these are generally trending favorably. The authority in previous years faced scrutiny from local and state elected officials who voiced concerns over its operations. An auditor general's opinion released in November 2017 cited "aging and deteriorating infrastructure issues and financial and operational long-term viability issues" and was an important factor in legislation that ultimately placed PWSA under PaPUC oversight as of April 1, 2018. PaPUC regulates the authority's rates and fees, and must approve additional debt. PWSA's management team has worked closely with regulators and other stakeholders and has already achieved several measures that are likely to improve operations and financial capacity. This includes recent approval of a distribution system improvement charge that will

be dedicated to underground infrastructure rehabilitation. PWSA has also implemented various socially directed programs such as lead service line replacements and customer bill-pay assistance programs. We view the latter as a credit quality stabilizer that could allay affordability concerns. PWSA's own environmental compliance mandates, as well as drinking water efficiency are two key programs in PWSA's capital budget and have been the major generators for the need to consider additional rate adjustments; the authority has the ability to administratively pass through and recover costs from its wholesale wastewater treatment provider. PWSA, under its Green First plan, is also piloting approximately a dozen projects to experiment with different approaches to green infrastructure and overflow reduction that could also present capital budget cost savings.

Outlook

The stable outlook reflects our expectation that when PWSA does need to propose a rate case to PaPUC, there will generally be a credit-supportive relationship, observed by both the timing and magnitude of rate adjustments that PWSA is likely to request, versus what the PUC ultimately grants. We are assuming that the financial profile will be further stabilized by the sufficiency test in the rate covenant--which does not allow for the use of cash transfers. We will also likely keep in place the one-notch distinction between the first- and subordinate-lien debt.

Downside scenario

Should inflationary and supply-chain issues significantly drive up the cost of the CIP, which is expected to be mostly debt funded, and thereby causing additional debt which pressures financial metrics, the rating could be lowered.

Upside scenario

Management has represented that total debt service coverage (DSC) will generally move toward about 1.25x and on-balance-sheet available reserves equivalent to four-to-five months of operating expenses. Consistently outperforming financial projections while meeting the long-term challenges presented by an aging system, compounded by regulatory pressures, would be the key to achieving a higher rating.

Credit Opinion

Enterprise risk

PWSA provides drinking water and sewer collection to more than 83,641 metered accounts in most, but not all, of the city, as well as five neighboring municipalities and three wholesale customers for needs ranging from emergency interconnections and peaking to full requirements. It also provides sewer collection to the entire city. Although median household effective buying income (MHHEBI) is only 78% that of the U.S., the local economy has long since transitioned from its historical manufacturing base. Those sectors are still part of the employment base. Financial services, health care, and a booming technology sector are all increasingly important contributors to the metropolitan area. We do not view there to be any dependence on the authority's principal customers, given that they include another water authority and the University of Pittsburgh. Regional water authority wholesale customers do have some minimum contractual payments to PWSA, lending further stability to cash from operations.

Based on our OMA, we view PWSA to be good. An assessment of good, in our opinion, implies that overall alignment

between the system's operational characteristics and its management is sufficient, although there are areas of opportunity. Management's plans to rehabilitate and build reliability into the operations improved our view of this assessment. The CIP contains projects that are both based on PWSA's prioritization as well as those reflecting consent decrees.

Much of the existing infrastructure was also built to serve a much larger population and a workforce much different from that of today. While we note, for example, that the city has an essentially unlimited raw-water supply from the Allegheny River and overall system capacity that could support a population several times the size of the current one, it is also the case that the authority's focus remains the renewal and replacement of its aging underground infrastructure. The water distribution system is also an identified area of opportunity given the high nonrevenue water percentage, attributable to line losses. However, under a 2019 cooperation agreement, the city will no longer receive free service, which alone should help improve nonrevenue water. The renegotiated agreement will not affect the capital lease agreement, and PWSA still intends to purchase the system from the city for \$1 in 2025 under the terms of the current agreement.

PWSA is able to administratively fully pass through and recover ALCOSAN billings and the surcharge for distribution system improvements. Management instituted stormwater charges in fiscal 2022. For fiscal 2021, the average customer--using 3,000 gallons of both water and sewer service plus ALCOSAN's treatment surcharge--pays about \$121 per month, or 3.3% of MHHEBI. As costs increase over time to support the CIP, headroom for affordability, especially to lower-income customers, could diminish.

Financial risk

All-in DSC by our calculation was below 1.4x in 2021, up from 1.2x in 2020. Based on our review of management's projections, all-in DSC is likely to trend toward 1.16x assuming additional debt and a supportive relationship with PaPUC. All-in DSC is S&P Global Ratings' adjusted DSC metric that includes all obligations of the system regardless of lien or accounting treatment.

The system's liquidity remains an area of consistency and credit strength. Total available reserves also include the line of credit, designated as an interim funding mechanism for capital projects that will be somewhat repaid following the 2022 transactions. All told, cash and equivalents held by PWSA remains sound, usually equivalent to four-to-six months of operating expenses. At the end of fiscal 2021, the authority had \$76.4 million in available reserves or 281 days' cash.

Approximately 30% of PWSA's debt is variable rate, most of which is synthetically fixed by way of interest rate swaps. We view the contingent liquidity risk as remote, as the most prominent termination event would be if the ratings on PWSA were to be lowered to below investment grade. Although the current positions of the interest-rate swaps remain materially unfavorable, PWSA has not had to post collateral to its counterparts.

An FMA of good indicates that we consider practices currently good, but not comprehensive. The authority maintains many best practices we believe are critical to supporting credit quality, particularly in the finance department. These practices, however, may not be institutionalized or formalized in policy, or may not be as robust as those of comparable utilities with an FMA of strong. The FMA of good includes a long-term financial plan that management intends to implement in partnership with PaPUC to support its identified capital commitments. The authority also has

implemented new, more comprehensive and conservative budgeting assumptions that better capture annual revenue requirements. We understand that the authority's management team regularly tracks budget-to-actual performance and that the new management team is instituting a number of additional best practices to target consistently higher levels of financial performance.

Related Research

- Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

Ratings Detail (As Of October 12, 2022)		
Pittsburgh Wtr & Swr Auth WS (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WS (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WTRSWR <i>Long Term Rating</i>	A+/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A(SPUR)/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Upgraded

Many issues are enhanced by bond insurance.

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column.

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Summary:

Pittsburgh Water & Sewer Authority, Pennsylvania; Water/Sewer

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Summary:**Pittsburgh Water & Sewer Authority,
Pennsylvania; Water/Sewer**

Credit Profile		
US\$52.5 mil WIFIA loan due 12/31/2060		
<i>Long Term Rating</i>	A+/Stable	New
Pittsburgh Wtr & Swr Auth WTRSWR		
<i>Long Term Rating</i>	A+/Stable	Affirmed

Credit Highlights

- S&P Global Ratings affirmed its 'A+' rating on the Pittsburgh Water and Sewer Authority's (PWSA) first-lien revenue bonds.
- At the same time, S&P Global Ratings also affirmed its 'A' rating on PWSA's subordinate-lien revenue bonds.
- Additionally, we assigned our 'A' rating to PWSA's upcoming \$52.5 million WIFIA loan.
- Total debt outstanding will be approximately \$1.08 billion.
- The outlook is stable.

Security

The first-lien bonds are secured by a senior-lien pledge on the net revenues of the authority's waterworks and sanitary sewer system. A fully funded common reserve in the amount of the lesser of maximum annual debt service (MADS), 125% of average annual debt service, or 10% of proceeds provides additional liquidity on the senior-lien bonds; an amendment in 2017 to the master trust indenture permits a surety to be used to satisfy any future series-by-series reserve fund requirement. The 2017 amendments additionally strengthened the covenants by eliminating consideration of the use of certain cash reserves toward compliance with the rate covenant and limiting the frequency with which transfers in from the rate stabilization fund can be used toward meeting the rate covenant.

We have applied our primary utility revenue bond criteria to determine the authority's general creditworthiness and have applied this rating to its senior-lien issues. We rate PWSA's subordinate lien one notch lower based on the application of our criteria "Assigning Issue Credit Ratings Of Operating Entities" (published May 20, 2015, on RatingsDirect), given the open status of the senior lien and the likelihood that PWSA will continue to use the senior lien from time to time.

Proceeds of the WIFIA loan will be used to fund a portion of the system's capital program.

Of the series 2017C bonds, the subseries 1, 2, and 3 will each be associated with a basis swap to the Securities Industry and Financial Markets Association (SIFMA) index rate. The counterpart for this overlay swap is Merrill Lynch Capital Services Inc. with a notional amount of \$216.72 million. In addition, subseries 1 is already synthetically fixed by way of

an interest rate swap with JPMorgan Chase Bank N.A.; subseries 2 is synthetically fixed by way of an interest rate swap with Bank of America Merrill Lynch N.A.; and subseries 3 is synthetically fixed using an interest rate swap also with JPMorgan Chase Bank. Although only a point-in-time snapshot and--barring a termination event such as the rating on PWSA falling below 'BBB-'--not an actual liability, those swaps are currently substantially out of the money. Subseries 4 (\$2 million) and the balance on the PNC line (\$132 million) is not hedged.

Credit overview

A very conservative approach to long-term planning has enabled management to successfully get three rate increases from the Pennsylvania Public Utility Commission (PaPUC), with the last being for two years (fiscal years 2022 and 2023). These rate increases have enabled management to continue funding the capital improvement program (CIP) while dealing with rising costs from its suppliers. Additionally, management was successful in getting a new stormwater fee approved to assist in funding those projects.

Other factors that support the rating include:

- Pittsburgh's role as the anchor and economic engine for western Pennsylvania, based on an employment base that has reinvented itself from one that once relied heavily on manufacturing and industrial jobs;
- Rates for service that have been pressured over the past decade by the unfunded mandates, and will need to be reviewed by the state's rate regulator, but remain affordable;
- Operational management assessment (OMA) that we view as good even despite the above-mentioned challenges;
- Strong coverage levels of all-in debt service historically and projected;
- Strong on-balance-sheet liquidity, supported further by the available credit line; and
- Financial management practices and policies we consider good.

The rating is limited by extremely high leverage, with \$1.4 billion in capital commitments identified through fiscal 2026 likely to continue to pressure the financial profile.

Environmental, social, and governance

In our view, PWSA has outsized risks related to each of our environmental, social, and governance (ESG) factors, although each of these are generally trending favorably. The authority in previous years faced scrutiny from local and state elected officials who voiced concerns over its operations. An auditor general's opinion released in November 2017 cited "aging and deteriorating infrastructure issues and financial and operational long-term viability issues" and was an important factor in legislation that ultimately placed PWSA under PaPUC oversight as of April 1, 2018. PaPUC regulates the authority's rates and fees, and must approve additional debt. PWSA's management team has worked closely with regulators and other stakeholders and has already achieved several measures that are likely to improve operations and financial capacity. This includes recent approval of a distribution system improvement charge that will be dedicated to underground infrastructure rehabilitation. PWSA has also implemented various socially directed programs such as lead service-line replacements and customer bill-pay assistance programs. We view the latter as a credit quality stabilizer that could allay affordability concerns. PWSA's own environmental compliance mandates, as well as drinking water efficiency are two key programs in PWSA's capital budget and have been the major generators for the need to consider additional rate adjustments; the authority has the ability to administratively pass through and

recover costs from its wholesale wastewater treatment provider. PWSA, under its Green First plan, is also piloting approximately a dozen projects to experiment with different approaches to green infrastructure and overflow reduction that could also present capital budget cost savings.

Outlook

The stable outlook reflects our expectation that when PWSA does need to propose a rate case to PaPUC, there will generally be a credit-supportive relationship, observed by both the timing and magnitude of rate adjustments that PWSA is likely to request, versus what the PaPUC ultimately grants. We are assuming that the financial profile will be further stabilized by the sufficiency test in the rate covenant--which does not allow for the use of cash transfers. We will also likely keep in place the one-notch distinction between the first- and subordinate-lien debt.

Downside scenario

Should inflationary and supply-chain issues significantly drive up the cost of the CIP, which is expected to be mostly debt funded, and thereby causing additional debt which pressures financial metrics, the rating could be lowered.

Upside scenario

Management has represented that total debt service coverage (DSC) will generally move toward about 1.25x and on-balance-sheet available reserves equivalent to four-to-five months of operating expenses. Consistently outperforming financial projections while meeting the long-term challenges presented by an aging system, compounded by regulatory pressures, would be the key to achieving a higher rating.

Credit Opinion

Enterprise risk

PWSA provides drinking water and sewer collection to more than 83,641 metered accounts in most, but not all, of the city, as well as five neighboring municipalities and three wholesale customers for needs ranging from emergency interconnections and peaking to full requirements. It also provides sewer collection to the entire city. Although median household effective buying income (MHHEBI) is only 78% that of the U.S., the local economy has long since transitioned from its historical manufacturing base. Those sectors are still part of the employment base, however. Financial services, health care, and a booming technology sector are all increasingly important contributors to the metropolitan area. We do not view there to be any dependence on the authority's principal customers, given that they include another water authority and the University of Pittsburgh. Regional water authority wholesale customers do have some minimum contractual payments to PWSA, lending further stability to cash from operations.

Based on our OMA, we view PWSA to be good. An assessment of good, in our opinion, implies that overall alignment between the system's operational characteristics and its management is sufficient, although there are areas of opportunity. Management's plans to rehabilitate and build reliability into the operations improved our view of this assessment. The CIP contains projects that are both based on PWSA's prioritization and those reflecting consent decrees.

Much of the existing infrastructure was also built to serve a much larger population and a workforce much different

from that of today. While we note, for example, that the city has an essentially unlimited raw-water supply from the Allegheny River and overall system capacity that could support a population several times the size of the current one, it is also the case that the authority's focus remains the renewal and replacement of its aging underground infrastructure. The water distribution system is also an identified area of opportunity given the high nonrevenue water percentage, attributable to line losses. However, under a 2019 cooperation agreement, the city will no longer receive free service, which alone should help improve nonrevenue water. The renegotiated agreement will not affect the capital lease agreement, and PWSA still intends to purchase the system from the city for \$1 in 2025 under the terms of the current agreement.

PWSA is able to administratively fully pass through and recover ALCOSAN billings and the surcharge for distribution system improvements. Management instituted stormwater charges in fiscal 2022. For fiscal 2021, the average customer--using 3,000 gallons of both water and sewer service plus ALCOSAN's treatment surcharge--pays about \$121 per month, or 3.3% of MHHEBI. As costs increase over time to support the CIP, headroom for affordability, especially to lower-income customers, could diminish.

Financial risk

All-in DSC by our calculation was below 1.4x in 2021, up from 1.2x in 2020. Based on our review of management's projections, all-in DSC is likely to move toward 1.16x assuming additional debt and a supportive relationship with PaPUC. All-in DSC is S&P Global Ratings' adjusted DSC metric that includes all obligations of the system regardless of lien or accounting treatment.

The system's liquidity remains an area of consistency and credit strength. Total available reserves also include the line of credit, designated as an interim funding mechanism for capital projects that will be somewhat repaid following the 2022 transactions. All told, cash and equivalents held by PWSA remains sound, usually equivalent to four-to-six months of operating expenses. At the end of fiscal 2021, the authority had \$76.4 million in available reserves or 281 days' cash.

Approximately 30% of PWSA's debt is variable rate, most of which is synthetically fixed by way of interest rate swaps. We view the contingent liquidity risk as remote, as the most prominent termination event would be if the ratings on PWSA were to be lowered below investment grade. Although the current positions of the interest-rate swaps remain materially unfavorable, PWSA has not had to post collateral to its counterparts.

An Financial Management Assessment (FMA) of good indicates that we consider practices currently good, but not comprehensive. The authority maintains many best practices we believe are critical to supporting credit quality, particularly in the finance department. These practices, however, may not be institutionalized or formalized in policy, or may not be as robust as those of comparable utilities with an FMA of strong. The FMA of good includes a long-term financial plan that management intends to implement in partnership with PaPUC to support its identified capital commitments. The authority also has implemented new, more comprehensive and conservative budgeting assumptions that better capture annual revenue requirements. We understand that the authority's management team regularly tracks budget-to-actual performance and that the new management team is instituting a number of additional best practices to target consistently higher levels of financial performance.

Ratings Detail (As Of March 16, 2023)

Ratings Detail (As Of March 16, 2023) (cont.)

Pittsburgh Wtr & Swr Auth WS (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WS (AGM)		
<i>Unenhanced Rating</i>	A(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WS (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR		
<i>Long Term Rating</i>	A+ / Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed

Many issues are enhanced by bond insurance.

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column.

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VERIFICATION

I, Christine Fay hereby state that: (1) I am Senior Managing Director and Partner with Public Resources Advisory Group, Inc.; (2) I have been retained by The Pittsburgh Water and Sewer Authority and am authorized to present testimony on its behalf; (3) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C .S. § 4904 (relating to unsworn falsification to authorities).

05/04/2023 | 8:13 PM EDT

Dated

DocuSigned by:
Christine Fay
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Christine Fay, Senior Managing Director and Partner
Public Resources Advisory Group, Inc.

Consultant to:
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

WILLIAM J. PICKERING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

General Observations

Multi-Year Rate Plan

Amendment of Cooperation Agreement

Stormwater Rate

Wholesale Contracts

September 8, 2023

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TABLE OF EXHIBITS

WJP-3	Articles of Amendment to Articles of Incorporation
WJP-4	Updated Rate Case Tables

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND CURRENT POSITION WITH PWSA.**

3 A. My name is William J. Pickering. My position with The Pittsburgh Water & Sewer
4 Authority (“PWSA” or “Authority”) is Chief Executive Officer.

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I submitted Direct Testimony on May 9, 2023. (PWSA Statement No. 1).

7 **Q. PLEASE IDENTIFY THE TOPICS YOU ADDRESSED IN YOUR DIRECT**
8 **TESTIMONY.**

9 A. In my Direct Testimony, I offered a high-level synopsis of PWSA’s rate filing and
10 introduced the other PWSA witnesses presenting testimony, with an explanation of the
11 scope of their testimony. I also provided an overview about PWSA to include its
12 continuing transition process to Commission jurisdiction and the current status of various
13 projects and initiatives that have occurred since PWSA’s 2021 rate case filing.

14 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

15 A. The purpose of my Rebuttal Testimony is to respond the Direct Testimony of: Ethan H.
16 Cline submitted by the Bureau of Investigation and Enforcement (“I&E”) (I&E Statement
17 No. 3); the Direct Testimony of Anthony Spadaccio on behalf of I&E (I&E Statement
18 No. 1); the Direct Testimony of Terry L. Fought presented by the Office of Consumer
19 Advocate (“OCA”) (OCA Statement 6); the Direct Testimony of Jerome D. Mierzwa
20 submitted on behalf of OCA (OCA Statement 3); the Direct Testimony of Karl Richard
21 Pavlovic submitted by OCA (OCA Statement 2); the Direct Testimony of Eric M.
22 Callocchia offered on behalf of the Pittsburgh School District (“School District”) (School
23 District Statement No. 2); the Direct Testimony of Robert Strauss offered on behalf of
24 River Development Corporation (“River Development” or “RDC”) (RDC Statement No.

1 1); and the Direct Testimony of Cheryl McAbee submitted by River Development (RDC
2 Statement No. 2).

3 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

4 A. Yes, I am sponsoring PWSA Exhibit WJP-3, which is a document titled “Articles of
5 Amendment” filed with the Secretary of the Commonwealth on March 19, 2020, noting
6 that PWSA’s Articles of Incorporation were amended by Resolution of the City of
7 Pittsburgh’s Council on January 28, 2020 to add the ownership and maintenance of
8 stormwater systems to PWSA’s purpose. In addition, I am sponsoring PWSA Exhibit
9 WJP-4, which consists of Updated Rate Case Tables.

10 **II. GENERAL OBSERVATIONS**

11 **Q. DO YOU HAVE ANY GENERAL OBSERVATIONS ABOUT THE OTHER**
12 **PARTIES’ DIRECT TESTIMONY?**

13 A. Yes. When the various recommendations of the other parties are viewed together, I am
14 struck by the noticeable imbalance between the proposals, on one hand, to significantly
15 reduce PWSA’s overall revenue requirements and our capital improvement program, and
16 the proposals, on the other hand, to require PWSA to enhance customer service, increase
17 low-income customer assistance programs and implement quality of service
18 improvements – all areas in which PWSA has made tremendous strides in recent years.
19 Dating back to 2018 when PWSA first came under the regulation of the Commission, we
20 have been clear as to our focus on the future and the importance of modernizing the
21 system, not only to provide the best possible utility service to our customers but also to
22 achieve and remain in compliance with the many regulatory requirements imposed on the
23 Authority.

1 While the Commission has been supportive of PWSA’s efforts through the
2 approval of rate relief in the last three rate cases, our work is not done. The other parties
3 have likewise recognized in prior cases the need for substantial rate relief to ensure the
4 ability of the Authority to implement its necessary, albeit aggressive, agenda to
5 modernize its system and upgrade its infrastructure. Yet, a review of the positions taken
6 by the other parties in their Direct Testimony in this case suggests a backtracking on that
7 recognition and support. While the parties understandably want PWSA to continue along
8 the path of improving the system, they are inexplicably not willing to provide the
9 necessary resources for PWSA to get this done.

10 Particularly given the other parties’ apparent reluctance to stay the course, it is
11 critical for the Commission – for the sake of PWSA’s customers – to remain focused on
12 the future and ensure that the Authority has the funds that it needs to support the safe,
13 reliable and adequate operation of its water, wastewater conveyance and stormwater
14 systems. PWSA’s capital budget for Fiscal Year 2024, as approved by the Authority’s
15 Board, is \$349,222,497. A review of the Capital Improvement Plan (“CIP”) for 2023-
16 2027 shows that these projects would not simply be “nice to have,” but rather are critical
17 to regulatory compliance, quality of service, operating efficiency, safety and reliability of
18 PWSA’s operations. Specific examples are described in the Rebuttal Testimony of Barry
19 King. (PWSA Statement No. 4-R). Of note, a criticism of the other parties regarding
20 PWSA’s CIP is how our expenditures in recent years have fallen below budgeted
21 amounts. Although Mr. King’s Rebuttal Testimony addresses this issue in detail, I note
22 that the Authority is in a bit of a “Catch-22” here. If the Commission does not authorize
23 the proposed spending levels in this proceeding, PWSA will not be able to complete its

1 planned construction projects, and in the next base rate case, parties will claim that
2 PWSA's expenditures did not match its budgeted amounts.

3 A major flaw in the other parties' recommendations is the failure to be forward-
4 thinking. For example, the construction of necessary infrastructure projects requires
5 extensive planning and spans, in some cases, many years. Therefore, arbitrarily
6 proposing to significantly reduce PWSA's capital budget ignores the realities of
7 designing, bidding out and constructing these projects. Construction is not a process that
8 can be looked at one year at a time and be intermittently stopped and started depending
9 upon the availability of funds. Similarly, given the recent inflation trends, it is reasonable
10 and sensible to incorporate a 6 percent inflation factor into PWSA's cost projections. To
11 the extent the trends do not continue at that level, PWSA will have more funds available
12 to invest back into the system for the benefit of ratepayers, to pay down debt or to delay
13 future base rate increase requests.

14 Another significant issue that the other parties overlook is the extent to which
15 PWSA's costs, particular for its CIP, are necessary due to regulatory commitments set
16 forth in consent and administrative orders and agreements in matters initiated by
17 regulators and government agencies like the Pennsylvania Department of Environmental
18 Protection ("DEP") and Environmental Protection Agency ("EPA"). Approximately one
19 quarter of the CIP is tied to obligations from a 2019 Consent Order and Agreement
20 ("COA") with DEP, and when the DEP Lead Consent Order issued on November 17,
21 2017 is included, one-third of the CIP projects are linked to regulatory requirements. Of
22 particular note, the opposition to PWSA's proposal to include its costs for the Wet
23 Weather Consent Decree that will likely be finalized in 2024 is short-sighted and fails to

1 consider the substantial commitments PWSA has already made to avoid litigation over
2 compliance with federal and state clean water laws. Mr. King’s Direct Testimony and
3 Rebuttal Testimony provide more details about the costs of these capital projects and the
4 potential for penalties to be imposed if they are not timely completed. (PWSA Statement
5 Nos. 4 and 4-R).

6 I also note that many of the recommendations in the areas of customer service,
7 low-income customer assistance programs and quality of service are offered by the
8 witnesses for other parties as measures that they would like to see implemented without
9 presenting any evidence or even providing a description of an underlying problem that
10 needs to be rectified. In some instances, it seems that the witnesses have achieved their
11 fundamental objectives in prior rate cases and have now expanded into other areas of
12 their respective topics of expertise in an effort to have PWSA implement even more
13 enhancements, whether they are needed or not. For instance, without presenting any
14 allegations as to inadequate service or even pointing to specific problems, OCA witness
15 Fought is seeking to require PWSA to reduce operating pressures and submit pressure
16 surveys for each zone. (OCA Statement 6). Although PWSA witness William J.
17 McFaddin addresses this recommendation in his Rebuttal Testimony (PWSA Statement
18 No. 3-R), I raise it here as an example of the other parties’ witnesses “grasping at straws”
19 to find something amiss in PWSA’s operations or practices.

20 Overall, if the Commission adopts the proposed reductions to revenue
21 requirements and spending for capital projects that have been advanced by the parties,
22 that means that PWSA’s efforts to complete necessary improvements to modernize the
23 system and comply with various regulatory mandates could be delayed or halted. Such

1 impacts may trigger stipulated civil penalties for violations of regulatory orders and
 2 potential non-compliance with an EPA Administrative Agreement. A lack of compliance
 3 with the EPA Administrative Agreement presents a potential for a finding that PWSA is
 4 no longer in good standing, which would jeopardize access to federal funding, including
 5 grants from the Pennsylvania Infrastructure Investment Authority.

6 As I stressed in my Direct Testimony, PWSA has made the most of the prior rate
 7 relief approved by the Commission. The combination of PWSA’s commitments to
 8 excellence, and the steady revenue stream afforded by the Commission’s approvals, have
 9 placed PWSA on a trajectory toward becoming “best in class” in terms of providing
 10 excellent customer service, implementing a robust construction program, replacing lead
 11 service lines throughout Pittsburgh and continuing to excel in all areas of its operations.
 12 PWSA has completed a number of construction projects designed to provide more
 13 reliable service to customers, meet stricter water quality standards and improve water
 14 quality and stormwater management. While PWSA has made significant achievements,
 15 we need to continue these efforts so that we are a utility of the future that delivers the
 16 highest possible quality of services to our customers.

17 **III. RESPONSES TO OTHER PARTIES’ DIRECT TESTIMONY**

18 **A. Multi-Year Rate Plan**

19 **Q. PLEASE DESCRIBE THE OTHER PARTIES’ PROPOSALS CONCERNING** 20 **PWSA’S PROPOSED MULTI-YEAR RATE PLAN.**

21 A. Other parties have expressed strong opposition in their Direct Testimony to PWSA’s
 22 proposal for the implementation of multi-year rate plan (“MYRP”). Although these
 23 concerns are being addressed in detail by the Rebuttal Testimony of Edward Barca and

1 the Rebuttal Testimony of Harold Smith (PWSA Statement Nos. 2 and 7), I have a few
2 points to make in support of PWSA's proposal.

3 **Q. PLEASE PROCEED.**

4 A. Although I made some of these comments in my Direct Testimony, a few are worth
5 repeating given the negative reaction by the other parties to a solid and reasonable
6 approach advanced by PWSA. Importantly, a MYRP would give PWSA a level of
7 financial security needed to continue performing our work, including the construction and
8 implementation of many critical capital improvement projects, as well as better access to
9 the capital markets.

10 This approach also provides more transparency to customers over the three-year
11 period when the increases that will be implemented. I am aware that Mr. Cline, testifying
12 for I&E, referred to this rationale for PWSA's proposed MYRP as "misleading." (I&E
13 Statement No. 3 at 14). The basis for Mr. Cline's unwarranted attack on PWSA
14 testimony is that other utilities also give customers notice of rate increases before they go
15 into effect. This observation misses the point. Through the proposed MYRP, PWSA's
16 customers would have the benefit of knowing what their rates will be over a three-year
17 period, well in advance of those rates being implemented. By contrast, in the traditional
18 rate case, a customer learns of the utility's proposed rate increase nine months before it
19 would take effect, but only becomes aware of the approved rate increase at the conclusion
20 of the rate case. The advance notice that PWSA has proposed would give our customers
21 the opportunity to do their own financial planning and factor future increases into their
22 budgets.

23 Another tremendous advantage to a MYRP, which the other parties appear to
24 either overlook or ignore, is the ability of PWSA to avoid the filing of additional rate

1 cases to obtain the needed level of revenue over this time period. If the MYRP is not
 2 approved, PWSA will need to seek increases in 2025 and 2026 due to the issuance of
 3 debt, and its CIP will otherwise be unfunded. Preparing for and litigating rate cases is a
 4 massive undertaking by PWSA that necessitates significant costs for legal and technical
 5 assistance, which are borne by our ratepayers as we are a cash flow municipal authority.
 6 Additionally, PWSA invests considerable internal resources to assemble the
 7 comprehensive initial rate filing, respond to extensive discovery requests on a host of
 8 different issues, prepare responsive testimony, develop potential settlement proposals and
 9 participate in public input and evidentiary hearings, as necessary. Each one of these tasks
 10 is in addition to PWSA staff's regular operational duties and diverts valuable resources
 11 away from the day-to-day operation of the business. Without the added pressure of
 12 litigating a rate case for the next three years, PWSA staff would be able to more fully
 13 concentrate our efforts on operating and improving our system for the benefit of our
 14 customers. Simply stated, securing approval for the MYRP would enable PWSA to
 15 allocate our resources to the core responsibilities of providing customers with safe,
 16 adequate and reliable water, wastewater conveyance and stormwater services.

17 **Q. DO YOU HAVE ANY OTHER COMMENTS TO ADD IN RESPONSE TO THE**
 18 **OPPOSITION OF OTHER PARTIES TO PWSA'S PROPOSED MYRP?**

19 A. Yes. The General Assembly in Pennsylvania has declared as a matter of policy that
 20 "utility ratemaking should encourage and sustain investment through appropriate cost-
 21 recovery mechanisms to enhance the safety, security, reliability or availability of utility
 22 infrastructure and be consistent with the efficient consumption of utility service."¹ One

¹ 66 Pa. C.S. § 1330(a)(2).

1 of the specific ratemaking mechanisms identified by Section 1330 of the Public Utility
2 Code is a multi-year rate plan.² Despite this clear declaration of policy by the legislature,
3 the other parties recommend rejection of the MYRP. (OCA Statement 1 at 5; I&E
4 Statement No. 3 at 4-18). That the other parties are not enamored with such a mechanism
5 when faced with a proposal in a base rate case does not change the fact that the
6 legislature, which is responsible for establishing the Commonwealth’s policies – not the
7 parties in base rate cases, has encouraged the use of this tool by public utilities. Their
8 opposition also overlooks the fact that any excess funds would be redirected in ways that
9 benefit customers. Importantly, the article issued by the National Regulatory Research
10 Institute (“NRRI”) on multi-year rate plans, upon which Mr. Cline relies in opposing
11 PWSA’s proposed MYRP (I&E Statement No. 3 at 6-8), does not trump the policy
12 decision that has already been made by the Pennsylvania General Assembly. While Mr.
13 Cline gives lip service to Section 1330 of the Public Utility Code, his Direct Testimony
14 seems to suggest that NRRI is a better determinant of the policies that should be in place
15 for Pennsylvania.

16 As Mr. Cline notes, the Commission has adopted a Policy Statement to implement
17 the alternative ratemaking mechanisms endorsed by the legislature.³ However, in
18 applying the criteria set forth in the Commission’s Policy Statement, Mr. Cline adds
19 factors that are not identified by the PUC as being germane to a review of a particular
20 alternative ratemaking mechanism proposed by a public utility. For instance, Mr. Cline
21 would have the Commission go beyond the factors laid out in the Policy Statement, to

² 66 Pa. C.S. § 1330(b)(iv).

³ 52 Pa. Code §§ 69.3301-3302.

1 consider what he refers to as PWSA’s “history” of forecasted costs as compared to actual
2 expenditures. (I&E Statement No. 3 at 8-10). Although this issue, as it pertains to
3 PWSA’s capital improvement budget, is fully addressed in Mr. King’s Rebuttal
4 Testimony, I am raising it since Mr. Cline’s discussion of the accuracy of PWSA’s
5 historic capital improvement budgets, which he ties to the NRRI report, is irrelevant to
6 the criteria that the Commission has identified in the context of reviewing a utility’s
7 multiyear plan.

8 Additionally, Mr. Cline would have the Commission deny PWSA’s proposal
9 because “MYRPs have not been used before in Pennsylvania utility ratemaking.” (I&E
10 Statement No. 3 at 6-7). It is immaterial that an MYRP is not yet in place for a public
11 utility in Pennsylvania. Section 1330 has been in the Public Utility Code for five years.
12 Undeniably, someone has to go first, and if it is PWSA, that makes sense since the
13 Authority is a cash flow municipal utility and does not have a “rates department” whose
14 function is to compile and litigate rate cases. Given the important need for PWSA to
15 focus on the operation of its water, wastewater conveyance and stormwater systems, it is
16 befitting for the Authority to be the pioneer of MYRPs.

17 Another I&E witness, Anthony Spadaccio, opposes the MYRP because PWSA
18 has only been subject to the Commission’s regulations since 2018 and has not faced the
19 scrutiny that other utilities have been subjected to for many years or developed a
20 “rapport” with the Commission. (I&E Statement No. 1 at 8). Again, this observation
21 does not fit within any of the criteria that the Commission set forth in the Policy
22 Statement to implement Section 1330 of the Public Utility Code. Further, during the past
23 five years, PWSA has been subjected to extensive scrutiny – of a nature that may be

1 unprecedented – through its three base rate cases,⁴ via the many proceedings relating to
2 PWSA’s Compliance Plan,⁵ and within the context of a Management Audit.⁶ Indeed,
3 PWSA continues to file quarterly reports in connection with its Compliance Plan,
4 receiving significant oversight that Mr. Spadaccio suggests is necessary, which goes well
5 beyond the level experienced by other public utilities. In short, the length of PWSA’s
6 history of being regulated by the PUC should have no bearing on the decision of whether
7 to approve the MYRP. Of note, the Rebuttal Testimony of PWSA witness Smith
8 proposes a 90-day proceeding in which the basic assumptions of the MYRP would be
9 evaluated and confirmed. (PWSA St. No. 7-R).

10 Finally, I note that prior to coming under the Commission’s jurisdiction, it was
11 customary for the PWSA Board to approve three-year rates. Therefore, it is an approach
12 that many PWSA customers have become accustomed to and should not create any major
13 concerns. It is also my understanding that the use of multi-year rate plans is consistent
14 with practices of other municipalities, as discussed by PWSA witness Smith in his
15 Rebuttal Testimony.

⁴ *Pa. P.U.C. v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2018-3002645 and R-2018-3002647 (Order entered February 17, 2019); *Pa. P.U.C. v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2020-3017951 and R-2020-3017970 (Order entered December 3, 2020); *Pa. P.U.C. v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2021-3024773, R-2021-3024774 and R-2021-3024779 (Order entered November 18, 2021).

⁵ *Implementation of Chapter 32 of the Public Utility Code*, Docket Nos. M-2018-2640803 and M-2018-2640803 (Multiple Orders entered between January 18, 2018 and August 25, 2022). PWSA’s most recent Compliance Plan Quarterly Report was filed on July 28, 2023.

⁶ *Management and Operations Audit of the Pittsburgh Water and Sewer Authority*, Docket Nos. D-2021-3025584, D-2021-3025585 and D-2022-3030308 (Secretarial Letter, Report and Implementation Plan issued April 20, 2023). The Implementation Plan is available at this [link](#)

1 **B. Amendment of Cooperation Agreement**

2 **Q. PLEASE DESCRIBE THE ISSUE THAT HAS ARISEN REGARDING**
3 **POTENTIAL AMENDMENT OF THE COOPERATION AGREEMENT.**

4 A. On behalf of OCA, Mr. Fought recommends that the Cooperation Agreement between the
5 City of Pittsburgh and PWSA be amended and approved by the Commission prior to any
6 PWSA rate increase after January 1, 2025. Mr. Fought believes that such an amendment
7 is needed to indicate which party is responsible for the many cost items discussed in the
8 existing Agreement after PWSA has sole ownership of the systems. (OCA Statement 6 at
9 36). Similarly, testifying for OCA, Dr. Pavlovic suggests that the Cooperation
10 Agreement may be “amended or terminated after January 1, 2025.” OCA Statement 1 at
11 17.

12 **Q. PLEASE EXPLAIN THE BACKGROUND FOR THIS ISSUE.**

13 A. As I explained in my Direct Testimony, the water/wastewater conveyance infrastructure
14 operated by PWSA is currently owned by the City. PWSA first assumed responsibility
15 for the system operation and maintenance from the City pursuant to an agreement
16 effective January 1, 1995 between the City and PWSA. Consistent with a Memorandum
17 of Lease dated July 27, 1995, PWSA is on the path to becoming the official owner of the
18 City’s assets and, on September 1, 2025, this transfer will be effectuated. Under a new
19 Cooperation Agreement negotiated in 2019 (“2019 Cooperation Agreement”), the City
20 and PWSA conduct interactions on a business-like, transactional basis. The 2019
21 Cooperation Agreement was included with my Direct Testimony as Exhibit WJP-2.

1 **Q. DO YOU AGREE WITH MR. FOUGHT THAT THE 2019 COOPERATION**
2 **AGREEMENT NEEDS TO BE AMENDED?**

3 A. No. At the outset, I note that the Cooperation Agreement has the force and effect of law
4 under Act 70 of 2020,⁷ or an earlier termination date to which the City and the Authority
5 mutually agree. No language appears in Act 70 providing for an amendment of the
6 Cooperation Agreement at that time; it simply terminates by operation of law. Further,
7 this asset acquisition will have no impact on revenues, costs or the budget of PWSA. The
8 working assumption for PWSA is that when the Cooperation Agreement ends, which it
9 will by law on January 1, 2025 (unless PWSA and the City mutually agree to an earlier
10 termination date), the City will be just like any other customer. The only exception is
11 that although the City will pay for the utility services it receives and other services on an
12 arms-length transactional basis, billing may continue to be handled through existing
13 arrangements. Similarly, PWSA will be like any other utility in following requirements
14 of the City of Pittsburgh's Department of Mobility and Infrastructure in matters relating
15 to the right-of way and similar issues. If there is a change, such as if PWSA agrees to
16 fulfill existing obligations related to City parks or a joint permit obligation arises under
17 the MS4 Agreement,⁸ PWSA will make the necessary adjustment and seek Commission
18 approval.

⁷ 71 P.S. §§ 720.211-720.213.

⁸ "MS4" stands for Municipal Separate Storm Sewer System, which is discussed in Mr. Igwe's Direct Testimony, PWSA Statement No. 5 at 7.

1 **C. Stormwater Rate**

2 **Q. PLEASE DESCRIBE THE POSITIONS OF THE OTHER PARTIES.**

3 A. I&E and OCA support the approach taken by PWSA to continue the allocation of
4 stormwater management costs, as approved in the 2021 base rate case, to a separate
5 stormwater rate rather than recovering them through wastewater conveyance charges.
6 (I&E Statement No. 3 at 2-3; OCA Statement 2 at 28-32). This approach establishes a
7 more equitable allocation of the costs because it recovers the costs based on the amount
8 of impervious surface area on a property rather than basing them on the amount of water
9 that is consumed at the property. Additional details are set forth in both the Direct and
10 Rebuttal Testimony of Tony Igwe (PWSA Statement Nos. 5 and 5-R) and Keith Readling
11 (PWSA Statement Nos. 8 and 8-R). However, the Pittsburgh School District (“School
12 District”) and River Development Corporation, through the testimony of their witnesses,
13 raise various challenges to PWSA’s approach. Although Mr. Igwe and Mr. Readling
14 respond to their specific proposals and criticisms, I am offering this testimony to
15 highlight a few points.

16 **Q. PLEASE EXPLAIN YOUR OPPOSITION TO THE PROPOSALS OF THE**
17 **OTHER PARTIES.**

18 A. If the other parties prevail and PWSA’s approach is altered in this proceeding, with a
19 return to the prior rate structure, residential customers would see an increase in their
20 stormwater charges while the School District’s bill would go down. This issue is
21 addressed in the Rebuttal Testimony of Mr. Igwe. (PWSA Statement No. 5-R). This is
22 because the stormwater rate would no longer be tied to impervious surface area on the
23 property, which is the industry standard, meaning that residential customers would be
24 billed stormwater costs on the basis of their water consumption – a factor that is not

1 relevant to the amount of stormwater runoff that occurs from their properties. That is not
 2 the outcome desired by PWSA. We strongly prefer that these costs be recovered on the
 3 basis of cost causation principles so that customers are paying these charges on the basis
 4 of the amount of stormwater runoff that their properties require PWSA to manage.

5 **Q. THE SCHOOL DISTRICT STATES THAT PWSA SHOULD BE DOING**
 6 **EVERYTHING IT CAN TO REDUCE THE IMPACT ON CUSTOMERS.**
 7 **(SCHOOL DISTRICT ST. 2AT 10-12). PLEASE RESPOND.**

8 A. PWSA has done everything it can to reduce the impact of stormwater management costs
 9 on customers. In fact, PWSA has received grant support for its stormwater strategic plan
 10 from the Heinz Endowments, the Richard King Mellon Foundation (“RK Mellon”) and
 11 the Hillman Foundation, totaling \$300,000.⁹ In addition, Heinz Endowments provided a
 12 grant of \$500,000 in support of the “Four Mile Run” stormwater project.¹⁰ In addition, as
 13 further explained in the Rebuttal Testimony of Mr. Igwe, the examples of reducing costs
 14 identified by the School District are not accurate. Rather, the Maryland and Florida
 15 programs only show a different way to implement stormwater charges. No credence
 16 should be given to this testimony, which is based on misinformation or lack of
 17 understanding concerning these issues.

18 **Q. DO THE PARTIES RAISE GENERAL ISSUES REGARDING THE LEGALITY**
 19 **OF PWSA’S STORMWATER CHARGE?**

20 A. Yes, certain parties raised the Commonwealth Court’s recent decision regarding the
 21 Borough of West Chester’s stormwater fee, in which the Court found that the Borough’s

⁹ The Heinz Endowment grant was approved during the May 28, 2021 PWSA Board Meeting as Resolution No 68 of 2021. The RK Mellon grant was approved by Resolution No. 114 of 221 on August 27, 2021.

¹⁰ <https://www.pgh2o.com/projects-maintenance/search-all-projects/four-mile-run-stormwater-project>

1 stormwater charge was a tax rather than a fee.¹¹ This decision is currently on appeal to
 2 the Supreme Court of Pennsylvania.

3 Specifically, the School District questioned whether PWSA’s stormwater charge is
 4 a tax to which it is exempt, and argued that the Commonwealth Court’s decision is
 5 “instructive” on how the Commission should view PWSA’s stormwater charge. (School
 6 District St. No. 1 at 5-6, 13-14; School District St. No. 2 at 30). River Development
 7 Corporation argues that the stormwater charge is an impermissible tax. (River
 8 Development St. No. 1 at 4-6; River Development St. No. 2 at 14-15). I&E witness
 9 Ethan Cline also stated that the *West Chester* decision does not currently affect PWSA’s
 10 proposals but may in the future. (I&E St. No. 3 at 3-4).

11 **Q. HOW DO YOU RESPOND?**

12 A. I am advised by counsel that this is a legal issue that will be addressed in briefs if
 13 necessary. Since an appeal of the *West Chester* decision is currently pending before the
 14 Pennsylvania Supreme Court, it has no effect at this time and is not relevant here.

15 However, generally speaking, it is important to understand that PWSA is very
 16 different from the Borough of West Chester. Unlike the Borough, PWSA is a municipal
 17 authority and has clear authority to implement stormwater charges under the
 18 Pennsylvania Municipality Authorities Act (“MAA”).¹² Additionally, PWSA is unique in
 19 that it is the first (and so far only) municipal authority that is also regulated by the
 20 Commission. PWSA is authorized to charge for stormwater service under the Public

¹¹ *The Borough of West Chester v. Pa. State System of Higher Educ. and West Chester Univ. of Pa. of the State System of Higher Educ.*, 291 A.3d 455 (Pa. Commw. Ct. 2023).

¹² 53 Pa. C.S. § 5607. Note that PWSA’s Articles of Incorporation were amended in 2020 to expressly include the operation of stormwater systems.

1 Utility Code and through the PUC’s approval of its stormwater rates and stormwater
 2 tariff.¹³ As such, PWSA has specific statutory authorization to implement stormwater
 3 charges, and its stormwater charge is not a “tax” as some parties have alleged.

4 **Q. HAS AN ISSUE ALSO BEEN RAISED ABOUT WHETHER PWSA’S ARTICLES**
 5 **OF INCORPORATION WERE AMENDED?**

6 A. Yes. On behalf of River Development, Dr. Strauss claims that PWSA’s Articles of
 7 Incorporation have not been amended to authorize the imposition of stormwater charges.
 8 (RDC Statement No. 1 at 6-10).

9 **Q. IS THIS CORRECT?**

10 A. No. On January 28, 2020, the Council of the City of Pittsburgh adopted an amendment to
 11 the PWSA Articles of Incorporation to add the ownership and maintenance of stormwater
 12 systems to PWSA’s purpose. The amendment, which was filed with the Department of
 13 State on March 19, 2020, is attached as PWSA Exhibit WP-3.

14 **Q. DO YOU HAVE ANY OTHER RESPONSE AT THIS TIME REGARDING THE**
 15 **PROPRIETY OF PWSA’S STORMWATER CHARGE?**

16 A. Yes. This is also an issue of rate design and fundamental fairness. As PWSA witness
 17 Igwe discussed (PWSA St. No. 5 at 3), PWSA previously recovered stormwater costs
 18 through wastewater rates, but this was not an equitable way to charge for stormwater
 19 service. The volume of stormwater that a property generates is a function of impervious
 20 area and has no relation to water usage. PWSA’s stormwater charge provides an
 21 equitable way to charge for stormwater service, ensuring that the properties contributing
 22 to stormwater runoff pay their fair share for stormwater management services.

¹³ See 66 Pa. C.S. § 3201 *et seq.*; see also Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water and Sewer Authority, Final Implementation Order (entered Mar. 15, 2018), Docket Nos. M-2018-2640802 and M-2018-2640803, at 31.

1 **D. Wholesale Contracts**

2 **Q. PLEASE DESCRIBE THE ISSUE THAT HAS BEEN RAISED CONCERNING**
 3 **WHOLESALE CONTRACTS.**

4 A. On behalf of OCA, Mr. Mierzwa recommends that PWSA issue notices of termination
 5 for each of its wholesale customers and negotiate new agreements that provide for
 6 movement toward cost of service rates. (OCA Statement 3 at 3-4, 9-10).

7 **Q. PLEASE RESPOND.**

8 A. PWSA has not engaged in any substantive conversations with its wholesale customers
 9 about renegotiating their contracts. Historically, these exiting agreements have been
 10 honored and the Commission has not interfered with their terms. Further, no notice has
 11 been provided to these customers that changes are being proposed as part of this
 12 proceeding, which I understand from legal counsel raises concerns about due process.
 13 PWSA will renegotiate these contracts when they expire or are up for renewal. Nothing
 14 further should be considered or directed as part of this proceeding.

15 **E. Summary**

16 **Q. DO YOU HAVE ANY CONCLUDING REMARKS?**

17 A. Yes. Although PWSA did not make this proposed rate increase lightly, we believe that if
 18 the Authority is to remain on the positive path it has been on since coming under the
 19 Commission’s jurisdiction, it has no choice but to advance the proposal now pending
 20 before the Commission. The Authority is committed to providing its customers with the
 21 highest possible quality of water, wastewater conveyance and stormwater services – they
 22 deserve nothing less. However, PWSA cannot fulfill this very hefty commitment without
 23 the Commission’s support. We have made a request that we strongly believe is
 24 warranted in view of the massive capital improvements that are needed to our systems,

1 the inflationary effects on all aspects of our operations, the need to meet our debt service
2 coverage requirements and the importance of complying with all regulatory requirements.
3 We remain hopeful that the Commission will stay the course that it has been on the past
4 five years of supporting PWSA's efforts to accomplish these lofty goals.

5 **IV. CONCLUSION**

6 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

7 A. Yes, although I reserve the right to file supplemental testimony if needed.

Exhibit WJP-3



TCO200407XX0671

CSC ORDER #: 232575-005
cscpa@cscglobal.com

ARTICLES OF AMENDMENT
THE PITTSBURGH WATER AND SEWER AUTHORITY

To The Secretary of the Commonwealth
Harrisburg, Pennsylvania

In compliance with the Municipality Authorities Act, 53 Pa C.S.A. § 5601 et seq., as amended (the "Act"), The Pittsburgh Water and Sewer Authority (the "Authority") hereby certifies that:

1. The name of the Authority is: The Pittsburgh Water and Sewer Authority
2. The location of the registered office of the Authority is: 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222
3. The Authority is formed under the Act. The original Articles of Incorporation were approved and filed by the Secretary of the Commonwealth of Pennsylvania on February 17, 1984 and Amendments to the Articles of Incorporation were approved and filed with the Secretary of the Commonwealth of Pennsylvania on December 11, 1989 and on May 9, 2008.
4. The amendment to the Articles of Incorporation was adopted by the Council of the City of Pittsburgh (the "Council"), by Resolution duly adopted on January 28, 2020, a certified copy of which is attached hereto as Exhibit "A" and made a part hereof. The Council's Resolution approved the Resolution of the Board of the Authority adopted October 25, 2019, as presented to the Council, a copy of which is attached hereto as Exhibit "B" and made a part hereof.
5. The amendments to the Articles of Incorporation adopted by the Council were as follows:

As to term of existence of the Authority:

"The term of existence of the Authority shall be a date that is fifty (50) years from the date of the approval of the Amendment to the Articles of Incorporation by the Secretary of the Commonwealth of Pennsylvania."

As to purpose of the Authority:

"the purpose of this Authority is to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kind and character: sewers, sewer systems

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MAR 19 2020

or parts thereof, waterworks, water supply works and water distribution systems, stormwater systems ...”

(So that the purpose of the Authority, in its entirety, following the approval of the foregoing amendment, and as previously amended, is as follows:

“The purpose of this Authority is to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kind and character: sewers, sewer systems or parts thereof, waterworks, water supply works and water distribution systems, stormwater systems, low head dams, facilities for generating surplus electric power which are related to incinerator plants, dams, water supply works, water distribution systems or sewage treatment plants pursuant, where applicable, to Section 3 of the Federal Power Act (16 U.S.C. § 796, relating to definitions) and Section 210 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. § 824a-3 relating to “Cogeneration and Small Power Production”) or Title IV of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. §§ 2701 to 2708 relating to “Small Hydroelectric Power Projects”) provided that:

(i) electric power generated from the facilities shall be sold or distributed only on a sale-for-resale basis to one or more entities authorized to sell electric power to the public;

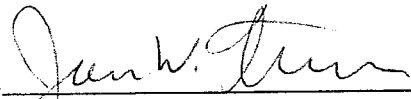
(ii) the facilities shall have been approved by resolution or ordinance adopted by the governing body of the municipality or municipalities organizing such Authority and the approval does not obligate the taxing power of the municipality in any way; and

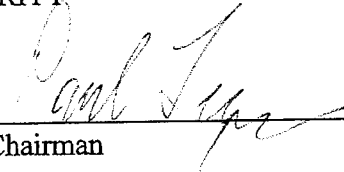
(iii) the incinerator plant, dams, water supply works, water distribution systems or sewage treatment plants will be located within or contiguous with a county in which at least one of the municipalities organizing such Authority is located, except that this paragraph shall not apply to incinerator plants, dams, water supply works, water distribution systems or sewage treatment plants located in any county which have been or will be constructed by or acquired by such Authority to perform functions the primary purposes of which are other than that of generation of electric power for which such Authority has been organized.”)

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority has caused these Articles of Amendment to be signed by its duly authorized officers and its corporate seal to be affixed this 13th day of February 2020.

Attest:

THE PITTSBURGH WATER AND SEWER
AUTHORITY

By: 
Secretary

By: 
Chairman

[SEAL]

EXHIBIT "A"

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PITTSBURGH
ADOPTED JANUARY 28, 2020



City of Pittsburgh

510 City-County Building
414 Grant Street
Pittsburgh, PA 15219

Certified Copy

Resolution: 28

File Number: 2020-0020

Enactment Number: 28

Resolution approving an Amendment to the Articles of Incorporation of the Pittsburgh Water & Sewer Authority to extend its term of existence to a date that is fifty (50) years from the date of the approval of the Amendment to Articles of Incorporation by the Secretary of the Commonwealth of Pennsylvania, and adding stormwater planning, management, and implementation to the purposes of the Authority.

WHEREAS, The Pittsburgh Water and Sewer Authority (the "Authority") is a body corporate and politic organized under the laws of the Commonwealth of Pennsylvania pursuant to the Municipality Authorities Act, 53 Pa.C.S.A. §5601, et seq., as amended (the "Act"), having been duly organized by the City of Pittsburgh, Pennsylvania (the "City"); and

WHEREAS, the Authority filed Articles of Incorporation with the Commonwealth of Pennsylvania on February 17, 1984, as previously amended by Articles of Amendment filed on December 11, 1989 and Articles of Amendment filed on May 9, 2008; and

WHEREAS, §5605 of the Act requires that every amendment to the articles of incorporation of an authority created under the Act first be proposed by the board of the authority by the adoption of a resolution setting forth the proposed amendment and directing that said resolution be submitted to the governing authorities of the municipality composing the authority; and

WHEREAS, On October 25th, 2019, the Board of the Authority adopted Board Resolution 206 of 2019, which proposes to amend the Authority's Articles of Incorporation to extend the term of the existence of the Authority to a date that is fifty (50) years from the date of the approval of the articles of amendment, and to amend the stated purposes of the Authority to include stormwater planning, management, and implementation,

Be it resolved by the Council of the City of Pittsburgh as follows:

Section 1. Pursuant to the provisions of the Act, Council hereby adopts an amendment to Section VII of the Authority's Articles of Incorporation, as previously amended, to read as follows:

"The term of existence of the Authority shall be a date that is fifty (50) years from the date of the approval of the Amendment to Articles of Incorporation by the Secretary of the Commonwealth of Pennsylvania."

Section 2: Pursuant to the provisions of the Act, Council hereby adopts an amendment to Section III of the Authority's Articles of Incorporation, as previously amended, to read as follows:


"the purpose of this Authority is to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kind and character: sewers, sewer systems or parts

thereof, waterworks, water supply work and water distribution systems, stormwater systems..."

Section 3. The Mayor, the City Solicitor, and the City Clerk are hereby authorized and directed to take any further steps required to effectuate these amendments to the Authority's Articles of Incorporation.

Any Resolution or Ordinance or part thereof conflicting with the provisions of this Resolution is hereby repealed so far as the same affects this Resolution.

I certify that this is a true copy of Resolution No. 28, passed by Council on 1/28/2020, approved by the Mayor on 2/6/2020. Effective Date 2/6/2020.

Attest: 
Brenda F. Pree, City Clerk

February 13, 2020
Date Certified

EXHIBIT "B"

RESOLUTION OF THE BOARD OF DIRECTORS OF
THE PITTSBURGH WATER AND SEWER AUTHORITY
ADOPTED OCTOBER 25, 2019

NEW BUSINESS
RESOLUTION NO. 236 OF 2019

**ADOPTING AMENDMENT TO ARTICLES OF
INCORPORATION OF THE PITTSBURGH WATER AND SEWER AUTHORITY**

WHEREAS, The Pittsburgh Water and Sewer Authority (the "Authority") is a body corporate and politic organized under the laws of the Commonwealth of Pennsylvania pursuant to the Municipality Authorities Act, 53 Pa.C.S.A. §5601, et seq., as amended (the "Act"), having been duly organized by the City of Pittsburgh, Pennsylvania (the "City"); and

WHEREAS, the Authority filed Articles of Incorporation with the Commonwealth of Pennsylvania on February 17, 1984, as previously amended by Articles of Amendment filed on December 11, 1989 and Articles of Amendment filed on May 9, 2008; and

WHEREAS, §5605 of the Act requires that every amendment to the articles of incorporation of an authority created under the Act first be proposed by the board of the authority by the adoption of a resolution setting forth the proposed amendment and directing that said resolution be submitted to the governing authorities of the municipality composing the authority; and

WHEREAS, the Board of the Authority proposes to amend its Articles of Incorporation to extend the term of the existence of the Authority to a date that is fifty (50) years from the date of the approval of the articles of amendment, and

WHEREAS, the Board of the Authority further proposes to amend its Articles of Incorporation to include stormwater planning, management, and implementation to the stated purposes of the Authority.

NOW, THEREFORE, BE IT RESOLVED, by The Pittsburgh Water and Sewer Authority that:

1. In accordance with the Act, the Authority hereby proposes and approves an amendment of Section VII of its Articles of Incorporation, as previously amended, to read as follows:

"The term of existence of the Authority shall be a date that is fifty (50) years from the date of the approval of the Amendment to Articles of Incorporation by the Secretary of the Commonwealth of Pennsylvania."

2. In accordance with the Act, the Authority hereby proposes and approves an amendment to Section III of its Articles of Incorporation, as previously amended, to read as follows:

"the purpose of this Authority is to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kind and character: sewers, sewer systems or parts thereof, waterworks, water supply works and water distribution systems, stormwater systems..."

3. The Board of the Authority hereby directs that these amendments be submitted to the governing authorities of the City which shall adopt or reject such amendment by resolution or ordinance.

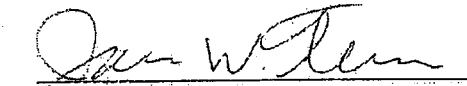
4. The proper officers of the Authority are hereby authorized to execute this Resolution and to take all such other action as may be required or which they may deem appropriate to amend the Articles of Incorporation.

Resolution 206 of 2019

Duly adopted by the Board of the Authority this 25 day of October, 2019.

Attest:

THE PITTSBURGH WATER AND SEWER
AUTHORITY

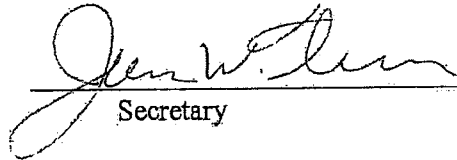

Secretary

By: 
Chairman

[SEAL]

I, the undersigned officer of The Pittsburgh Water and Sewer Authority, DO HEREBY CERTIFY that the foregoing is a true and correct copy of a Resolution duly adopted by the Board of the Authority at a public meeting of the Authority held the 25 day of October, 2019, after notice thereof had been duly given as required by law, at which meeting a quorum was present and voting and is now in full force and effect on the date of this certification.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Authority this 25th day of October, 2019.


Secretary

[SEAL]

Notice.

**Proof of Publication of Notice in
Pittsburgh Legal Journal**

Commonwealth of Pennsylvania }
County of Allegheny, } SS:

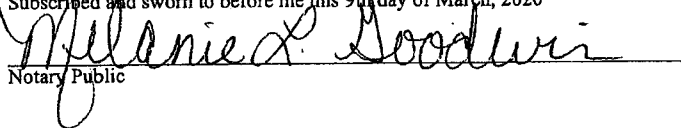
Before me, the undersigned notary public, this day, personally appeared Jim Spezialetti to me known, who being duly sworn according to law, deposes and says the following:

I am an agent of the Pittsburgh Legal Journal. The Pittsburgh Legal Journal is the duly designated legal newspaper for Allegheny County, Pennsylvania and was established on April 23, 1853. It is published at 400 Koppers Building, 436 Seventh Avenue, Pittsburgh, Allegheny County, Pennsylvania; and a copy of the printed notice appearing to the right is exactly the same as is printed or published in the issue or issues of said legal newspaper on the following date or dates:

Mar 9, 2020

That affiant further states that he is the designated agent of the Allegheny County Bar Association, the owner of said legal newspaper, that he is not interested in the subject matter of the aforesaid notice or advertising, and that all the allegations of the aforesaid statement as to time, place, and character of publication are true.

Signature of Affiant 

Subscribed and sworn to before me this 9th day of March, 2020

Notary Public

Public Notice

Articles of Amendment
The Pittsburgh Water and Sewer Authority
In compliance with the Municipality Authorities Act, 53 Pa.C.S.A. Section 5601, et seq., as amended (the "Act"), The Pittsburgh Water and Sewer Authority hereby provides notice of its intention to file Articles of Amendment with the Secretary of the Commonwealth of Pennsylvania.

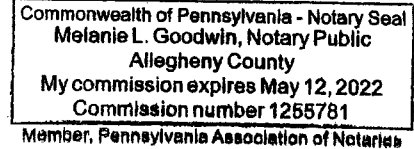
1. The name of the Authority is The Pittsburgh Water and Sewer Authority (the "Authority") and the location of its registered office is 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222.

2. The Articles of Amendment are to be filed under the provisions of the Act; the original Articles of the Authority were approved and filed on February 17, 1984.

3. The proposed amendment to the Articles of Incorporation provides that the term of existence of the Authority be extended to fifty (50) years from the date of the approval of the Amendment to the Articles of Incorporation by the Secretary of the Commonwealth and to provide that stormwater systems are an additional purpose of the Authority.

4. The Articles of Amendment will be filed with the Secretary of the Commonwealth of Pennsylvania on March 20, 2020.

20-01177 Mar 9, 2020



Rebecca D. Lewis
Clark Hill PLC
One Oxford Centre
301 Grant St., 14th Fl.
Pittsburgh, PA 15219

Statement of Advertising Cost

For publishing the notice or advertisement on the above stated dates . . .	\$213.15
Proof Fees	\$0.00
Total	\$213.15

Pittsburgh Legal Journal
400 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219
Phone 412-261-6255

PLJ No. 20-01177

No. _____ Term, _____

Proof of Publication of Notice in Pittsburgh Post-Gazette

Under Act No 587, Approved May 16, 1929, PL 1784, as last amended by Act No 409 of September 29, 1951

Commonwealth of Pennsylvania, County of Allegheny, ss K. Flaherty, being duly sworn, deposes and says that the Pittsburgh Post-Gazette, a newspaper of general circulation published in the City of Pittsburgh, County and Commonwealth aforesaid, was established in 1993 by the merging of the Pittsburgh Post-Gazette and Sun-Telegraph and The Pittsburgh Press and the Pittsburgh Post-Gazette and Sun-Telegraph was established in 1960 and the Pittsburgh Post-Gazette was established in 1927 by the merging of the Pittsburgh Gazette established in 1786 and the Pittsburgh Post, established in 1842, since which date the said Pittsburgh Post-Gazette has been regularly issued in said County and that a copy of said printed notice or publication is attached hereto exactly as the same was printed and published in the regular editions and issues of the said Pittsburgh Post-Gazette a newspaper of general circulation on the following dates, viz:

06 of March, 2020

Affiant further deposes that he/she is an agent for the PG Publishing Company, a corporation and publisher of the Pittsburgh Post-Gazette, that, as such agent, affiant is duly authorized to verify the foregoing statement under oath, that affiant is not interested in the subject matter of the afore said notice or publication, and that all allegations in the foregoing statement as to time, place and character of publication are true.

K. Flaherty
PG Publishing Company
Sworn to and subscribed before me this day of:
March 06, 2020

Elizabeth R Chmura

Commonwealth of Pennsylvania - Notary Seal
Elizabeth R. Chmura, Notary Public
Allegheny County
My commission expires February 8, 2022
Commission number 1326781
Member, Pennsylvania Association of Notaries

STATEMENT OF ADVERTISING COSTS
CLARK HILL PLC - legal
ONE OXFORD CENTRE
301 GRANT ST. 14TH FLR
PITTSBURGH PA 15219

To PG Publishing Company

Total ----- \$305.50

Publisher's Receipt for Advertising Costs

PG PUBLISHING COMPANY, publisher of the Pittsburgh Post-Gazette, a newspaper of general circulation, hereby acknowledges receipt of the aforesaid advertising and publication costs and certifies that the same have been fully paid.

Office
2201 Sweeney Drive
CLINTON, PA 15026
Phone 412-263-1338

PG Publishing Company, a Corporation, Publisher of
Pittsburgh Post-Gazette, a Newspaper of General Circulation

By _____

I hereby certify that the foregoing is the original Proof of Publication and receipt for the Advertising costs in the subject matter of said notice.

COPY OF NOTICE OR PUBLICATION

PUBLIC NOTICE ARTICLES OF AMENDMENT
THE PITTSBURGH WATER AND SEWER AUTHORITY
In compliance with the Municipality Authorities Act, 53 Pa.C.S.A. Section 5601, et seq., as amended (the "Act"), The Pittsburgh Water and Sewer Authority hereby provides notice of its intention to file Articles of Amendment with the Secretary of the Commonwealth of Pennsylvania.
1. The name of the Authority is The Pittsburgh Water and Sewer Authority (the "Authority") and the location of its registered office is 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222.
2. The Articles of Amendment are to be filed under the provisions of the Act; the original Articles of the Authority were approved and filed on February 17, 1984.
3. The proposed amendment to the Articles of Incorporation provides that the term of existence of the Authority be extended to fifty (50) years from the date of the approval of the Amendment to the Articles of Incorporation by the Secretary of the Commonwealth and to provide that stormwater systems are an additional purpose of the Authority.
4. The Articles of Amendment will be filed with the Secretary of the Commonwealth of Pennsylvania on March 25, 2020.

Exhibit WJP-4

TABLE I
Pittsburgh Water and Sewer Authority
FPPTY 2024-2026 INCOME SUMMARY
Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
	FPPTY 2024					2025 Rate Year				2026 Rate Year			
	PWSA	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties
Revenue at Current Rates	Rate Increase to Meet Revenue	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
INCOME SUMMARY													
Beginning Unrestricted Cash	89,754,818		89,754,818	0	89,754,818		90,804,577	0	90,804,577		95,583,733	0	95,583,733
Revenues:													
User Charge Revenues	196,820,957	39,901,631	236,722,588	0	236,722,588	19,879,702	256,602,290	0	256,602,290	47,466,865	304,069,155	0	304,069,155
Infrastructure Improvement Charge	0	0	0	0	0	17,020,092	17,020,092	0	17,020,092	2,111,113	19,131,205	0	19,131,205
Customer Assistance Program Charge	0	0	0	0	0	5,573,071	5,573,071	0	5,573,071	941,839	6,514,911	0	6,514,911
DSIC Revenues	8,432,305	6,604,749	15,037,055	0	15,037,055	2,651,049	17,688,104	0	17,688,104	3,238,949	20,927,053	0	20,927,053
Other Misc. Revenues	3,566,080	0	3,566,080	0	3,566,080	71,322	3,637,402	0	3,637,402	72,748	3,710,150	0	3,710,150
Subtotal: Total Revenues	208,819,342		255,325,723		255,325,723		300,520,959		300,520,959		354,352,473		354,352,473
Less: Uncollectible Revenues	(5,969,845)	0	(5,969,845)	0	(5,969,845)	(1,072,252)	(7,042,097)	0	(7,042,097)	(1,262,285)	(8,304,382)	0	(8,304,382)
Less: Stormwater Credit Program Cost	(185,167)	0	(185,167)	0	(185,167)	(26,368)	(211,535)	0	(211,535)	(29,062)	(240,597)	0	(240,597)
Total Revenues Net of Uncollectible	202,664,330	46,506,381	249,170,711	0	249,170,711	44,096,616	293,267,327	0	293,267,327	52,540,168	345,807,495	0	345,807,495
Revenue Requirements:													
O & M Expense	135,911,272		135,911,272	0	135,911,272	9,730,412	145,641,684	0	145,641,684	13,981,720	159,623,404	0	159,623,404
Senior Lien Debt Service (2)	70,718,091		70,718,091	0	70,718,091	10,361,724	81,079,816	0	81,079,816	13,266,125	94,345,941	0	94,345,941
All Other Debt Service (2)	26,214,534		26,214,534	0	26,214,534	12,882,721	39,097,256	0	39,097,256	2,127,260	41,224,516	0	41,224,516
Cash-Financed Capital (Base Rates)	0		0	0	0	2,000,000	2,000,000	0	2,000,000	10,000,000	12,000,000	0	12,000,000
Cash-Financed Capital (DSIC)	15,037,055		15,037,055	0	15,037,055	2,651,049	17,688,104	0	17,688,104	3,238,949	20,927,053	0	20,927,053
Restricted Reserve Contributions	0		0	0	0	0	0	0	0	0	0	0	0
Operating Reserve Contribution	1,000,000		1,000,000	0	1,000,000	6,000,000	7,000,000	0	7,000,000	10,000,000	17,000,000	0	17,000,000
Other Expenses (3)													
DWSL	0		0	0	0	250,000	250,000	0	250,000	0	250,000	0	250,000
Hardship Grant Funding	0		0	0	0	216,320	216,320	0	216,320	0	216,320	0	216,320
Arrearage Funding	240,000		240,000	0	240,000	0	240,000	0	240,000	0	240,000	0	240,000
Total Revenue Requirements	249,120,952		249,120,952	0	249,120,952	44,092,227	293,213,179	0	293,213,179	52,614,054	345,827,233	0	345,827,233
Revenue Surplus / (Deficit)	(46,456,622)		49,759	0	49,759		54,148		54,148		(19,738)		(19,738)
Fund Balance Transactions													
Contributions (to)/from Operations	1,000,000		1,000,000	0	1,000,000		7,000,000	0	7,000,000		17,000,000	0	17,000,000
Contributions (to)/from Rate Stabilization Fund	0		0	0	0		0	0	0		0	0	0
Contributions (to)/from Operating Reserve	0		0	0	0		(2,274,992)	0	(2,274,992)		(1,395,217)	0	(1,395,217)
Ending Unrestricted Cash Balance	44,298,196		90,804,577		90,804,577		95,583,733		95,583,733		111,168,777		111,168,777
KEY FINANCIAL METRICS													
			<u>PWSA Filing</u>		<u>PWSA Filing</u>		<u>PWSA Filing</u>		<u>ALJ Adjusted</u>		<u>PWSA Filing</u>		<u>ALJ Adjusted</u>
Debt Service Coverage													
Senior (1.25 Requirement)	0.99		1.65		1.65		1.86		1.86		2.01		2.01
Total (1.10 Requirement)	0.72		1.20		1.20		1.25		1.25		1.40		1.40
Days Cash on Hand (4)	120.8		247.6		247.6		243.6		243.6		258.7		258.7
Days Cash on Hand with ALCOSAN (4)	70.75		145.0		145.0		142.5		142.5		152.7		152.7

(1) Company Main Brief

(2) Includes Principal and Interest payments on existing and proposed debt.

(3) Several programs funded, including assistance with sewer laterals and components of the customer assistance program.

(4) Calculated using Operating & Maintenance Expenses (excludes non-operating expenses).

TABLE I(A)
 Pittsburgh Water and Sewer Authority
 FPPTY 2024-2026 KEY RATIOS
 Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

Key Ratio Breakdown	(A)	(B)	(C)	(D)	(E)	(F)	(G)
	FPPTY 2024			2025 Rate Year		2026 Rate Year	
	PWSA	PWSA	ALJ	PWSA	PWSA	ALJ	ALJ
	Revenue at Current Rates	Revenue At Proposed Rates	Revenue At Adjusted Rates	Revenue At Proposed Rates	Revenue At Adjusted Rates	Revenue At Proposed Rates	Revenue At Adjusted Rates
	\$	\$	\$	\$	\$	\$	\$
Debt Service Coverage							
Operating Revenues	208,819,342	255,325,723	255,325,723	300,520,959	300,520,959	354,352,473	354,352,473
Less:							
Adjustments	(6,395,011)	(6,395,011)	(6,395,011)	(7,959,952)	(7,959,952)	(9,251,299)	(9,251,299)
Net Collected Revenues	202,424,330	248,930,711	248,930,711	292,561,007	292,561,007	345,101,175	345,101,175
Less:							
Current Expenses	(135,911,272)	(135,911,272)	(135,911,272)	(145,641,684)	(145,641,684)	(159,623,404)	(159,623,404)
Adjustments:							
City Payments	3,419,629	3,419,629	3,419,629	3,624,807	3,624,807	3,842,295	3,842,295
Placeholder							
Placeholder							
Revenues Available for Debt Service	69,932,687	116,439,068	116,439,068	150,544,130	150,544,130	189,320,066	189,320,066
Senior Lien Debt Service	70,718,091	70,718,091	70,718,091	81,079,816	81,079,816	94,345,941	94,345,941
All Other Debt Service	26,214,534	26,214,534	26,214,534	39,097,256	39,097,256	41,224,516	41,224,516
Total Debt Service	96,932,626	96,932,626	96,932,626	120,177,071	120,177,071	135,570,456	135,570,456
Senior Lien Debt Service Coverage	0.99	1.65	1.65	1.86	1.86	2.01	2.01
Total Debt Service Coverage	0.72	1.20	1.20	1.25	1.25	1.40	1.40
Days Cash on Hand							
Ending Cash Balance	44,298,196	90,804,577	90,804,577	95,583,733	95,583,733	111,168,777	111,168,777
Operating Expenses	135,911,272	135,911,272	135,911,272	145,641,684	145,641,684	159,623,404	159,623,404
Adjustments:							
(Loss) / Gain on ALCOSAN Billings	(2,066,814)	(2,066,814)	(2,066,814)	(2,400,861)	(2,400,861)	(2,771,926)	(2,771,926)
Add: Adjustments to ALCOSAN Placeholder	0	0	0	0	0	0	0
Net Operating Expenses	133,844,458	133,844,458	133,844,458	143,240,823	143,240,823	156,851,478	156,851,478
Days Cash on Hand (x 365)	120.8	247.6	247.6	243.6	243.6	258.7	258.7
Including ALCOSAN							
Add: ALCOSAN Charges	94,684,852	94,684,852	94,684,852	101,502,162	101,502,162	108,810,317	108,810,317
Days Cash on Hand (x 365)	70.8	145.0	145.0	142.5	142.5	152.7	152.7

(1) Company Main Brief
 (2) Revenue adjusted to meet to Revenue Requirements.

TABLE II
Pittsburgh Water and Sewer Authority
RATE FILING REVENUE DETAIL
Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

Description	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
	FPFTY 2024					2025 Rate Year				2026 Rate Year			
	PWSA	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties	PWSA	PWSA	ALJ / Parties	ALJ / Parties
Revenue at Current Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	
0													
\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Retail User Charge Revenues													
Water	120,501,682	29,903,360	150,405,042	0	150,405,042	11,732,871	162,137,913	0	162,137,913	31,875,144	194,013,057	0	194,013,057
Water - Public Hydrants	1,330,184	716,741	2,046,925	0	2,046,925	386,913	2,433,838	0	2,433,838	478,432	2,912,270	0	2,912,270
Wholesale/Contract Revenues	3,726,934	679,365	4,406,299	0	4,406,299	286,863	4,693,162	0	4,693,162	722,358	5,415,520	0	5,415,520
Sewer	48,144,421	1,944,598	50,089,019	0	50,089,019	2,063,062	52,152,081	0	52,152,081	8,431,517	60,583,598	0	60,583,598
Stormwater	19,962,786	5,748,814	25,711,600	0	25,711,600	4,671,845	30,383,445	0	30,383,445	5,145,894	35,529,339	0	35,529,339
Stormwater Only	3,154,950	908,753	4,063,703	0	4,063,703	738,148	4,801,851	0	4,801,851	813,520	5,615,371	0	5,615,371
Subtotal: Retail User Charge Revenues	196,820,957	39,901,631	236,722,588	0	236,722,588	19,879,702	256,602,290	0	256,602,290	47,466,865	304,069,155	0	304,069,155
Infrastructure Improvement Charge													
Water	0	0	0	0	0	14,087,521	14,087,521	0	14,087,521	2,031,854	16,119,375	0	16,119,375
Sewer	0	0	0	0	0	2,932,571	2,932,571	0	2,932,571	79,259	3,011,830	0	3,011,830
Stormwater	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal: Infrastructure Improvement Charge	0	0	0	0	0	17,020,092	17,020,092	0	17,020,092	2,111,113	19,131,205	0	19,131,205
Customer Assistance Program Charge													
Water	0	0	0	0	0	3,205,897	3,205,897	0	3,205,897	534,316	3,740,213	0	3,740,213
Sewer	0	0	0	0	0	1,325,402	1,325,402	0	1,325,402	233,894	1,559,296	0	1,559,296
Stormwater	0	0	0	0	0	1,041,772	1,041,772	0	1,041,772	173,629	1,215,401	0	1,215,401
Subtotal: Customer Assistance Program Charge	0	0	0	0	0	5,573,071	5,573,071	0	5,573,071	941,839	6,514,911	0	6,514,911
DSIC Revenues													
Water	5.0%		7.5%		7.5%				7.5%				7.5%
Sewer	5.0%		7.5%		7.5%				7.5%				7.5%
Stormwater (NSWO)	0.0%		0.0%		0.0%				0.0%				0.0%
Stormwater Only	0.0%		0.0%		0.0%				0.0%				0.0%
Water	6,025,084	5,255,294	11,280,378	0	11,280,378	2,176,972	13,457,350	0	13,457,350	2,583,099	16,040,448	0	16,040,448
Sewer	2,407,221	1,349,455	3,756,676	0	3,756,676	474,078	4,230,754	0	4,230,754	655,850	4,886,604	0	4,886,604
Stormwater (NSWO)	0	0	0	0	0	0	0	0	0	0	0	0	0
Stormwater Only	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal: DSIC Revenues	8,432,305	6,604,749	15,037,055	0	15,037,055	2,651,049	17,688,104	0	17,688,104	3,238,949	20,927,053	0	20,927,053
Other System Revenues													
Other Operating & Non-Operating Revenues	3,566,080	0	3,566,080	0	3,566,080	71,322	3,637,402	0	3,637,402	72,748	3,710,150	0	3,710,150
Subtotal: Other System Revenues	3,566,080	0	3,566,080	0	3,566,080	71,322	3,637,402	0	3,637,402	72,748	3,710,150	0	3,710,150
Subtotal: Total Revenues before Uncollectible	208,819,342		255,325,723		255,325,723		300,520,959		300,520,959		354,352,473		354,352,473
Less: Uncollectible Revenues	(4,953,919)	0	(4,953,919)	0	(4,953,919)	(887,715)	(5,841,634)	0	(5,841,634)	(1,058,905)	(6,900,539)	0	(6,900,539)
Less: Uncollectible Revenues (SW Only)	(1,015,926)	0	(1,015,926)	0	(1,015,926)	(184,537)	(1,200,463)	0	(1,200,463)	(203,380)	(1,403,843)	0	(1,403,843)
Less: Stormwater Credit Program	(185,167)	0	(185,167)	0	(185,167)	(26,368)	(211,535)	0	(211,535)	(29,062)	(240,597)	0	(240,597)
Subtotal: Less: Uncollectible Revenues	(6,155,011)	0	(6,155,011)	0	(6,155,011)	(1,098,621)	(7,253,632)	0	(7,253,632)	(1,291,347)	(8,544,979)	0	(8,544,979)
Total Revenues Net of Uncollectible	202,664,330	46,506,381	249,170,711	0	249,170,711	44,096,616	293,267,327	0	293,267,327	52,540,168	345,807,495	0	345,807,495
Summary													
Revenue from Base Rates			39,901,631		39,901,631		19,879,702		19,879,702		47,466,865		47,466,865
Revenue from New Reconcilable Charges			0		0		22,593,163		22,593,163		3,052,953		3,052,953
Revenue from DSIC			6,604,749		6,604,749		2,651,049		2,651,049		3,238,949		3,238,949
Revenue from Other System Revenues			0		0		71,322		71,322		72,748		72,748
Total Revenue Increase before Uncollectible			46,506,381		46,506,381		45,195,236		45,195,236		53,831,514		53,831,514
Change in Uncollectible Revenues			0		0		(1,098,621)		(1,098,621)		(1,291,347)		(1,291,347)
Total Revenue Increase with Uncollectible			46,506,381		46,506,381		44,096,616		44,096,616		52,540,168		52,540,168

(1) Company Main Brief

VERIFICATION

I, William J. Pickering, hereby state that: (1) I am the Chief Executive Officer for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 09/05/2023 | 12:50 PM PDT

DocuSigned by:
William J. Pickering
6C8AA5A5E44147A...

William J. Pickering
Chief Executive Officer
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

EDWARD BARCA

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Revenue Requirement Recommendations of Other Parties
Expense Adjustment Recommendations of Other Parties
PWSA's Financial Metrics

September 8, 2023

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Exhibit EB 11	Normalization re: Employee Parking Lease
Exhibit EB 12	Utility Expenses, Electric
Exhibit EB 13	Utility Expenses, Natural Gas
Exhibit EB 14	Response to PWSA’s interrogatories

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Edward Barca and I am the Director of Finance for The Pittsburgh Water and
4 Sewer Authority (“PWSA” or “Authority”).

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I submitted Direct Testimony (PWSA St. No. 2) together with accompanying
7 exhibits EB-1 to EB-9 on May 9, 2023.

8 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

9 A. My rebuttal testimony responds to the various recommendations including financial
10 metrics, revenue, and expense recommendations contained in certain portions of the
11 direct testimony submitted by the Bureau of Investigation and Enforcement (“I&E”), the
12 Office of Consumer Advocate (“OCA”), the Office of Small Business Advocate
13 (“OSBA”), Pittsburgh United’s Our Water Table (“Pittsburgh United”) and the Pittsburgh
14 School District (“School District”) (together, "the Opposing Parties").

15 I have attempted to respond to the specific statements and recommendations made
16 by the other parties’ witnesses. In the event that an issue is not addressed, this should not
17 be viewed as my acceptance of their testimony. Rather it reflects my belief that a further
18 response in this rebuttal testimony is not warranted, either because it was adequately
19 addressed in my direct testimony, is being addressed by other rebuttal testimony, or
20 because it is a legal matter that is better addressed by counsel in briefs or other pleadings.

21 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

22 A. Yes. I am sponsoring the following exhibits:

Exhibit EB 10	Commitments re: Wet Weather Consent Decree
Exhibit EB 11	Normalization re: Employee Parking Lease
Exhibit EB 12	Utility Expenses, Electric
Exhibit EB 13	Utility Expenses, Natural Gas
Exhibit EB 14	Response to PWSA’s interrogatories

1 **II. REVENUE REQUIREMENT CALCULATION**

2 **Q. DID ANY OF THE OTHER PARTIES MAKE RECOMMENDATIONS**
3 **REGARDING PWSA'S REVENUE REQUIREMENT?**

4 A. Yes. The direct testimonies of I&E, OCA and OSBA recommend revenue requirement
5 and expense adjustments.

6 **Q. PLEASE SUMMARIZE THEIR OVERALL RECOMMENDATION**
7 **REGARDING REVENUE REQUIREMENT.**

8 A. I&E's FPFTY revenue recommendation net of uncollectible is \$195,760,896 with a
9 revenue requirement recommendation of \$195,716,235. This revenue recommendation
10 represents a **decrease** of \$6,898,845 from PWSA's current rates. No revenue requirement
11 recommendation was provided for FY 2025 and FY 2026 due to I&E's rejection of
12 PWSA's proposed multi-year rate increase.

13 OCA's FPFTY revenue recommendation is \$239,067,140 with a revenue
14 requirement recommendation of \$233,519,328. This revenue recommendation represents
15 an increase of \$30,584,475 from PWSA's current rates. No revenue requirement
16 recommendation was provided for FY 2025 and FY 2026 due to the rejection by OCA of
17 PWSA's proposed multi-year rate increase.

18 It is my understanding that the OSBA did not provide total recommended revenue
19 requirements. However, OSBA did offer conclusions and recommendations to PWSA's
20 proposed revenue requirement specific to staffing, salaries, and inflationary adjustments.

21 The following table shows these recommendations:

Recommended Revenue Requirement and Claimed Financial Metrics				
FPFTY	PWSA	I&E	OCA	OSBA
Recommended Rate Increase	\$46.836 M	(\$6.898 M)	\$30.584 M	\$34.057 M ¹
Debt Service Coverage Ratio (DSCR):				
Senior (1.25x requirement)	1.65	1.70	1.65	--
Total (1.1x requirement)	1.21	1.11	1.21	--
Days of Cash on Hand (DCOH)				
DCOH	247.6	293.1	279.08	--
DCOH with ALCOSAN	145.0	159.5	155.27	--

1 However, the financial metrics claimed to be produced by the Opposing Parties’
2 recommendations are inflated due to their use of “normalization” and other adjustments
3 which artificially lowers PWSA’s expected levels of operating expenses and debt service
4 in the FPFTY. In reality, the financial metrics produced by these recommendations are as
5 follows:

¹ PWSA claimed revenue at proposed rates less \$7,938,311 for expense adjustments and less \$4,840,624 for DSIC adjustment: \$12,778,935

Opposing Parties Financial Metrics W/O Normalization				
FPFTY	PWSA	I&E	OCA	OSBA
Recommended Rate Increase	\$46.836 M	(\$6.898 M)	\$30.584 M	\$34.057 M ²
Debt Service Coverage Ratio (DSCR):				
Senior (1.25x requirement)	1.65	1.31	1.44	--
Total (1.1x requirement)	1.21	0.95	1.05	--
Days of Cash on Hand (DCOH)				
DCOH	247.6	181.3	206.9	--
DCOH with ALCOSAN	145.0	106.2	121.2	--

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Q. DO YOU HAVE AN OVERALL RESPONSE TO THESE RECOMMENDATIONS?

A. Yes. The rate increase recommendations provided by I&E, OCA and OSBA will not produce the financial metrics that they claim and will not provide PWSA with the necessary resources to achieve its mission, which is to support the Pittsburgh region by protecting public health and the environment through the delivery of safe and reliable water services with a commitment to future generations. In fact, the impact of the recommendations would be so severe that PWSA would need to contemplate whether to defer planned maintenance, cancel all active capital projects, and/or freeze the expansion of operations to stay financially solvent. The PUC should not force such a dire situation upon PWSA. I am hopeful that I&E, OCA and OSBA will reconsider their revenue recommendations once they have an opportunity to review this testimony, but in any

² PWSA claimed revenue at proposed rates less \$7,938,311 for expense adjustments and less \$4,840,624 for DSIC adjustment: \$12,778,935

1 event the PUC should not consider accepting their flawed and counterproductive
2 recommendations.

3 **III. ADDITIONAL BONDS TEST**

4 **Q. DO YOU HAVE A GENERAL COMMENT IN RESPONSE TO THE REVENUE**
5 **RECOMMENDATIONS OF THE OPPOSING PARTIES?**

6 A. Yes, the recommendations from I&E and OSBA are deficient because, if implemented,
7 PWSA would fail the additional bonds test, causing an abrupt and shocking end to
8 PWSA's efforts to modernize its antiquated water system. The recommendation for
9 OCA does not fail the additional bonds test. However, as explained below, this is
10 achieved by "pretending" that PWSA does not need the full amount of the requested
11 FPPTY revenue requirement, which is not a realistic assumption.

12 **Q. WHAT IS THE "ADDITIONAL BONDS TEST" AND WHAT IMPACT DOES**
13 **THAT HAVE AN ISSUING BONDS?**

14 A. As defined in Section 3.02 of the Amended and Restated Trust Indenture
15 ("Indenture"), the PWSA must satisfy the following additional bonds test prior to
16 issuing additional bonds:

- 17 • A certificate of (A) a Qualified Independent Consultant, stating that based on the
18 Authority's financial records for a Test Period, the Authority would have been
19 able to meet the Rate Covenant in Section 7.01, taking into account
 - 20 ○ (i) the maximum Annual Debt Service on the proposed Series of
21 Additional Bonds in the current or any future Fiscal Year,
 - 22 ○ (ii) the additional Net Revenue from the rates, fees and other charges
23 adjusted to reflect any rate increases that had not been in effect throughout
24 the Test Period but that have been approved by and can be implemented
25 by the Authority at the time of delivery of the proposed Series of
26 Additional Bonds to go into effect within the following five years; and
 - 27 ○ (iii) additional Net Revenues that the Authority may realize from the
28 addition to the System of the assets it proposes to finance through the
29 issuance of the proposed Series of Additional Bonds or other funding
30 sources within the following five years or (B) the Authorized
31 Representative of the Authority stating that based on the Authority's
32 financial records for a Test Period, the Authority has met the Rate

1 Covenant in Section 7.01, taking into account the maximum Annual Debt
 2 Service on the proposed Series of Additional Bonds. In making the
 3 certifications required under this paragraph, the Authorized Representative
 4 of the Authority or the Qualified Independent Consultant, as applicable,
 5 shall determine and utilize the Additional Indebtedness Test Net Revenues
 6 in place of the Rate Covenant Net Revenues in determining whether the
 7 Authority would have been able to meet the Rate Covenant in Section
 8 7.01.

9 In summary, the Additional Bonds Test requires that the PWSA meet its required
 10 debt service coverage ratios (i.e. Rate Covenant) taking into account current rates and the
 11 maximum annual debt service of a proposed series of bonds prior to issuing additional
 12 bonds. The Indenture does not allow the PWSA to factor in unauthorized future rate
 13 increases when calculating the additional bonds test. **Failure to satisfy the Additional**
 14 **Bonds Test prohibits the PWSA from issuing bonds. I would note that the**
 15 **Commission is required to set rates for PWSA that will permit it to comply with its**
 16 **bond covenants, one of which is the Additional Bonds Test.**³

17 **Q. DOES I&E ACCURATELY ACCOUNT FOR PWSA’S EXISTING FPPTY DEBT**
 18 **SERVICE WITHIN THEIR REVENUE REQUIREMENT**
 19 **RECOMMENDATION?**

20 **A.** No. As shown below, I&E’s revenue requirement recommendation understates PWSA’s
 21 FPPTY existing debt service by the amount of \$12,057,362, which, if adopted, would
 22 cause PWSA to default on its existing debt obligations. This type of adjustment discredits
 23 the reliability of I&E’s recommendation as it would have a catastrophic impact on
 24 PWSA’s credit rating and ability to borrow in the future. As I will describe below, this
 25 understatement of PWSA’s existing debt service impacts the additional bonds test.

³ (c) Securities of authority.--Notwithstanding any provision in this title to the contrary: (1) The commission shall permit an authority to impose, charge or collect rates or charges as necessary to permit the authority to comply with its covenants to the holders of any bonds or other financial obligations. 52 Pa. Code § 3208 (c)(1).

FPFTY	PWSA Existing Debt Service	I&E Existing Debt Service Recommendation	Difference
Senior Lien	\$61,663,907	\$49,606,545	\$12,057,362
All Other Debt Service	\$26,214,534	\$26,214,534	\$0
TOTAL:	\$87,878,442	\$75,821,080	\$12,057,362

1

2 **Q. DOES PWSA PASS THE ADDITIONAL BONDS TEST IF THE FPFTY**
 3 **REVENUE REQUIREMENT RECOMMENDATIONS OF I&E WERE**
 4 **ADOPTED?**

5 A. PWSA would fail the additional bonds test if I&E’s FPFTY revenue requirement
 6 recommendation was adopted. Below are three calculations that demonstrate this failure.

7 Scenario 1 below displays the additional bonds test using I&E’s proposed FPFTY
 8 revenue requirement recommendation. This scenario shows that PWSA would fail the
 9 test by \$5,613,605, immediately stopping all capital improvements due to the inability to
 10 borrow any additional funds. This failure, while completely unacceptable, also drastically
 11 underestimates the amount of additional revenues truly needed to issue additional debt
 12 since it does not include the correct existing debt service and omits any additional debt
 13 service for future borrowings. Even with these issues, Mr. Spadaccio claims in his
 14 Discovery Response to PWSA-I&E-I-6 (See PWSA Exhibit EB-14) that he believes the
 15 I&E revenue requirement recommendation was “sufficient in meeting the additional
 16 bonds test.” This is clearly not the case and further discredits the reliability of I&E’s
 17 FPFTY revenue requirement.

18 Scenario 2 displays the additional bonds test after properly adjusting the user
 19 charges and DSIC revenues and expenses to account for the capital requirements
 20 reduction and PWSA’s proposed revenue requirements, which includes the correct
 21 FPFTY existing debt service. The deficit of \$12,275,491 represents the real impact of

1 I&E’s revenue requirement recommendation. However, this amount still underestimates
 2 the amount needed to pass the additional bonds test since it does not include additional
 3 debt service for future borrowings.

4 Scenario 3 displays the same information as scenario 2 but includes \$9,054,184 of
 5 additional debt service to fund the Series A of 2024 bonds in the principal amount of
 6 \$150,000,000. **These corrections result in a deficit of \$23,593,221, which represents**
 7 **the additional revenues that must be added to I&E’s FPFTY revenue requirement**
 8 **recommendation solely for PWSA to meet the additional bonds test.**

Additional Bonds Test	Scenario 1	Scenario 2	Scenario 3
	I & E - Proposed Revenue Requirement	I & E - Corrected Proposed Revenue Requirement with Corrected Existing Debt Service	I & E - Corrected Proposed Revenue Requirement with Additional Debt
2024 Rate Covenant Net Revenues	\$84,230,564	\$92,536,486	\$92,536,486
Plus Transfer to Rate Stabilization Fund	\$1,000,000	\$1,000,000	\$1,000,000
Additional Indebtedness Test Net Revenues	\$85,230,564	\$93,536,486	\$93,536,486
2024 Rate Covenant First Lien Debt Service	\$49,606,545	\$61,663,907	\$61,663,907
Series A of 2024 Maximum Annual Debt Service	\$0	\$0	\$9,054,184
First Lien Debt Service for Additional Bonds Test	\$49,606,545	\$61,663,907	\$70,718,091
First Lien Debt Service for Additional Bonds Test * 125%	\$62,008,181	\$77,079,884	\$88,397,614
First Lien Revenue Surplus / (Deficiency)	\$23,222,383	\$16,456,602	\$5,138,872
2024 Rate Covenant Subordinate Lien Debt Service	\$26,214,534	\$18,516,886	\$18,516,886
Additional PENNVEST	\$0	\$3,964,098	\$3,964,098
WIFIA Maximum Annual Debt Service	\$0	\$3,639,101	\$3,639,101
Subordinate Lien Debt Service for Additional Bonds Test	\$26,214,534	\$26,120,085	\$26,120,085
2024 Rate Covenant Subordinate Lien Debt Service * 110%	\$28,835,987	\$28,732,094	\$28,732,094
125% First + 110% Subordinate Lien Rate Covenant Debt Service	\$90,844,169	\$105,811,977	\$117,129,707
Subordinate Lien Revenue Surplus / (Deficiency)	(\$5,613,605)	(\$12,275,491)	(\$23,593,221)
Total Debt Service for Additional Bonds Test (100%)	\$75,821,079	\$87,783,992	\$96,838,176
Total Revenue Surplus / (Deficiency)	\$9,409,485	\$5,752,494	(\$3,301,690)

9
 10 **Q. WHAT CAN YOU CONCLUDE ABOUT I&E FPFTY REVENUE**
 11 **REQUIREMENT RECOMMENDATION AS IT RELATES TO ADDITIONAL**
 12 **BONDS TEST?**

13 **A.** I&E’s FPFTY revenue requirement recommendation would result in the reduction of
 14 revenues strikingly below an adequate level to pay existing debt service and stop all
 15 future borrowing for PWSA’s capital improvement plan resulting from the failure to pass
 16 the Additional Bonds Test. Recommending revenues that would lead to this type of

1 failure clearly demonstrates that I&E does not understand the Additional Bonds Test and
2 that their FPFTY revenue requirement cannot be relied upon. Looking at the Additional
3 Bonds Test alone, PWSA needs an increase of at least \$23,593,221 in order to meet that
4 test and comply with the statutory directive that the PUC is obligated to set rates to
5 permit PWSA to comply with all of its bond covenants, of which the Additional Bonds
6 Test is one of the most important.

7 **Q. DOES PWSA PASS THE ADDITIONAL BONDS TEST IF THE FPFTY**
8 **REVENUE REQUIREMENT RECOMMENDATIONS OF OCA WERE**
9 **ADOPTED?**

10 A. Yes, as shown below as scenario 1. However, this was achieved through reducing
11 PWSA's proposed operating expenses by the amount of OCA's proposed revenue
12 reduction while also not adjusting PWSA's FPFTY debt service claim, which effectively
13 results in the same rate covenant net revenues to pay debt service that was proposed by
14 PWSA. The problem with his approach is that it "artificially" shows that PWSA would
15 be in compliance with the additional bonds test by assuming that PWSA's operating
16 expenses are going to be much lower than projected. If the Commission were to adopt the
17 OCA's recommendation PWSA would have no choice but to try to reduce its operations
18 so that its operating expenses were consistent with OCA's perceived "normalized"
19 amount. This would seriously threaten PWSA's ability to continue to provide safe and
20 reliable service to its customers. At the very least, many important initiatives and projects
21 would have to be slowed or eliminated. These includes but are not limited to: 1) freezing
22 hiring and potentially laying off staff; 2) reducing project funding for regulatory
23 obligations, such as Washout Disconnections and CSO flow monitoring; and 3) reducing
24 plant and building repairs at PWSA's Water Treatment Plant. Continuing to defer these
25 repairs is eventually going to lead to a physical security breach or catastrophic failure of

1 plant infrastructure. This would put the safety and security of PWSA’s employees and
 2 customers in jeopardy while also costing more to fix on an emergency basis.
 3 Scenario 2 displays OCA’s proposed revenues with PWSA’s revenue requirement, which
 4 showing the true impact of OCA’s recommendation. \$14,191,098 would need to be
 5 added to OCA’s recommendation solely to meet the Additional Bonds Test.

6

Additional Bonds Test	Scenario 1	Scenario 2
	OCA - Proposed Revenue Requirement	OCA - Proposed Revenues with PWSA Revenue Requirement
2024 Rate Covenant Net Revenues	\$116,853,909	\$101,938,609
Plus Transfer to Rate Stabilization Fund	\$1,000,000	\$1,000,000
Additional Indebtedness Test Net Revenues	\$117,853,909	\$102,938,609
2024 Rate Covenant First Lien Debt Service	\$61,663,907	\$61,663,907
Series A of 2024 Maximum Annual Debt Service	\$9,054,184	\$9,054,184
First Lien Debt Service for Additional Bonds Test	\$70,718,091	\$70,718,091
First Lien Debt Service for Additional Bonds Test * 125%	\$88,397,614	\$88,397,614
First Lien Revenue Surplus / (Deficiency)	\$29,456,295	\$14,540,995
2024 Rate Covenant Subordinate Lien Debt Service	\$18,516,886	\$18,516,886
Additional PENNVEST	\$3,964,098	\$3,964,098
WIFIA Maximum Annual Debt Service	\$3,639,101	\$3,639,101
Subordinate Lien Debt Service for Additional Bonds Test	\$26,120,085	\$26,120,085
2024 Rate Covenant Subordinate Lien Debt Service * 110%	\$28,732,094	\$28,732,094
125% First + 110% Subordinate Lien Rate Covenant Debt Service	\$117,129,707	\$117,129,707
Subordinate Lien Revenue Surplus / (Deficiency)	\$724,202	(\$14,191,098)
Total Debt Service for Additional Bonds Test (100%)	\$96,838,176	\$96,838,176
Total Revenue Surplus / (Deficiency)	\$21,015,733	\$6,100,433

7

8 **Q. DOES PWSA PASS THE ADDITIONAL BONDS TEST IF THE FPPTY**
 9 **REVENUE REQUIREMENT RECOMMENDATIONS OF OSBA WERE**
 10 **ADOPTED?**

11 A. No. As previously described, OSBA’s proposed several revenue requirement adjustments
 12 related to new staff hiring, cost of living adjustment, other employee expenses, and
 13 inflation adjustment, but not a total revenue requirement. The Additional Bonds Test
 14 below displays OSBA’s proposed revenues but included PWSA’s proposed revenue

1 requirement as OSBA’s proposed revenue requirement will not truly reflect the amount
 2 PWSA will spend in the FPPTY. \$12,551,035 would need to be added to OSBA’s
 3 recommendation solely to meet the Additional Bonds Test.

Additional Bonds Test	OSBA - Proposed Revenues with PWSA Revenue Requirement
2024 Rate Covenant Net Revenues	\$103,578,672
Plus Transfer to Rate Stabilization Fund	\$1,000,000
Additional Indebtedness Test Net Revenues	\$104,578,672
2024 Rate Covenant First Lien Debt Service	\$61,663,907
Series A of 2024 Maximum Annual Debt Service	\$9,054,184
First Lien Debt Service for Additional Bonds Test	\$70,718,091
First Lien Debt Service for Additional Bonds Test * 125%	\$88,397,614
First Lien Revenue Surplus / (Deficiency)	\$16,181,058
2024 Rate Covenant Subordinate Lien Debt Service	\$18,516,886
Additional PENNVEST	\$3,964,098
WIFIA Maximum Annual Debt Service	\$3,639,101
Subordinate Lien Debt Service for Additional Bonds Test	\$26,120,085
2024 Rate Covenant Subordinate Lien Debt Service * 110%	\$28,732,094
125% First + 110% Subordinate Lien Rate Covenant Debt Service	\$117,129,707
Subordinate Lien Revenue Surplus / (Deficiency)	(\$12,551,035)
Total Debt Service for Additional Bonds Test (100%)	\$96,838,176
Total Revenue Surplus / (Deficiency)	\$7,740,496

4

5 **IV. DEBT SERVICE COVERAGE RATIO**

6 **Q. PLEASE SUMMARIZE THE POSITIONS OF THE OTHER PARTIES ON THE**
 7 **DEBT SERVICE COVERAGE RATIO.**

8 A. I&E claims that its proposed rates in the FPPTY that would result in the Debt Service
 9 Coverage Ratio (DSCR) of 1.70x for senior debt service and 1.11x for total debt service.
 10 OCA is recommending a DSCR of 1.6524x for senior debt service and 1.2055x for total
 11 debt service.

1 **Q. PLEASE RESPOND TO I&E'S & OCA'S RECOMMENDED FPFTY DEBT**
2 **SERVICE COVERAGE RATIOS.**

3 A. PWSA does not agree with either of the recommended FPFTY debt service coverage
4 ratios recommended by I&E and OCA. First, I&E's claimed senior and total debt service,
5 as with the OCA, are arrived at by pretending that PWSA will incur operating expenses
6 on a "normalized" level rather than on the level projected in PWSA's approved operating
7 budget. In reality, I&E's recommendation would result in a senior debt service coverage
8 of 1.31x and a catastrophic 0.95x total debt service. Likewise, OCA's recommendation
9 actually results in a senior debt service coverage of 1.44x and an equally catastrophic
10 1.05x total debt service. Debt service coverage ratios at these levels would be a disaster
11 for PWSA and cause multiple bond covenant defaults. PWSA's legal requirement for
12 senior debt is 1.25x and 1.10x for total debt. However, these legal requirements should
13 not be the levels that PWSA's revenue requirement be set at.

14 As further discussed in Ms. Fay's testimony, the levels recommended by I&E and
15 OCA are not acceptable. PWSA needs to strive for a much higher coverage levels, as
16 supported by guidance released by S&P Global Ratings and Moody's as well as actual
17 performance of peer utilities.

18 **Q. DOES MR. SPADACCIO CLAIM THAT UNRESTRICTED CASH CAN BE**
19 **USED TO HELP MEET PWSA'S DEBT SERVICE COVERAGE RATIO'S?**

20 A. Yes, Mr. Spadaccio makes this claim in his testimony (I&E Statement No. 1, page 20 at
21 13-14). Additionally, he further supports this claim through the response to Discovery
22 Question PWSA-I&E-I-13, which states "Yes, if necessary, PWSA's unrestricted cash
23 can be used to meet debt service obligations."

1 **Q. IS HIS CLAIM TRUE THAT UNRESTRICTED CASH CAN BE USED TO MEET**
2 **PWSA’S DEBT SERVICE COVERAGE RATIO’S?**

3 A. No, it is not legally permissible for PWSA to use unrestricted cash in this manner. As
4 defined in Section 7.01(c) of the Amended and Restated Trust Indenture (“Indenture”),
5 the Authority’s rate covenant is defined as follows:

6 (c) The Authority shall fix, charge and collect such rates, fees and other charges
7 for the use of and the services furnished by the System and shall, from time to
8 time and as often as shall appear necessary, revise such rates, fees and other
9 charges so as to satisfy all of the following three independent requirements:

10 (i) Rate Covenant Net Revenues shall be sufficient in each Fiscal Year
11 (the Tested Fiscal Year”) to pay (A) Annual Debt Service on Senior Debt in such
12 Fiscal Year, (B) any amount necessary to be deposited in any Series Debt Service
13 Reserve Account to restore the amount on deposit therein to the applicable Series
14 Debt Service Reserve Requirement, (C) Annual Debt Service on Subordinate
15 Debt in such Fiscal Year (including reserves in connection therewith and the
16 required restoration thereof), (D) any amount required to be deposited in the
17 Operating Reserve Fund to cause the required balance therein to equal the
18 Operating Reserve Requirement, and (E) all other amounts which the Authority
19 may be law or contract to be obligated to pay; and

20 (ii) Rate Covenant Net Revenues in each Fiscal year shall equal not less
21 than: (A) 125% of the Annual Debt Service with respect to Senior Debt for such
22 Fiscal Year; plus (B) 110% of the aggregate Annual Debt Service with respect to
23 Subordinate Debt for such Fiscal Year; and

24 (iii) Rate Covenant Net Revenues, excluding transfers from the Rate
25 Stabilization Fund to the Revenue Fund (as provided in Section 6.08 hereof) and
26 the proceeds of Grants, shall equal not less than 100% of Annual Debt Service on
27 Senior Debt and Subordinate Debt for such Fiscal Year.

28
29 The term Net Revenues is defined within the definitions section of the Indenture
30 as “Revenues of the Authority for such period, less all Current Expenses for such period.”

31 This means that Net Revenues available for the rate covenant test can only include the net
32 amount of revenues collected within a year and cannot include other sources, such as
33 unrestricted cash.

1 It appears that Mr. Spadaccio was unaware of this requirement within PWSA's
2 Indenture, which raises additional concerns about the reliability of I&E's FPFTY revenue
3 requirement recommendation.

4 **V. DAYS CASH ON HAND**

5 **Q. PLEASE SUMMARIZE THE DAYS CASH ON HAND FPFTY**
6 **RECOMMENDATION OF I&E AND OCA.**

7 A. I&E claims that its proposed rates in the FPFTY would result in days cash on hand
8 (DCOH) of 293 days. OCA is recommending DCOH of 279.08 days without including
9 ALCOSAN billing and 155.27 days including ALCOSAN billing.

10 **Q. PLEASE RESPOND TO I&E'S & OCA'S FPFTY DAYS CASH ON HAND**
11 **RECOMMENDATION.**

12 A. PWSA does not agree with either of the days cash on hand levels proposed by I&E and
13 OCA. As previously mentioned, both parties are pretending that PWSA will incur
14 operating expenses on a "normalized" level rather than on the level projected in PWSA's
15 approved operating budget. Their recommendations actually result in 181.3 days of cash
16 on hand from I&E and 206.9 days cash on hand from OCA without ALCOSAN billings
17 and 106.2 days from I&E and 121.2 days from OCA with ALCOSAN billings.

18 As described by Ms. Fay, these proposed levels are not acceptable as they inhibit
19 PWSA's ability to continue to grow its reserves to levels that are comparable to its peers
20 as well as to levels that the rating agencies view as favorable in their scoring
21 methodologies. To stress the importance of this issue, I would like to note that PWSA
22 was downgraded by Moody's in 2018, mainly as a result of its extremely low level of
23 cash. While PWSA has improved its levels since then, Moody's has yet to upgrade
24 PWSA's bond rating. The days cash on hand metric is heavily monitored by the rating

1 agencies. Any sign that it will not continue to improve could cause have a negative
 2 impact on PWSA’s credit ratings.

3 **Q. IN RESPONSE TO YOUR TESTIMONY SHOWING THAT, WITHOUT THE**
 4 **REQUESTED RATE INCREASE PWSA’S DAYS OF CASH ON HAND (DCOH)**
 5 **WILL BE EXTREMELY LOW MR. SPADACCIO OPINED THAT RATING**
 6 **AGENCIES DO NOT EXPRESS CONCERN WITH DCOH FOR PWSA AND**
 7 **THAT I&E’S (\$6.9 MILLION) RATE REDUCTION WILL NONETHELESS**
 8 **PRODUCE 293 DCOH, WHICH HE CLAIMS IS “WITHIN THE RANGE” OF**
 9 **MOODY’S REQUIREMENTS FOR PWSA’S CREDIT RATING, “WELL**
 10 **ABOVE” PWSA’S HISTORICAL AND CLOSE TO PWSA’S “TARGET” RANGE**
 11 **FOR DCOH (I&E ST. NO. 1 AT 12-14). CAN YOU RESPOND?**

12 A. Ms. Fay will respond to Mr. Spadaccio’s claims regarding rating agency reaction but I
 13 will respond to the notion that a \$6.9 million reduction in PWSA’s present rates (as
 14 opposed to the \$46.8 million rate increase that PWSA is requesting for the FPFTY)
 15 somehow produces 293 DCOH. This claimed DCOH is produced by assuming that
 16 PWSA will not have some \$21 million in debt service obligations as well as making
 17 numerous “normalization” adjustments. But, as explained above, neither of these
 18 assumptions is consistent with the facts. As noted above, if the I&E recommendation
 19 were to be adopted PWSA would actually have 181 DCOH, which is not adequate, as
 20 Ms. Fay explains.

21 **VI. RATE STABILIZATION FUND**

22 **Q. DID ANY OF THE OTHER PARTIES PROPOSE REDUCTIONS TO PWSA’S**
 23 **CLAIM FOR THE RATE STABILIZATION FUND IN THE FPFTY.**

24 A. Yes. I&E agreed PWSA’s claim to add \$1,000,000 to the Rate Stabilization Fund in the
 25 FPFTY. I&E St. No. 1 at 20. I&E states that it reasonable for PWSA to maintain a small
 26 RSF as a financial cushion to deal with unforeseen circumstances and potential debt
 27 service deficiencies that could result from those circumstances. I&E St. No. 1 at 20.

1 **Q. DID ANY OF THE OTHER PARTIES PROPOSE REDUCTIONS TO PWSA’S**
 2 **CLAIM FOR THE RATE STABILIZATION FUND IN THE FORECAST**
 3 **PERIOD.**

4 A. I&E recommended disallowance of PWSA’s claims to add \$7.0 million in FY 2025, and
 5 \$17.0 million in FY 2026 to the Rate Stabilization Fund (“RSF”). I&E St. No. 1 at 20. In
 6 doing so, I&E explained that the funding of PWSA’s RSF be reevaluated in each of
 7 PWSA’s subsequent rate cases to determine whether it is prudent and reasonable as
 8 PWSA’s operations evolve under the Commission’s jurisdiction. I&E St. No. 1 at 20.

9 **Q. DOES PWSA AGREE WITH THOSE RECOMMENDATIONS FOR THE**
 10 **FORECAST PERIOD?**

11 A. No. PWSA’s current balance of \$9,850,000, of which \$4,500,000 is budgeted and
 12 planned to be used in FY 2023, is not nearly high enough. PWSA needs to continue to
 13 grow its Rate Stabilization Fund balance to help cope with unexcepted economic events
 14 that negatively impact revenues, such as the COVID-19 pandemic. PWSA’s goal is to
 15 maintain a minimum balance in the Rate Stabilization Fund that equals 15% of operating
 16 revenues, equating to about \$38,000,000 million based on the total revenues proposed by
 17 PWSA in the FPFTY. This goal, and PWSA’s rate stabilization claim, is reasonable and
 18 prudent when considering that the funding ensures PWSA can continue to provide safe
 19 and reliable services during periods of uncertainty. I would note that a RSF is a very
 20 common aspect of municipal utility ratemaking.

21 **VII. CAPITAL BUDGET; DEBT SERVICE**

22 **Q. MR. CLINE FOR I&E CLAIMS THAT, SINCE 2019, PWSA HAS**
 23 **CONSISTENTLY FAILED TO SPEND IT “CAPITAL BUDGET”**
 24 **PROJECTIONS. WHAT IS YOUR RESPONSE?**

25 A. Since 2018, PWSA has and will continue to expand its capital improvement plan to
 26 address decades of deferred maintenance. While it is the goal to meet the capital budget
 27 projections, there have been project delays resulting from factors that PWSA cannot

1 control, such as the residual effects of the COVID-19 Pandemic, permitting delays,
 2 historical review delays (Pennsylvania State Historical Preservation Office), employee
 3 and contractor shortages, and supply chain issues. Please reference Mr. King’s rebuttal
 4 testimony for more detail.⁴

5 However, even with the delays, it is important to note that the debt service
 6 associated with bond issuances, and not PWSA’s capital budget, is the capital
 7 requirement amount that PWSA claims in its rate cases. This means that Mr. Cline cannot
 8 simply recommend a capital requirement reduction based on capital budget variances, but
 9 rather the amount of debt PWSA plans to issue. Furthermore, PWSA prudently
 10 implemented a capital line of credit to provide the flexibility to manage project delays by
 11 ensuring PWSA is not recovering costs from ratepayers that it is not able to spend.

12 **Q. CAN YOU ELABORATE ON THE FUNCTIONALITY OF THE CAPITAL LINE**
 13 **OF CREDIT AND HOW IT IS USED BY PWSA?**

14 A. Certainly. PWSA utilizes a capital line of credit to interim fund all project costs not
 15 funded by PENNVEST, WIFIA, or the DSIC. Municipal bonds are then issued as the
 16 \$150 million credit limit nears capacity. While not a traditional method of funding capital
 17 expenses, this method is a better option to support PWSA’s capital program in the current
 18 environment.

⁴ I&E witness Spadaccio agreed that there were a variety of lingering effects of the Covid Pandemic, including “supply chain disruptions, inability to maintain and/or repair infrastructure due to understaffing, potential significant changes in debt costs... .” Answer to PWSA-I&E-I-9. See PWSA Exhibit EB-14. All of these factors affected PWSA’s past ability to meet all of its capital budget projections in the precise years that it had originally projected. Contrary to Mr. Cline’s suggestion, these affects have, unfortunately affect PWSA’s ability to meet its capital budgets in the years 2020 though 2022. It’s 2019 budget to actual was affected by the fact that this was the first year in which PWSA was seriously expanding its capital and operational efforts and simply did not have sufficient experience to be able to accurately determine how much could be accomplished at the newly expanded levels.

1 **Q. HOW DOES PWSA FUND ITS CAPITAL BUDGET?**

2 A. In order of rank, PWSA’s main capital funding sources in the FPFTY include: 1) line of
3 credit/municipal bonds, 2) PENNVEST, 3) WIFIA, and 4) DSIC. The majority of
4 PWSA’s capital improvement plan is funded by a line of credit, with bond issuances
5 strategically planned to refund the entire line of credit balance as it nears capacity. To the
6 extent that the PUC permits PWSA to include in rates an amount for non-DSIC PAYGO
7 it would use that as a source of funds as well.

8 **Q. WHAT HAPPENS TO THE FUNDS PRODUCED BY A BOND ISSUANCE IF**
9 **PWSA FOR SOME REASON IS NOT ABLE TO SPEND ALL THE PROCEEDS**
10 **FOR CAPITAL PROJECTS IN A PARTICULAR YEAR.**

11 A. To benefit of PWSA’s ratepayers, PWSA issues bonds to pay down the capital line of
12 credit for capital expenses that have already been incurred. There would never be a
13 situation where PWSA borrows funds that it cannot spend – meaning ratepayers would
14 never be asked to repay bonds with proceeds that are unspent.

15 **Q. SINCE 2020, DID PWSA ISSUE BONDS FOR WHICH THE PROCEEDS WERE**
16 **NOT ABLE TO BE USED FOR CAPITAL EXPENDITURES IN THE YEAR**
17 **ANTICIPATED?**

18 A. No, as stated above, PWSA only issues bonds when necessary.

19 **Q. I&E RECOMMENDS THAT PWSA’S CAPITAL BUDGET FOR THE FPFTY BE**
20 **REDUCED BY \$32,625,303. I&E ST. NO. 3 AT 19-20. SHOULD PWSA’S**
21 **CAPITAL BUDGET BE REDUCED BECAUSE IT FAILED TO PRECISELY HIT**
22 **PRIOR CAPITAL BUDGET PROJECTIONS?**

23 A. No, as stated above, debt service costs related to the issuance of bonds, not the capital
24 budget amounts, are the capital requirements that PWSA claims in its rate cases. While
25 not supported by PWSA, an appropriate recommended adjustment from I&E could be to
26 reduce the par amount of planned bond issuances by \$32,625,303. This would reduce
27 PWSA’s allowed debt service by approximately \$2 million. However, even that approach
28 does not make much sense because bond proceeds are used to pay down capital expenses

1 on the line of credit that have already been incurred, not future capital expenses to be
 2 incurred. Regardless of how it is achieved, it seems that I&E is recommending a
 3 reduction to PWSA’s capital budget. That would force PWSA to delay or defund non-
 4 mandated projects, such as hydrants, valves, and sewer replacements, further
 5 complicating PWSA’s goal to address deferred maintenance.

6 **Q. I&E EXPLAINED THAT PART OF THAT \$32 MILLION REDUCTION IS**
 7 **BEING MADE THROUGH I&E’S RECOMMENDATION THAT PWSA’S DEBT**
 8 **SERVICE IN THE FPPTY BE REDUCED BY \$21,111,546. I&E EXHIBIT 1,**
 9 **SCHEDULE 1 (SENIOR DEBT SERVICE). PLEASE RESPOND.**

10 A. The adjustment is factually incorrect. As described above, I&E presumably wants to
 11 reduce PWSA’s revenue requirement associated with the \$32 million reduction in capital
 12 expenditures that it claims will occur in the FPPTY. Since PWSA issues long term bonds
 13 to finance its capital program, the revenue requirement associated with a \$32 million
 14 decrease in its capital expenditures is the debt service associated with that level of capital
 15 expenditure. The debt service associated with a reduction in PWSA’s projected new bond
 16 in 2024 is about \$9.0 million dollars. Thus if, for ratemaking purposes, PWSA’s revenue
 17 requirement were to be reduced to reflect a \$32 million reduction in its bond the debt
 18 service associated with that reduction is about \$2 million, not \$21 million. But again, I
 19 want to emphasize that, even this corrected adjustment is fatally flawed. There is no basis
 20 for reducing PWSA’s bond issuance because prior capital expenditure levels came in
 21 under budget projections. In my experience, this is a common event for municipal
 22 utilities that are constantly reevaluating priorities and expenditures.

23 **Q. BUT DOESN’T THIS MEAN THAT RATEPAYERS WERE “OVERCHARGED”**
 24 **IN PAST RATE CASES?**

25 A. No, not at all. First, PWSA’s prior capital budgets were all based on an assumption that
 26 PWSA’s full rate request was granted. That has never happened since the Authority has

1 been under the jurisdiction of the PUC. In each instance it became clear that the
2 Opposing Parties would not support the requested rate increase, PWSA settled those
3 cases for only a portion of its request. In turn, the Authority had to reduce its planned
4 capital expenditures to match the allowed revenue requirement. Second, even if the
5 reduced capital budget was not met in a year, this simply meant that the project was
6 moved to the next year and any dollars not utilized were used in that next year (or years).
7 Since neither I&E nor any other Party has actually challenged any of PWSA's projected
8 capital projects as imprudent or unnecessary, I do not understand how I&E can
9 recommend an adjustment that would force PWSA to cancel or delay needed capital
10 projects.

11 **Q. IS THERE ANY BASIS FOR REDUCING THE TOTAL AMOUNT OF PWSA'S**
12 **DSIC REVENUES TO ALLEGEDLY REFLECT THE I&E POSITION THAT**
13 **PWSA IS LIKELY TO HAVE OVERPROJECTED ITS CAPITAL BUDGET?**

14 A. No. PWSA is fully committed to spending 100% of its DSIC revenues at the new 7.5%
15 cap that I&E is supporting. Any budget shortfall will not come from its DSIC. Moreover,
16 if PWSA were to fall short of its DSIC spending, the clause, by its own terms, would
17 require refunds to customers. Thus, there is no basis for adjusting PWSA's DSIC
18 revenues for an alleged budget shortfall.

19 **Q. IF THE PUC DID REDUCE PWSA'S REVENUE REQUIREMENT TO REFLECT**
20 **A REDUCTION IN THE AMOUNT OF THE BOND IT COULD ISSUE IN 2024**
21 **TO FUND CAPITAL EXPENDITURES WHAT WOULD BE THE RESULT?**

22 A. While neither option is ideal, PWSA would look to 1) cancel or delay projects that are
23 necessary to maintain the adequacy and reliability of its service or 2) maintain a larger
24 balance on the capital line of credit until sufficient funds are available to pay down the
25 full amount of the balance.

1 Canceling or delaying projects still has a cost associated with it by paying for
 2 repairs in the operating budget or higher construction costs in the future due to inflation.
 3 It is also unrealistic to expect PWSA to reduce its budget in the following year given that
 4 many of the design costs have been spent in FY 2023 will be constructed in FY 2024.
 5 This could result in additional fees to redesign the project at a later date.

6 In addition, maintaining a larger balance on the line of credit would result in
 7 capital cost to pay the interest, which would be additive to the interest costs of the bond
 8 that PWSA would eventually have to issue. Although less than issuing a bond, these are
 9 costs that nonetheless would be incurred despite the fact that I&E’s recommendation
 10 makes no provision for them in its recommended revenue requirement.

11 **Q. MR. CLINE RECOMMENDS A CORRESPONDING REDUCTION IN PWSA’S**
 12 **DEPRECIATION EXPENSE TO THE EXTENT THE CAPITAL BUDGET IS**
 13 **REDUCED. DO YOU AGREE?**

14 A. No. Depreciation expense is not a relevant expense because PWSA does not file its rate
 15 tariff on a rate of return basis. PWSA is cash flow utility that is not impacted by non-cash
 16 items, like depreciation. Depreciation expense is not an element in the Commission’s
 17 Cash Flow Ratemaking Policy Statement.⁵

18 **VIII. DSIC; INCREASE**

19 **Q. PLEASE SUMMARIZE THE RECOMMENDATIONS OF THE OTHER**
 20 **PARTIES REGARDING PWSA’S PROPOSAL TO INCREASE THE WATER**
 21 **AND WASTEWATER DSIC FROM 5% TO 7.5%.**

22 A. I&E supports the increase in the DSIC from 5% to 7.5%. I&E St. No 1 at 21. They
 23 provide further justification as PWSA’s Long-term Infrastructure Improvement Plan

⁵ See, 52 Pa. Code §§2702-2703.

1 (LTIIP) provides a clear picture of how ratepayer funds are being used to fund capital
 2 projects, providing accountability and transparency.

3 OCA opposes the increase in the DSIC from 5% to 7.5%. OCA St. No. 1 at 48.
 4 This recommendation would reduce DSIC revenues from \$15,038,462 to \$9,720,000.

5 OSBA opposes the increase in the DSIC from 5% to 7.5%. OSBA St. No. 1 at 5.
 6 Keeping the DSIC rate at 5% will reduce ratepayers impacts by \$4,840,624 in FPFTY
 7 2024, \$5,692,491 in FY 2025, and \$6,715,841 in FY 2026. OSBA St. No. 1 at 16-17.

8 **Q. PLEASE RESPOND TO THE OPPOSITION FROM OCA AND OSBA TO**
 9 **INCREASING THE WATER AND WASTEWATER DSIC FROM 5% TO 7.5%.**

10 A. I do not agree with the opposition from OCA and OSBA. OCA provides three reasons for
 11 their opposition – 1) DSIC PAYGO recovery is not an option in Section 1357 (c); 2)
 12 PAYGO DSIC recovery violates the regulatory principal of ratable recovery of the cost
 13 of capital assets; and 3) DSIC is not the only option for accessing capital asset financing
 14 that is less expensive than long-term debt (presumably referring to government loans
 15 through PENNVEST or WIFIA). All of these arguments are spurious. First, PWSA
 16 currently utilizes its DSIC as a source of PAYGO, which OCA agreed to in settling
 17 PWSA’s last rate case. This invalidates OCA first and second arguments against the
 18 DSIC above.⁶ OCA’s third argument states that even though PAYGO *DSIC is a cheaper*
 19 *financing source than long-term debt*, increasing the DSIC should not be allowed since
 20 there are other comparable or less expensive financing options. This “all or nothing”
 21 approach does not make sense. First, neither OCA nor OSBA made any showing that

⁶ OCA witness Pavlovic is also incorrect about what Section 1358 allows for Philadelphia Gas Works (PGW), the other Cash Flow utility. I am informed that this Section does in fact permit PGW to bill customers for capital improvements that are directly financed by DSIC revenues. The PUC has the statutory authority to apply that language to PWSA, and if fact, did so in the last case.

1 there are sufficient government subsidized loans available to PWSA so as to make its
 2 DSIC unnecessary; there are not. Further, a lower-cost financing option through the DSIC
 3 should be part of a balanced capital financing plan. PWSA is capable of administering an
 4 increase to the DSIC, while also pursuing other low cost financing options, such as
 5 grants, to substitute long-term debt.

6 **IX. PAYGO (BEYOND DSIC)**

7 **Q. DID PWSA INCLUDE ANY CLAIM FOR PAYGO FUNDING (BEYOND THE**
 8 **DISC) IN THE FPFTY?**

9 A. No.

10 **Q. DID PWSA INCLUDE ANY CLAIM FOR PAYGO FUNDING (BEYOND THE**
 11 **DISC) IN THE FORECAST PERIOD?**

12 A. Yes. PWSA is requesting \$2.0 million in FY 2025 and another \$10.0 million in FY 2026
 13 (for a total of \$12.0 million) from base rates to provide additional funding for capital
 14 assets.

15 **Q. DID ANY OF THE OTHER PARTIES PROPOSE REDUCTIONS TO PWSA’S**
 16 **CLAIM FOR PAYGO IN THE FORECAST PERIOD?**

17 A. Yes. I&E recommends the Commission reject the PAYGO claims for the Forecast Period
 18 in their entirety. I&E St. No. 1 at 21-24.

19 **Q. DO YOU HAVE A RESPONSE TO THE OPPOSING PARTIES OPPOSITION TO**
 20 **PERMITTING PWSA TO HAVE A SMALL AMOUNT OF PAYGO INCLUDED**
 21 **IN RATES TO SUPPLEMENT ITS CAPITAL IMPROVEMENT PROGRAM?**

22 A. Financing a portion of PWSA’s capital improvement program through additional
 23 PAYGO has a number of advantages. First, it reduces PWSA’s reliance on long term debt
 24 which reduces PWSA’s debt ratio (total liabilities divided by total assets). Right now,
 25 PWSA remains very highly leveraged with a FY 2022 debt ratio of 100%. Second, as the
 26 Parties seem to recognize,⁷ financing through PAYGO is actually cheaper for ratepayers.

⁷ See, e.g., PWSA-I&E-I-15 included in PWSA Exhibit EB-14.

1 And, considering that PWSA is issuing a bond every year for the foreseeable future, any
 2 “intergenerational inequity” is more than made up by the fact that current ratepayers are
 3 being asked to pay to make necessary improvements to the system on schedules that will
 4 extend for tens of years past the customer’s likely use of the assets. Finally, I fail to
 5 understand why using PAYGO to finance a tiny portion of PWSA’s 2025-26 capital
 6 projects is somehow wrong when the PUC has for several years permitted PGW – the
 7 other Cash Flow regulated municipal utility in Pennsylvania – to have a significant
 8 amount of PAYGO or internally generated funds in rates.⁸

9 **X. MULTI-YEAR RATE PLAN**

10 **Q. PLEASE SUMMARIZE THE RECOMMENDATIONS OF THE OTHER**
 11 **PARTIES REGARDING PWSA’S PROPOSAL FOR A MULTI-YEAR RATE**
 12 **PLAN (MYRP).**

13 A. Both I&E and OCA made recommendations on PWSA’s MYRP. I&E recommends that
 14 the MYRP be rejected. I&E St. No. 1 at 8-9; I&E St. No. 3 at 4-19. OCA also
 15 recommends that the MYRP should be rejected. OCA St. No. 1 at 5; OCA St. No. 2 at
 16 18; OCA St, No. 3 at 3; OCA St. No. 4 at 37; OCA St. No. 5 at 5-7. Dr. Karl Pavlovic
 17 argues that there are deficiencies in PWSA’s proposal to implement a MYRP. OCA St.
 18 No. 2 at 3-18.

⁸ PGW’s internally-generated funds are funding PGW’s legacy, 18 mile per year main replacement program as well as the cost of construction for a variety of items necessary to maintain adequate service including maintaining PGW’s gas processing plants, field services and replacement of customer service lines. See Petition of Philadelphia Gas Works, PUC Docket Nos. P-2015-2501500 and C-2015-2504092, Opinion and Order entered July 6, 2016 at 24. I understand that the internally generated funds are produced both from PGW’s DSIC as well as from base rates.

1 **Q. MR. CLINE OPPOSES PWSA’S MULTI-YEAR RATE PLAN PROPOSAL ON**
2 **VARIOUS GROUNDS INCLUDING A CONTENTION THAT PWSA HAS NOT**
3 **SHOWN ITS ABILITY TO ACCURATELY PROJECT IS FUTURE REVENUES,**
4 **EXPENSES AND CAPITAL EXPENDITURES, POINTING TO ITS**
5 **EXPERIENCE IN 2019-2022 (I&E ST. NO. 3 AT 9-10). DO YOU BELIEVE THIS**
6 **IS A FAIR CRITICISM?**

7 A. No. The periods that Mr. Cline has examined are not a valid basis on which to judge
8 PWSA’s ability to accurately project its capital expenditures or expenses. What Mr. Cline
9 does not appreciate is that PWSA’s capital expenditures and operations have been
10 significantly affected not only by the COVID-19 Pandemic in 2020 but also the resulting
11 problems and issues that followed the worst of the Pandemic in 2020. In fact, PWSA is
12 still being affected by those issues. Both I and Mr. King explain this in greater detail in
13 our rebuttal testimonies. Moreover, I dispute Mr. Cline’s premise. The issue that should
14 be examined in determining a MYRP is whether the utility has a rigorous and well
15 developed process for making projections of all the elements that make up a cash flow
16 utility’s revenue requirement – revenues, operating expenses, capital expenditures.
17 PWSA does have such a rigorous process and Mr. Cline has not suggested otherwise.
18 Whether past budgets actually projected actual experience exactly, I submit is not as
19 important as assuring that a reasonable process is in place.

20 Finally, Mr. Cline appears to ignore the fact that as a municipal utility with no
21 shareholders, if PWSA does fail to spend all dollars budgeted for capital expenditures in
22 a particular year it will nonetheless expend those dollars, or attempt to, in the future or
23 use them to cover other expenditures that will benefit ratepayers.

1 **Q. MR. CLINE CLAIMS THAT PWSA’S MYRP PROPOSAL DOES NOT PERMIT**
 2 **A BETTER ALIGNMENT OF FIXED AND VARIABLE COSTS WITH**
 3 **REVENUES BECAUSE PWSA DID NOT SPECIFICALLY PROJECT FIXED**
 4 **AND VARIABLE COSTS THROUGH THE TWO EXTRA YEARS OF THE**
 5 **MULTI-YEAR RATE PLAN AND INSTEAD UTILIZED HISTORICAL**
 6 **ACTUALS AND A 6% INFLATIONARY FACTOR TO DEVELOP THE**
 7 **REVENUE REQUIREMENTS IN THOSE YEARS (I&E ST. 3, PG. 11). CAN YOU**
 8 **RESPOND.**

9 A. I disagree. As Mr. Cline would have to admit, there is no regulation or direction from the
 10 PUC as to how the revenue requirement in the future years of a MYRP should be
 11 calculated. Mr. Cline appears to be demanding a level of precision that has not been
 12 required. Mr. Cline does not dispute that PWSA’s revenue requirement will increase vis-
 13 à-vis its 2024 revenue requirement. Therefore, PWSA’s projection does in fact provide a
 14 better alignment of costs with revenues, just not as precise an alignment as Mr. Cline
 15 would demand. I would note that producing “zero-based” revenue requirements for FY
 16 2025 and 2026 would entail significant time and resources and, in my view would not
 17 provide significantly more accurate results.

18 **Q. MR. CLINE DISPUTES YOUR POSITION THAT PWSA’S MYRP INCLUDES**
 19 **APPROPRIATE CONSUMER PROTECTIONS (PUC QUESTION 12) BECAUSE**
 20 **IT WOULD BE REVIEWED AND DETERMINED AS JUST AND REASONABLE**
 21 **BY THE PUC PRIOR TO THE RATE INCREASES IN 2025 AND 2026. HE**
 22 **CLAIMS THAT THIS DOES NOT CONSTITUTE SUFFICIENT CONSUMER**
 23 **PROTECTION BECAUSE PWSA’S PROJECTED REVENUE REQUIREMENT**
 24 **COULD BE INACCURATE (I&E ST. 3 AT PG. 12). WOULD YOU COMMENT?**

25 A. Again, Mr. Cline has imposed a demand that a MYRP contain customer benefits that the
 26 PUC has not established as conditions for a MYRP. I would note that the demands the
 27 consumers not have to pay a rate that contains allegedly inaccurate estimates of revenue
 28 requirement is not an element of a conventional “single year” rate increase. I fail to see
 29 why a multi-year process would require more extensive consumer protections. In any

1 event, PWSA witness Mr. Smith will describe additional procedures that could be put in
2 place before the subsequent year rate increases could be implemented.

3 **Q. MR. CLINE ALSO DISPUTES YOUR CLAIM THAT A MYRP WILL BE**
4 **BENEFICIAL BECAUSE IT WOULD PROVIDE GREATER CERTAINTY AS**
5 **TO RATES LEVELS IN THE FUTURE. MR. CLINE STATES THAT HE DOES**
6 **NOT UNDERSTAND WHY PWSA WOULD HAVE AN ISSUE KNOWING**
7 **WHAT ITS FUTURE REVENUE LEVELS WILL BE IN ANY YEAR. CAN YOU**
8 **COMMENT?**

9 A. PWSA, like most municipal entities creates a budget each year for the subsequent fiscal
10 year (PWSA's fiscal year is the calendar year) and also creates forecasts for additional
11 periods. To do this, PWSA must formulate a capital and operating budget. Those budgets,
12 however are directly contingent upon the level of revenues that PWSA will have in that
13 year. PWSA will not budget a certain amount of expenditures unless it has reasonable
14 assurance that it will have sufficient revenue to cover those expenditures. Prior to PUC
15 regulation, PWSA was able to accurately project what its revenues were going to be in a
16 future year because it was able to utilize multi-year rate increases as needed. Now,
17 PWSA is not able to project what its level of revenues will be for future periods because
18 it must go through an intensive, nine month process where the results cannot be predicted
19 and where the results are only sure to be in place for the initial year after the rate
20 decision. My point was that, with a MYRP, that uncertainty will be significantly reduced
21 for the additional years for which the PUC would determine a rate increase. For example,
22 when the PUC approves a rate increase in this proceeding for not only 2024 but also 2025
23 and 2026, PWSA will know what its revenue levels will be in 2025 and 2026 and will be
24 able to budget to those levels. This will greatly enhance PWSA's ability to successfully
25 implement its capital and operational goals.

1 **Q. MR. CLINE AND OTHER I&E WITNESSES SET OUT SEVERAL EVENTS**
 2 **THAT ARE OR MAY OCCUR IN 2025 AND SUGGESTS THAT THESE**
 3 **POTENTIALS MAKE A MULTI-YEAR INCREASE INAPPROPRIATE. CAN**
 4 **YOU COMMENT?**

5 A. Mr. Cline cites the current Pennsylvania Supreme Court case in which a municipality’s
 6 stormwater fee is being challenged as an illegal tax. As other PWSA witnesses will
 7 explain, PWSA, as a PUC-regulated authority, is in a very different position than the
 8 municipality at issue in that case and, I am advised by counsel that PWSA does not
 9 believe that that case would result in the end of PWSA’s PUC-authorized stormwater fee.
 10 Even if the fee did go away, any revenues now collected in a Stormwater charge will be
 11 collected in a revised sewer rate.

12 **Q. DID I&E WITNESS MS. OKAM COMMENT ON PWSA’S MYRP?**

13 A. Yes. She stated that, even though PWSA’s operating budgets “[have] not been
 14 significantly over or under” actuals on an overall budget basis the past two fiscal years,
 15 the Authority seems to be shifting expenses from one account to another, which allegedly
 16 “casts doubt on the Authority’s ability to “reliably budget at the account level. (I&E St. 2
 17 at 6). This alleged lack of reliability, she claims, is a reason to deny the MYRP.

18 **Q. DO YOU BELIEVE THAT HISTORIC VARIATIONS AT THE “ACCOUNT**
 19 **LEVEL” BETWEEN BUDGETED AND ACTUAL LEVELS IS A REASON TO**
 20 **REJECT PWSA’S MYRP PROPOSAL?**

21 A. No, in fact it is a basis of support for the reasonableness of the Plan. Again, there is no
 22 PUC regulation or directive that mandates that for a MYRP to be accepted the utility
 23 must show historic accuracy in its account level budgeting. Indeed, Ms. Okum’s
 24 concession that PWSA’s accuracy in projecting its operating expenses and the budget
 25 level is a significant reason why the PUC should accept PWSA’s projections for the 2025

1 and 2026 period. Based on history, it has shown an ability to project its overall operating
2 expenses at reasonable levels.

3 I also must state that requiring that a utility show that it can accurately project its
4 operating expenses on an account-by-account basis feels like an argument designed to
5 reject any MYRP proposed by PWSA or any other utility. I have considerable experience
6 formulating operating budget projections and I can state categorically that no entity of
7 which I am aware has an accurate enough crystal ball to be able to project to the dollar its
8 expenditures for each and every expense that it incurs, and focuses on seeking to be
9 accurate on an overall basis. It is completely unfair to make an account-by-account
10 accuracy a requirement before a MYRP can be approved.

11 **Q. DID MR. SPADACCIO FROM I&E ALSO RAISE “CONCERNS” ABOUT**
12 **USING A MYRP TO ESTABLISH RATE LEVELS FOR 2025 AND 2026?**

13 A. Yes. Mr. Spadaccio opines that PWSA has only recently been subject to regulation by the
14 Commission, has only been involved in three base rate cases should continue to be
15 subject to the Commission’s “beneficial oversight.”(I&E St. 1 at 8).

16 **Q. CAN YOU RESPOND TO MR. SPADACCIO’S CONCERN?**

17 A. While it is true that PWSA came under PUC regulation relatively recently it nonetheless
18 has completed three rate cases as well as a PUC regulatory compliance plan. There are no
19 minimum regulatory requirements for use of a MYRP in the Public Utility Code or PUC
20 regulations or Orders. Moreover, I believe Mr. Spadaccio is considering PUC regulation
21 from the standpoint of his perspective, which, I believe, is principally focused on utility
22 rate and tariff cases (his job title is “fixed utility financial analyst”). But I understand that
23 I&E (and other Parties) have many other avenues by which they could supervise and
24 regulate PWSA in addition to a base rate case, such as audits and complaints.

1 **Q. MR. SPADACCIO ALSO ASSERTS THAT THIS PARTICULAR CASE WOULD**
 2 **BE AN INAPPROPRIATE VEHICLE FOR A MYRP BECAUSE THERE ARE**
 3 **LINGERING ECONOMIC IMPACTS FROM THE PANDEMIC RECENT**
 4 **INFLATION TRENDS AND PWSA’S ENORMOUS CAPITAL IMPROVEMENT**
 5 **PLAN AND ASSOCIATED CAPITAL COSTS, ALL OF WHICH COMPEL THE**
 6 **NEED FOR “MORE REGULATORY OVERSIGHT, NOT LESS.” (I&E ST. 1 AT**
 7 **8-9). CAN YOU COMMENT?**

8 A. There will always be exogenous factors that will affect a utility’s future levels of
 9 revenues, expenses and capital expenditures. Suggesting that a MYRP is inappropriate
 10 whenever there are contingencies that could affect MYRP projections essentially writes
 11 the MYRP option out of the statute. This argument could just as easily be applied to the
 12 use of a fully projected future test year. The fact is that the Legislature has not only
 13 mandated that rates can be established by the use of a fully projected future period but
 14 that such an approach can be used to set rates for multiple years. Mr. Spadaccio, and in
 15 fact the other Parties opposing the MYRP are in effect arguing that they oppose the use of
 16 projected data to set rates. But that policy choice has already been made. It should not be
 17 summarily rejected because of the contrary views of the opposing parties.

18 **Q. PLEASE RESPOND TO OCA WITNESS PAVLOVIC’S STATEMENT THAT**
 19 **PWSA’S PROPOSED MYRP IS DEFICIENT REGARDING THE STATUTORY**
 20 **PROVISION GOVERNING AN MYRP, 66 PA. C.S. §1330. OCA ST. NO. 2 AT 4.**

21 A. I am informed by counsel that, in fact, PWSA has satisfied all requirements set forth in
 22 Section 1330 as the statutory section simply authorizes “multi-year rate plans” that are
 23 reasonable and prudent.

24 **Q. OCA WITNESS PAVLOVIC CLAIMS THAT PWSA’S PROPOSED MYRP IS**
 25 **DEFICIENT BECAUSE IT DOES NOT PROVIDE A SUPERVISORY ROLE FOR**
 26 **THE COMMISSION. OCA ST. NO. 2 AT 4, 10, 16. PLEASE RESPOND.**

27 A. Mr. Pavlovic is setting up demands that could never be met by a MYRP. In fact, his
 28 claims would equally apply to rates created based on a FPPTY. Obviously, there are no
 29 such requirements for using a FPPTY. Moreover, if the General Assembly believed that

1 these types of “protections” were required they would have required them. In my view,
2 Mr. Pavlovic’s comments are really reflective of a policy objection to MYRPs; but the
3 Legislature has already made the determination that a MYRP is just and reasonable.

4 **Q. OCA WITNESS PAVLOVIC’S STATES THAT PWSA’S PROPOSED MYRP IS**
5 **DEFICIENT BECAUSE IT DOES NOT INCLUDE ANY PERFORMANCE**
6 **METRICS FOR THE COMMISSION TO GAUGE THE ACCURACY AND**
7 **EFFECTIVENESS OF ITS MYRP. OCA ST. NO. 2 AT 4, 10. WHILE IT NOT**
8 **CLEAR THAT SHE IS REFERENCING THE SAME THING, OCA WITNESS**
9 **ALEXANDER RECOMMENDS THAT PWSA’S PROPOSED MYRP NOT BE**
10 **APPROVED BECAUSE PWSA HAS NOT PROVIDED ANY MEANINGFUL**
11 **ASSURANCE OR MECHANISM TO MEET REASONABLE CUSTOMER**
12 **SERVICE AND SERVICE QUALITY PERFORMANCE. OCA ST. NO. 2 AT 10;**
13 **OCA ST. NO. 5 AT 6. PLEASE RESPOND.**

14 A. Again, no such “performance metrics” or customer service standards are required by the
15 statute or the PUC. No witness has submitted any evidence demonstrating that PWSA is
16 currently providing inadequate service. No such requirements exist for use of a FPPTY.
17 Therefore, there is no basis for demanding that PWSA must comply with “performance
18 metrics.”

19 **Q. OCA WITNESS PAVLOVIC EMPHASIZED STEPS 4 AND 5 OF THE FIVE**
20 **STEPS IN THE MYRP PROCESS BEFORE THE RHODE ISLAND PUBLIC**
21 **SERVICE COMMISSION WHICH REQUIRE A COMPLIANCE FILING BE**
22 **FILED AND APPROVED BEFORE RATES FOR A NEW YEAR BE PUT INTO**
23 **EFFECT AND CLAIMS THAT PWSA OPPOSES SUCH A PROCESS. OCA ST.**
24 **NO. 2 AT 8-9. PLEASE RESPOND.**

25 A. Mr. Pavlovic misunderstood my previous testimony. PWSA is proposing a compliance
26 filing process. Mr. Smith provides additional explanation of the process that PWSA is
27 recommending.

28 **Q. OCA WITNESS PAVLOVIC FURTHER ARGUES THAT PWSA’S PROPOSED**
29 **MYRP IS DEFICIENT AS MEASURED AGAINST CUSTOMER IMPACT**
30 **CONSIDERATIONS DUE TO THE LACK OF AN ANNUAL RECONCILIATION**
31 **MECHANISM. OCA ST. NO. 2 AT 4, 14. PLEASE RESPOND.**

32 A. PWSA is proposing a “compliance filing” as explained by PWSA witness Smith. That
33 process will in fact review key factors used to determine the revenue requirements for the

1 2025 and 2026 years. This process should permit the Commission to adjust the
 2 predetermined revenue requirement for modifications in key areas.

3 **Q. OCA WITNESS PAVLOVIC BELIEVES THAT THE LACK OF AN ANNUAL**
 4 **RECONCILIATION MECHANISM WILL RESULT IN OVERCOLLECTION BY**
 5 **PWSA. OCA ST. NO. 2 AT 4, 13, 16. PLEASE RESPOND.**

6 A. Again, Mr. Pavlovic has simply concocted a requirement of a “reconciliation” and then
 7 condemns PWSA for not satisfying this newly concocted standard. As for the impact on
 8 low income customers I would submit this is a red herring. There is no basis for
 9 suggesting that PWSA’s MYRP is going to result in “overcollections.” It can just as
 10 easily result in under collections compared to PWSA’s actual expenses, and Mr. Pavlovic
 11 did not suggest any reason to conclude that under collections could not just as easily
 12 occur.

13 **Q. DID OCA WITNESS PAVLOVIC IDENTIFY ANY AREAS THAT COULD**
 14 **TRIGGER ADJUSTMENTS UNDER AN ANNUAL RECONCILIATION**
 15 **MECHANISM?**

16 A. Yes. Mr. Pavlovic expressed concern that the following areas could trigger an adjustment
 17 to revenues or expenses in FY 2025 or FY 2026: (1) negotiated changes to the terms of
 18 wholesale water agreements; (2) the upcoming metering of two unmetered properties; (3)
 19 the termination of the Cooperation Agreement; (4) changes to the Cooperation
 20 Agreement, including changes to the term of the surface restoration obligations; (5)
 21 unidentified impacts from PWSA becoming the official owner (as opposed to a lessee) of
 22 the City’s assets; and (6) changes to (or underspending under) PWSA’s capital budget.

23 **Q. DO YOU HAVE A RESPONSE TO THOSE CONCERNS?**

24 A. Mr. Pavlovic’s concern that, in 2025, the City will transfer ownership of the assets used
 25 to provide water/wastewater/stormwater service to PWSA is misplaced. The transfer will

1 have no effect on PWSA's revenue requirement. The "consideration" for the transfer will
 2 be \$1 dollar.

3 Similarly, Mr. Pavlovic’s concern that the end of the City/PWSA Cooperation
 4 Agreement could somehow create a change in PWSA's revenue requirement is also not
 5 correct. The end of that Agreement is not expected to make a material change in PWSA's
 6 expenses because both entities are on a “fee for service” basis. So all the services we
 7 receive or provide are needed and are already being billed on a cost basis. And to the
 8 extent that we continue to take services from, or provide services to the City it will not
 9 make a material change in PWSA's revenue requirement. As for changes in wholesale
 10 contracts, PWSA opposes cancelling any of those contracts before they term out.

11 But if there is any doubt about the effect of any of these provisions PWSA would be
 12 willing to agree that these areas could be reviewed in the 90-day proceeding that would
 13 occur before the 2025 and/or the 2026 rates are placed into effect.

14 **Q. OCA WITNESS MIERZWA RECOMMENDS THAT PWSA ISSUE NOTICE OF**
 15 **TERMINATION FOR EACH OF THE WHOLESALE AGREEMENTS SO THAT**
 16 **PWSA CAN NEGOTIATE NEW AGREEMENTS THAT PROVIDE FOR**
 17 **MOVEMENT TOWARDS COST OF SERVICE RATES. OCA ST. NO. 4 AT 3-4.**
 18 **ASSUMING THAT SAID RECOMMENDATION BY MR. MIERZWA IS**
 19 **ADOPTED, OCA WITNESS PAVLOVIC ARGUES THAT PWSA’S PROPOSED**
 20 **MYRP IS DEFICIENT AS MEASURED AGAINST THE CONSIDERATIONS IN**
 21 **THE COMMISSION’S POLICY. OCA ST. NO. 2 AT 4, 13. PLEASE RESPOND.**

22 A. This recommendation is not appropriate. PWSA entered into its wholesale agreements
 23 prior to being regulated by the PUC. Prematurely terminating the agreements for the
 24 purpose of increasing rates would create regional hostility. It would also damage
 25 PWSA’s reputation and credibility for not honoring contractual obligations that it
 26 previously agreed too. PWSA did not notify the counterparties that their existing
 27 agreements could be modified as a result of this case.

1 PWSA is committed to reviewing its wholesale cost of service and rates when the
2 contract renewals are negotiated. It is during that time that the PUC can further
3 investigate the contract terms that are agreed upon.

4 **Q. OCA WITNESS FOUGHT RECOMMENDED THAT PWSA BE REQUIRED TO**
5 **AMEND ITS COOPERATION AGREEMENT WITH THE CITY TO PREVENT**
6 **PWSA CUSTOMERS PAYING FOR SERVICE RESTORATION OF ALL CITY**
7 **STREETS. OCA ST. NO. 2 AT 14-15; OCA ST. NO. 6 AT 32-36. ASSUMING**
8 **THAT SAID RECOMMENDATION BY MR. FOUGHT IS ADOPTED, OCA**
9 **WITNESS PAVLOVIC ARGUES THAT PWSA’S PROPOSED MYRP IS**
10 **DEFICIENT AS MEASURED AGAINST THE RELIABILITY**
11 **CONSIDERATIONS IN THE COMMISSION’S POLICY STATEMENT. OCA ST.**
12 **NO. 2 AT 4, 14-15, 17. PLEASE RESPOND.**

13 A. Mr. Fought’s and Pavlovic’s claims are not correct. The City of Pittsburgh is not forcing
14 PWSA to pave all City streets. Rather, the proposed surface restoration claim includes the
15 budget amounts to restore only PWSA construction sites with the specifications set by the
16 City of Pittsburgh. These restoration specifications are followed by all utilities doing
17 work within the City. It is not as if the PWSA is being held to a different standard.

18 **Q. OCA WITNESS PAVLOVIC ARGUES THAT CONSISTENT OVER**
19 **PROJECTIONS OF PWSA’S CAPITAL BUDGET SUPPORT REJECTION OF**
20 **THE MYRP. OCA ST. NO. 2 AT 4, 17-18. OCA ST. NO. 2 AT 18. PLEASE**
21 **RESPOND.**

22 A. This argument is invalid for several reasons 1) the capital requirements proposed are the
23 debt service payments for new debt issuance, not the budget amounts in the capital
24 budget, 2) the use of the capital line of credit ensures that PWSA will only issue new debt
25 for expenses actually incurred instead of basing it off of budget projections and 3) capital
26 budget shortfalls do not eliminate or diminish PWSA’s capital needs. Rather, it will
27 require the need to be addressed in a future year, further justifying the claimed capital
28 requirement.

1 **Q. DID MR. PAVLOIC COMPARE THE COSTS AND ADMINISTRATIVE**
2 **BURDENS OF THE MYRP WITH THE COSTS AND BURDENS OF MORE**
3 **FREQUENT BASE RATE PROCEEDINGS?**

4 A. No.

5 **Q. OCA WITNESS PAVLOVIC OPINES THAT PWSA’S RATEPAYERS WOULD**
6 **BE DEPRIVED OF JUST AND REASONABLE RATES IN 2024, 2025 AND 2026**
7 **RATES THROUGH CONSIDERATION OF CHANGING CIRCUMSTANCES,**
8 **INCLUDING ACTUAL EXPENSES, ACTUAL REVENUES, ACTUAL CAPITAL**
9 **EXPENDITURES, AND OTHER FACTORS IN 2024, 2025 AND 2026 TO THEIR**
10 **DETRIMENT. OCA ST. NO. 2 AT 16. DOES PWSA AGREE?**

11 A. No, Dr. Pavlovic is again presenting a completely one-sided argument against MYRPs.
12 He never explains why establishing a multi-year rate plan will somehow guarantee that
13 rates will be unreasonably high compared to actual costs because of “changed
14 circumstances.” Why could not those changes increase PWSA expenses and capital costs
15 over the levels assumed in the MYRP? Also, and again, Dr. Pavlovic’s arguments could
16 just as easily be applied to the FPFTY, which is, of course, authorized by law and well
17 established in Pennsylvania ratemaking.

18 **XI. INFRASTRUCTURE IMPROVEMENT CHARGE**

19 **Q. PLEASE SUMMARIZE THE RECOMMENDATIONS OF THE OTHER**
20 **PARTIES REGARDING PWSA’S PROPOSAL TO IMPLEMENT A**
21 **INFRASTRUCTURE IMPROVEMENT CHARGE (IIC).**

22 A. Both I&E and OCA recommend that the Commission deny PWSA’s request for approval
23 to institute an IIC. I&E St. No. 1 at 25-26; OCA St. No. 2 at 3, 28-32.

24 **Q. I&E WITNESS SPADACCIO OPPOSES THE IMPLEMENTATION OF THE IIC**
25 **FOR TWO REASONS; CAN YOU SUMMARIZE HIS CONCERNS?**

26 A. Yes. Mr. Spadaccio appears to oppose PWSA’s implementation of this surcharge solely
27 because PWSA did not specify in its proposed tariff language setting forth the IIC that
28 the Authority would not start using the IIC to collect debt service associated with a
29 PENNVEST or WIFIA loan until PWSA received: a) DEP inspection; and b) the final

1 PENNVEST amortization schedule. He also opposes the IIC on the ground that PWSA
 2 was not proposing to show the IIC on customer bills as a separate line item.

3 **Q. WHAT IS YOUR RESPONSE WITH REGARD TO THE CRITICISM THAT**
 4 **PWSA HAD NOT PROMISED NOT TO START CHARGING CUSTOMERS**
 5 **THROUGH THE IIC UNTIL IT RECEIVED DEP INSPECTION OR AN**
 6 **AMORTIZATION SCHEDULE FOR THE ASSOCIATED PROJECT?**

7 A. PWSA did not explicitly mention these two items because they are both requirements to
 8 actually start receiving the funds. However, PWSA’s proposed Tariff did indicate that the
 9 IIC was going to be implemented “pursuant to the Commission’s Statement of Policy at
 10 52 Pa. Code §§ 69.361 et seq.,” Obviously, PWSA will not start charging customers
 11 through the IIC until it actually receives the funds and is obligated to start paying them
 12 back. To get to that point, PWSA will need to both have a DEP inspection of the project
 13 and receipt of the final amortization schedule. PWSA is willing to explicitly add these
 14 two items to the Tariff as pre-conditions to including a particular loan in the IIC.

15 **Q. CAN YOU EXPLAIN WHY PWSA INDICATED A PREFERENCE FOR NOT**
 16 **SHOWING THE IIC EXPLICITLY ON THE CUSTOMER BILL?**

17 A. PWSA’s position on showing the charge on the bill was from the concern that showing
 18 the charge explicitly on the bill would overly complicate the bill.⁹ However, if the
 19 Commission feels that the IIC should or must be shown explicitly on the bill PWSA will
 20 agree to do so.

21 **Q. DID OCA WITNESS PAVLOVIC MAKE ADDITIONAL ARGUMENTS TO**
 22 **SUPPORT OCA’S OPPOSITION TO THE IIC?**

⁹ I would note that, upon advice of counsel, the PUC Policy Statement does not require that the surcharge be shown as a separate line item on the bill as the policy uses the word “should” not “shall.” 52 Pa.Code § 69.2702

1 A. Yes. He observes that PWSA has provided no evidence to support of its (alleged)
 2 assertion that the IIC is needed to expedite its obtaining PENNVEST and WIFIA loans
 3 (OCA St. 2 at 29).

4 **Q. DID YOU ACTUALLY MAKE THAT ARGUMENT IN FAVOR OF THE IIC?**

5 A. No, this is a misunderstanding of my Direct Testimony. What I actually said was that the
 6 existence of the IIC will ensure that PWSA will be able to go forward with the planning
 7 and design of a project once it receives government loan approval because the Authority
 8 will be able to start collecting at least this part of the project funding in rates. Currently,
 9 PWSA has to wait until the outcome of a base rate case to start to receive those dollars
 10 and this can create a considerable cash flow issue.

11 **Q. DR. PAVLOVIC ALSO CLAIMS THAT THE PUC HAS “TYPICALLY LIMITED**
 12 **ANY SURCHARGE ON PENNVEST RECOVERY FOR SMALLER WATER**
 13 **AND WASTEWATER COMPANIES (PGS. 29-30).” CAN YOU RESPOND?**

14 A. I am advised by counsel that the PUC Policy Statement explicitly authorizing the creation
 15 of such a surcharge has no such limitation or condition in it. There is absolutely no
 16 evidence that the surcharge may only be authorized for “smaller” companies.

17 **Q. DR. PAVLOVIC ALSO INSISTS THAT A “TRACKER CLAUSE” AS HE CALLS**
 18 **IT SHOULD NOT BE AUTHORIZED UNLESS THE UTILITY HAS SHOWN**
 19 **THAT THE COSTS AT ISSUE ARE: (1) LARGELY OUTSIDE OF CONTROL**
 20 **OF A UTILITY, (2) UNPREDICTABLE AND VOLATILE AND (3)**
 21 **SUBSTANTIAL AND RECURRING. IS HE CORRECT?**

22 A. No, he is not. First, I am not aware that the Pennsylvania Commission uses these criteria
 23 to determine whether an automatic adjustment clause is reasonable, but, even if it did,
 24 what witness Pavlovic completely ignores is that the PUC *has already made* the
 25 determination an automatic adjustment clause to recover government loans for water and
 26 wastewater companies is in the public interest. But even if the proposed IIC was
 27 reviewed from the standpoint of these criteria it satisfies them, contrary to his results-

1 oriented interpretation. First, the level of debt service costs from government loans is
 2 clearly outside of PWSA's control. PWSA does not "decide to choose" to borrow using
 3 these vehicles because to fail to take advantage of these sources of financing when
 4 available would clearly be viewed as imprudent. Second, the level of these costs do vary
 5 as long term debt costs fluctuate. Finally, the debt service at issue is substantial and
 6 recurring (for the life of the loans, which typically are 20-30 years).

7
 8 **XII. CUSTOMER ASSISTANCE CHARGE**

9 **Q. BOTH I&E AND OCA DISAGREE WITH THE IMPLEMENTATION OF THE**
 10 **CAC. I&E ST. NO. 2 AT 34-38; OCA ST. NO. 2 AT 3, 32-35. PLEASE RESPOND**
 11 **TO THE OPPOSITION FROM I&E AND OCA TO THE IMPLEMENTATION**
 12 **OF THE CAC.**

13 A. PWSA believes that an automatic adjustment clause to recover the Authority's costs
 14 associated with its low-income programs would be beneficial for all affected parties. It
 15 would benefit the low-income customers that are enrolled in the programs by ensuring
 16 that PWSA would not be constrained by cost consideration in its efforts to expand and
 17 enhance participation in these programs in between rate cases. Remaining PWSA
 18 customers would benefit because the automatic adjustment clause would ensure that
 19 PWSA would collect only those amounts that it actually expends – no more and no less.
 20 This needs to be contrasted with the current cost recovery mechanism – inclusion of a set
 21 amount in base rates where any over or under recovery of actual expenses are not
 22 retroactively adjusted. Finally, the CAC is a better mechanism for the Authority because,
 23 as a cash flow regulated company, it ensures that PWSA will receive the cash it needs to
 24 provide the rate subsidies and other programs on a real time basis.

1 **Q. BUT WASN'T A SIMILAR REQUEST RECENTLY REJECTED BY THE**
 2 **COMMISSION FOR ANOTHER WATER COMPANY?**

3 A. PWSA does not believe that the PUC's decision that has been referenced is controlling
 4 for two reasons. First, the need for an automatic adjustment clause to recover these costs
 5 for a cash flow company is far greater than for a utility regulated on a rate of return/rate
 6 base basis, where having cash in hand when the expenditures occur is crucial. Secondly,
 7 to the extent that PUC case is based on a view that the Public Utility Code does not
 8 authorize such a clause, I am informed by counsel that Chapter 32 of the Public Utility
 9 Code contains a provision that permits the PUC to alter or amend any section of the Code
 10 in order to accommodate PWSA's special circumstances.¹⁰

11 **XIII. OVERALL EXPENSE RECOMMENDATIONS**

12 **Q. PLEASE SUMMARIZE THE EXPENSE RECOMMENDATIONS OF THE**
 13 **OTHER PARTIES.**

14 A. I&E, OCA and OSBA make recommendations regarding PWSA's expense claims.

15 I&E recommends that PWSA's expenses for the FPFTY be reduced by more than
 16 \$20 million. I&E St. No. 2; I&E Exhibit 1, Schedule 1 (O&M expense). I&E's expenses
 17 adjustments fall into the ten categories: employee-related expenses, the wet weather
 18 consent decree, equipment expenses, office rent, drag bucket, line televising, COVID-19
 19 related expenses, lobbying expenses and depreciation.

20 OCA recommends that PWSA's expenses for the FPFTY be reduced by more
 21 than \$15 million. OCA St. No. 1; OCA Exhibit DM-1.¹¹ OCA's expenses adjustments
 22 fall into thirteen categories: inflation adjustments, employee-related expenses,
 23 normalization adjustments, rate case expenses, utility expenses, drag bucket, line

¹⁰ See 52 Pa. C. S. § 3202(b)

1 televising, City Services, Covid-19 related expenses, lobbying expenses, bonus expense,
 2 contribution and membership expenses, bad debt expense. In addition, OCA proposes
 3 certain increased expenses based on OCA’s proposals.

4 OSBA recommends that PWSA’s expenses for the FPFTY be reduced by nearly
 5 \$12.8 million. OSBA St. No. 1 at 5 (Table KCH-1). OSBA’s expense adjustments fall
 6 into two categories: employee-related expenses and inflation adjustments.

7 **Q. BOTH I&E AND OCA EXPRESSED CONCERN ABOUT VARIANCES**
 8 **BETWEEN BUDGETED AND ACTUAL EXPENSES. I&E ST. NO. 2 AT 6; OCA**
 9 **ST. NO. 1 AT 14-17. PLEASE RESPOND.**

10 A. It is important to distinguish between the capital budget and the operating budget.

11 The operating budget contains less variances between actual to budget. I&E
 12 calculated that PWSA’s operating budget was off by less than 5% in FY 2021 and less
 13 than 2% in FY 2022. See I&E Exhibit No. 2, Schedule 2.

14 The capital budget contains variances for the reasons I already discussed. PWSA
 15 has spent less than all of its capital budget in FY 2021 and FY 2022. See OCA Exhibit
 16 KRP-6. As I explained above, including the capital projects in rates before they are in-
 17 service does not pose a problem because only the debt service is part of rates, the capital
 18 budget itself is not the foundation for base rates and all debt issued can only be used for
 19 capital improvements.

20 **XIV. EMPLOYEE COUNT; PAYROLL EXPENSES PAYROLL TAXES;**
 21 **RETIREMENT BENEFITS**

22 **Q. DID ANY OF THE OTHER PARTIES PROPOSE REDUCTIONS TO PWSA’S**
 23 **CLAIM FOR EMPLOYEE RELATED EXPENSES, INCLUDING PAYROLL**
 24 **EXPENSES (SALARIES), PAYROLL TAXES AND BENEFITS, IN THE FPFTY.**

25 A. Yes. I&E, OCA and OSBA each made recommendations using different approaches for
 26 the FPFTY. The following table shows these recommendations:

Employee Expenses				
	PWSA	I&E	OCA	OSBA
FPFTY				
Employee Headcount	421	421	368	404.5
Proposal/Allowance				
Recommended Adjustment	\$0	(\$8,280,619)	(\$6,887,658)	(\$3,794,957)
Forecast, FY 2025				
Employee Headcount	440	440	--	431 ¹²
Proposal/Allowance				
Recommended Adjustment	\$0	(\$6,760,737)	--	(\$3,182,778)
Forecast, FY 2026				
Employee Headcount	440	440	--	440
Proposal/Allowance				
Recommended Adjustment	\$0	(\$7,861,451)	--	(\$2,528,647)

1
 2 Please note that the following table shows the OCA’s proposed reductions to
 3 employee related expenses:

Summary of OCA Employee-Related Adjustments			
		Salary	Benefits
Executive Director – 910	OCA Exhibit DM-3 OCA St. No. 1 at 19-20	(\$216,817)	(\$38,235)
Customer Service – 911	OCA Exhibit DM-4 OCA St. No. 1 at 21-22	(\$650,352)	(\$228,952)
Management Information Systems - 912	OCA Exhibit DM-5 OCA St. No. 1 at 23	(\$308,957)	(\$82,395)
Finance – 913	OCA Exhibit DM-6 OCA St. No. 1 at 24	(\$257,591)	(\$64,960)
Human Resources - 915	OCA Exhibit DM-7 OCA St. No. 1 at 26	(\$212,062)	(\$48,687)
Legal - 916	OCA Exhibit DM-8 OCA St. No. 1 at 27	(\$125,169)	(\$32,297)

¹² OSBA adds 33 employees (for the FPFTY) and 10 employees (20 divided by 2) to OSBA’s starting point of 388 employees.

Safety & Security – 917	OCA Exhibit DM-9 OCA St. No. 1 at 30	(\$117,162)	(\$42,086)
Public Affairs - 921	OCA Exhibit DM-10 OCA St. No. 1 at 31-32	(\$124,814)	(\$29,453)
Environmental Compliance – 931	OCA Exhibit DM-11 OCA St. No. 1 at 40-41	(\$102,469)	(\$29,891)
Warehouse - 918	OCA Exhibit DM-12 OCA St. No. 1 at 33	(\$49,130)	(\$17,682)
Water Quality - 321	OCA Exhibit DM-13 OCA St. No. 1 at 34	(\$154,544)	(\$44,257)
Plant Operations – 322 Water Treatment	OCA Exhibit DM-14 OCA St. No. 1 at 36	(\$752,618)	(\$242,321)
Sewer Operations – 424	OCA Exhibit DM-15 OCA St. No. 1 at 39	(\$252,065)	(\$63,494)
Water Distribution – 325	OCA Exhibit DM-16 OCA St. No. 1 at 42	(\$1,335,807)	(\$393,138)
Engineering & Construction – 930	OCA Exhibit DM-17 OCA St. No. 1 at 44	(\$669,384)	(\$200,869)
	Subtotals	(\$5,328,941)	(\$1,558,717)
		Total	(\$6,887,658)

- 1
- 2 **Q. FOR THE FPFTY, I&E USED AN EMPLOYEE COUNT OF 421 EMPLOYEES.**
- 3 **I&E EXHIBIT NO. 2, SCHEDULE 6, PAGE 1. USING THAT HEADCOUNT, I&E**
- 4 **MADE PROJECTIONS FOR FUTURE EXPENSES. I&E ST. NO. 2 AT 10-12.**
- 5 **BASED ON ITS MATH, I&E RECOMMENDS THAT PWSA’S CLAIM FOR**
- 6 **EMPLOYEE RELATED EXPENSES BE REDUCED BY \$8,280,619 FOR THE**
- 7 **FPFTY. I&E ST. NO. 2 AT 8, 10-12.¹³ PLEASE RESPOND.**
- 8 **A.** I disagree with I&E methodology to determine related expenses. Their recommendation
- 9 to reduce employee related expenses by \$8,280,619 would result in an FPFTY budget

¹³ Specifically, I&E recommends (1) a reduction of \$7,331,464 (\$41,932,394 - \$34,600,930) to PWSA’s claim for payroll expense. I&E St. No. 2 at 10; I&E Exh. No. 2, Schedule 6; (2) a reduction of \$566,618 (\$3,240,779 - \$2,674,161) to PWSA’s claim for payroll tax expense. I&E St. No. 2 at 13-14; and, (3) a reduction of \$382,537 (\$899,208 - \$516,671) to PWSA’s claim for retirement benefits. I&E St. No. 2 at 15.

1 amount that is \$425,776 lower than PWSA’s FY 2023 budget amount of \$46,438,518.
 2 That recommendation does not allow PWSA to: 1) recover increased expenses for
 3 additional employees in the FPFTY, 2) fund a 3% cost of living adjustment for
 4 employees, which is nondiscretionary for union employees per the collective bargaining
 5 agreements, and 3) fund increases in health insurance costs. This demonstrates that I&E’s
 6 recommendation is completely unrealistic and would be a disservice to PWSA’s
 7 ratepayers.

8 **Q. USING CALCULATIONS TO “ROLL OUT” NEW HIRES DURING THE**
 9 **FPFTY, OSBA MADE PROJECTIONS FOR FUTURE EXPENSES. OSBA ST.**
 10 **NO. 1 AT 4-5, 7-12. BASED ON ITS MATH, OSBA RECOMMENDS THAT**
 11 **PWSA’S CLAIM FOR EMPLOYEE RELATED EXPENSES BE REDUCED BY**
 12 **\$3,794,957 FOR THE FPFTY. OSBA ST. NO. 1 AT 4-5, 7-12.¹⁴ PLEASE**
 13 **RESPOND.**

14 A. I disagree with OCA methodology to determine expenses related to employees.

15 OSBA is not using a fully forecasted test year. The nature of a fully projected test
 16 year is that it reflects a projection of all of the costs that the entity is going to experience
 17 over that year. By rolling out the new hires, OSBA ignores the FPFTY by rejecting the
 18 assumption that new hires begin employment on January 1. Furthermore, PWSA’s
 19 headcount of 418 employees as of September 7, 2023 is 13.5 employees higher than
 20 OSBA’s FPFTY projection, which discredits OSBA’s recommendations and supports
 21 PWSA’s 421 employee count claim and the revenue requirement associated with it.

¹⁴ Specifically, OSBA recommends (1) a reduction of \$1,252,079 for the new hire roll out adjustment; (2) a reduction of \$1,864,109 for the cost of living adjustment; and, (3) a reduction of \$678,765 for the other employee related adjustments. OSBA St. No. 1 at 4-5, 7-12.

1 **Q. USING A VACANCY RATIO OF 12.61%, OCA RECOMMENDS THAT PWSA’S**
2 **CLAIM FOR EMPLOYEE RELATED EXPENSES BE REDUCED BY \$6,887,658**
3 **FOR THE FPPTY. OCA ST. 1 AT 17-18. PLEASE RESPOND.**

4 A. The unreasonableness of OCA’s adjustments can be easily shown by comparing their
5 recommendations to PWSA’s actual current employment levels. First, for the FPPTY,
6 OCA used an employee count of 368. The is far less than PWSA’s total employee count
7 of 418 as of September 7, 2023. Second, OCA’s recommendation for the FPPTY is only
8 \$967,185 more than the FTY amount of \$46,438,518. That recommendation does not
9 allow PWSA to recover increased expenses for additional employees in the FPPTY as
10 well as seriously jeopardizes the ability to pay for health insurance costs and offer a 3%
11 cost of living adjustments employees, which as mentioned above, is nondiscretionary for
12 union employees per the collective bargaining agreements.

13 **Q. DID ANY OF THE OTHER PARTIES PROPOSE REDUCTIONS TO PWSA’S**
14 **CLAIM FOR EMPLOYEE RELATED EXPENSES, INCLUDING PAYROLL**
15 **EXPENSES (SALARIES), PAYROLL TAXES AND BENEFITS, IN THE**
16 **FORECAST PERIOD.**

17 A. I&E and OSBA each made recommendations for the Forecast Period.

18 Using 440 employees, I&E recommends that PWSA’s claim for employee related
19 expenses be reduced by \$6,760,737 in FY 2025 and by \$7,861,451 in FY 2026. I&E St. No.
20 2 at 8, 10-12.

21 By continuing to “roll out” new hires during the Forecast Period, OSBA
22 recommends that PWSA’s claim for employee related expenses be reduced by \$3,182,778
23 in FY 2025 and by \$2,528,647 in FY 2026.

24 OCA made recommendations solely for PWSA’s FPPTY. OCA St. No. 1 at 5. It
25 did not, therefore, make recommendations for the Forecast Period.

1 **Q. DOES PWSA AGREE WITH THOSE RECOMMENDATIONS FOR THE**
2 **FORECAST PERIOD?**

3 A. No. PWSA disagrees with the recommendations for the Forecast Period for the same
4 reasons that PWSA disagrees with the recommendations for the FPPTY.

5 **XV. WET WEATHER CONSENT DECREE**

6 **Q. I&E RECOMMENDS A REDUCTION OF \$7,500,000 (\$8,866,242 - \$1,366,242) TO**
7 **PWSA’S CLAIM FOR OPERATING CONTRACTS-OTHER. I&E ST. NO. 2 AT**
8 **17. THIS IS BASED ON THE DISALLOWANCE OF THE ENTIRE AMOUNT**
9 **FOR THE WET WEATHER CONSENT DECREE. I&E ST. NO. 2 AT 18.**
10 **PLEASE RESPOND.**

11 A. PWSA disagrees with this recommendation. There are existing purchase order
12 commitments outstanding for wet weather modeling, negotiations, and data gathering that
13 will require payments of \$7.5 million in the FPPTY. PWSA must incur these costs to
14 properly design a consent decree that is effective and appropriate for PWSA’s service
15 area. Information and data on those commitments is provided as Exhibit EB-10. Not
16 allowing the recovery of these costs would hinder PWSA’s ability to honor its
17 commitments, which could raise environmental compliance issues.

18 **Q. DID I&E MAKE ANY RECOMMENDATIONS FOR THE CONSENT DECREE**
19 **FOR THE FORECAST PERIOD.**

20 A. Yes. I&E recommends a reduction of \$9,750,000 in FY 2025, and \$12,675,000 in FY
21 2026. I&E St. No. 2 at 29-31.

22 **Q. DOES PWSA AGREE WITH EITHER OF THE RECOMMENDATIONS FOR**
23 **THE FORECAST PERIOD?**

24 A. No. PWSA disagrees with the recommendations for the Forecast Period for the same
25 reasons that PWSA disagrees with the recommendations for the FPPTY.

26 **XVI. DRAG BUCKET**

27 **Q. PLEASE SUMMARIZE THE PROPOSED REDUCTIONS TO PWSA’S CLAIM**
28 **FOR DRAG BUCKET.**

29 A. I&E and OCA each made recommendations using different approaches.

1 I&E recommends disallowance of the entire amount of \$780,372 for PWSA’s
 2 claim for drag bucket for the FPFTY. I&E St. No. 2 at 19-20. There are no drag bucket
 3 claims for the Forecast Period. I&E St. No. 2 at 19-20. I&E states that the drag bucket
 4 expense for the FPFTY is 6% higher than the drag bucket expense for the FTY. I&E St.
 5 No. 2 at 19. I&E claims that PWSA failed to provide adequate support for this claim.
 6 I&E St. No. 2 at 19-20.

7 OCA recommends disallowance of half of (\$368,100) PWSA’s claim for drag
 8 bucket for the FPFTY. That recommendation is based on normalization over a two year
 9 period. OCA St. No. 1 at 41; OCA Exhibit DM-11. OCA’s recommendation is based on
 10 PWSA’s claim of \$736,000 for the FPFTY. OCA divided that amount in half since OCA
 11 claims that there are no prior costs for 2020 to 2022.

12 **Q. DOES PWSA AGREE WITH I&E’S RECOMMENDATION (I&E ST. NO. 2 AT**
 13 **19-20) TO ELIMINATE PWSA’S CLAIM FOR DRAG BUCKET IN ITS**
 14 **ENTIRETY?**

15 A. No, the full amount of PWSA’s claim should be granted. Starting in FY 2023, PWSA
 16 repurposed the Drag Bucket account (5335) to Flow Monitoring to better track costs.
 17 Prior to this change, Flow Monitoring costs were charged to a different account.

18 The chart below outlines the costs incurred for Flow Monitoring since FY 2020.
 19 PWSA bids this contract out annually, with an existing contract in place, of which will
 20 account for about half of PWSA’s FPFTY claim. The remaining will be obligated under a
 21 new contract when it is procured in the coming months. This information clearly shows
 22 that 1) prior year expenses were incurred, 2) PWSA is capable of spending the funds
 23 requested in the FPFTY, and 3) there is an existing contract commitment in place to
 24 perform this work. Not providing PWSA with the funds to fulfill this contract will force
 25 PWSA to cancel agreed upon commitments.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	FY 2023 Actual YTD (7/31/2023)	PWSA Proposed FPFTY Claim
Flow Monitoring	\$727,314	\$720,210	\$790,230	\$367,588	\$780,372

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Q. DOES PWSA AGREE WITH OCA’S RECOMMENDATION (OCA ST. NO. 1 AT 41; OCA EXHIBIT DM-11) TO REDUCE PWSA’S CLAIM FOR DRAG BUCKET IN HALF?

A. No. OCA’s use of a two-year average is unreasonable. Here, OCA only looked at the newly created account to calculate its two year average. That fails to recognize that the account location was changed for these costs. The fact that the account location for these costs was changed in FY 2023 does not mean that these costs did not exist prior to FY 2023. They did exist, as I have explained. PWSA anticipates that it will incur such costs in the FPFTY and Forecast Period as projected. Cutting PWSA’s claim in half would deny PWSA the opportunity to recover costs that it will incur in the FPFTY and the Forecast Period.

Q. DID I&E MAKE ANY RECOMMENDATIONS FOR THE DRAG BUCKET FOR THE FORECAST PERIOD.

A. No because no amounts were claimed by PWSA for FY 2025 or FY 2026. The costs for drag bucket are included under the general ledger account 5335, which was created and renamed to “Flow Monitoring.”

XVII. LINE TELEVISIONING

Q. DOES PWSA AGREE WITH I&E’S RECOMMENDATION, I&E ST. NO. 2 AT 21, TO ELIMINATE PWSA’S CLAIM FOR LINE TELEVISIONING IN ITS ENTIRETY?

A. No, the full amount of PWSA’s claim should be granted. Starting in FY 2023, PWSA created the Line Television account (5348) to better track costs. Prior to this change, Line Television costs were charged to a different account.

1 The chart below outlines the costs incurred for Line Television since FY 2020.
 2 PWSA bids this contract out annually, with an existing contract in place, of which will
 3 account for about half of PWSA’s FPFTY claim. The remaining will be obligated under a
 4 new contract when it is procured in the coming months. This information clearly shows
 5 that 1) prior year expenses were incurred, 2) PWSA is capable of spending the funds
 6 requested in the FPFTY, and 3) there is an existing contract commitment in place to
 7 perform this work. Not providing PWSA with the funds to fulfill this contract will force
 8 PWSA to cancel agreed upon commitments.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	FY 2023 YTD (7/31/2023)	PWSA Proposed FPFTY Claim
Line Television	\$625,515	\$611,252	\$703,814	\$184,561	\$763,995

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10 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDATION (OCA ST. NO. 1 AT**
 11 **41; OCA EXHIBIT DM-11) TO REDUCE PWSA’S CLAIM FOR LINE**
 12 **TELEVISIONING IN HALF?**

13 A. No. OCA’s use of a two-year average is unreasonable. Here, OCA only looked at the
 14 newly created account to calculate its two year average. That fails to recognize that the
 15 account location was changed for these costs. The fact that the account location for these
 16 costs was changed in FY 2023 does not mean that these costs did not exist prior to FY
 17 2023. They did exist, as I explained. PWSA anticipates that it will incur such costs in the
 18 FPFTY and Forecast Period as projected. Cutting PWSA’s claim in half would deny
 19 PWSA the opportunity to recover costs that it will incur in the FPFTY and the Forecast
 20 Period

1 **Q. DID I&E MAKE ANY RECOMMENDATIONS FOR THE LINE TELEVISIONING**
2 **FOR THE FORECAST PERIOD.**

3 A. No because no amounts were claimed by PWSA for FY 2025 or FY 2026. The costs for
4 line televising were captured under a different account prior to general ledger account
5 5348 bring created.

6 **XVIII. OFFICE RENT EXPENSE**

7 **Q. I&E RECOMMENDS A REDUCTION OF \$1,059,483 (\$1,975,659 5 - \$916,176) TO**
8 **PWSA’S CLAIM FOR OFFICE RENT EXPENSE. I&E ST. NO. 2 AT 22-23. I&E**
9 **ADJUSTMENT IS BASED ON THREE-YEAR AVERAGE OF ACTUAL OFFICE**
10 **RENTAL EXPENSE. I&E ST. NO. 2 AT 22-23. PLEASE RESPOND.**

11 A. I&E acknowledges that PWSA’s office rent expense will change in FY 2024 due to the
12 change in location for PWSA’s headquarters. I&E St. No. 2 at 21. The lease for the new
13 location has not been executed. So, I&E claims that PWSA failed to support its claim for
14 lease expenses. I&E St. No. 2 at 22-23.

15 PWSA provided sufficient information to support its claim for higher rent in the
16 FPPTY and the Forecast Period. Not all of the details are known at this time, as I noted.
17 The ability to find this type of large space in the City of Pittsburgh is very limited and
18 PWSA must have the funds available to act quickly should PWSA find a suitable
19 location. PWSA made a reasonable projection for anticipated expenses in the FPPTY.

20 I&E’s recommendation for the FPPTY is unreasonable. I&E’s adjustment rests on
21 the assumption that PWSA can replace its existing headquarters location with a new
22 location for the same amount of rent, since I&E’s adjustment results in only \$5,817 more
23 than the HTY lease expenses. That is unreasonable and only looks to the past lease
24 expenses. Using only past lease expenses is not reasonable since it does not project future
25 lease expenses under a new lease at a new location. So, adopting I&E’s adjustment would

1 deny PWSA the opportunity to recover its anticipated lease expenses in the FPFTY and
2 beyond.

3 **Q. DID I&E MAKE ANY RECOMMENDATIONS FOR THE OFFICE RENT FOR**
4 **THE FORECAST PERIOD.**

5 A. Yes. I&E recommends a reduction of \$1,178,023 in FY 2025 and \$1,303,675 in FY 2026.
6 I&E St. No. 2 at 22.

7 **Q. DOES PWSA AGREE WITH EITHER OF THE RECOMMENDATIONS FOR**
8 **THE FORECAST PERIOD?**

9 A. No. PWSA disagrees with the recommendations for the Forecast Period for the same
10 reasons that PWSA disagrees with the recommendations for the FPFTY.

11 **XIX. RATE CASE EXPENSES**

12 **Q. PLEASE SUMMARIZE THE PROPOSED REDUCTIONS TO PWSA'S CLAIM**
13 **FOR RATE CASE EXPENSES.**

14 A. I&E and OCA each made recommendations. I&E indicated that, due to the discrepancies
15 in the data, Ms. Okum was unable to make an adjustment in her direct testimony. I&E St.
16 No. 2 at 25-26. However, I&E did recommend that (1) PWSA's historic rate case filing
17 frequency be set at 19.33 months for purposes of this proceeding, I&E St. No. 2 at 25;
18 and (2) PWSA be required in all future rate case proceedings to account for rate case
19 expense in a separate account, I&E St. No. 2 at 24-26.

20 OCA recommends recovering the balance of \$2,137,695 over two years, allowing
21 the recovery of \$1,068,848 annually. OCA St. No. 1 at 28-29. That recommendation is
22 based on OCA's use of an average historic filing period of 2 years. OCA St. No. 1 at 28.
23 Mr. Mugrace calculated an average historic filing period of 1.25 years (5 years divided by
24 4 rate cases or 1.25). OCA St. No. 1 at 28. He is recommending a two-year period
25 because the use of a normalized 1.25 year period will occur between rate cases, in which

1 PWSA will still be collecting and ultimately over-collect until PWSA files its next base
2 rate case. OCA St. No. 1 at 28.

3 **Q. DOES PWSA AGREE WITH EITHER OF THE RECOMMENDATIONS ON THE**
4 **HISTORIC FILING PERIOD?**

5 A. No. PWSA, as a cash flow company, must have the full amount available to purchase any
6 item or service. To act as if PWSA can recover these costs over multiple years is not
7 realistic for how business is actually done. It is for this reason that PWSA is proposing to
8 recover rate case expenses over a one-year period.

9 **Q. I&E STATES THAT PWSA DID NOT PROPERLY TRACK RATE CASE**
10 **EXPENSES. PWSA ST. NO. 2 AT 24-26. PLEASE RESPOND.**

11 A. PWSA does not agree with this statement. Rate case budget amounts were provided with
12 supporting contracts in the response to Discovery Question I&E-RE-2-D. Additional,
13 PWSA requires its consultants and external legal staff to specify rate case expenses on
14 their invoices for the purpose of being able to easily track expenses.

15 **Q. DOES PWSA AGREE WITH OCA'S RECOMMENDATION (OCA ST. NO. 1 AT**
16 **29-29) TO REDUCE PWSA'S CLAIM FOR RATE CASE EXPENSE IN HALF?**

17 A. No. As stated above, PWSA, as a cash flow company, must have the full amount
18 available to purchase any item or service. Recovering these costs over multiple years is
19 not an option.

20 **Q. I&E RECOMMENDS THAT PWSA BE REQUIRED IN ALL FUTURE RATE**
21 **CASE PROCEEDINGS TO ACCOUNT FOR RATE CASE EXPENSE IN A**
22 **SEPARATE ACCOUNT, I&E ST. NO. 2 AT 24-26. PLEASE RESPOND.**

23 A. No. PWSA does not feel that this is necessary because consultants and external legal staff
24 are required to specify rate case expenses on their invoices. There is no need to create a
25 separate account since this information is already being captured and can be provided to
26 the Commission.

1 **XX. COVID-19 EXPENSE**

2 **Q. I&E RECOMMENDS A REDUCTION OF \$96,974 (\$263,215 - \$166,241) TO**
3 **PWSA’S COVID-19 EXPENSES IN THE FPFTY. THIS RECOMMENDATION IS**
4 **BASED ON AMORTIZATION OF THE FULL AMOUNT OVER A 19 MONTH**
5 **AVERAGE FILING FREQUENCY. I&E ST. NO. 2 AT 25, 33. PLEASE**
6 **RESPOND.**

7 A. PWSA does not agree with the recommendation to recover these costs over a 19 month
8 period. PWSA voluntarily deferred the recovery of COVID-19 expenses in the last rate
9 case to lessen the burden on ratepayers given the grim economic conditions of the
10 pandemic. Now, in this rate case, PWSA is being “punished” for that decision through
11 the recommendation that these costs must be recovered for a period longer than 1 year.
12 As a cashflow regulated company this is untenable.

13 **Q. OCA RECOMMENDS A REDUCTION OF \$131,608 TO PWSA’S COVID-19**
14 **EXPENSES IN THE FPFTY. OCA ST. NO. 1 AT 47; OCA EXHIBIT DM-18. THIS**
15 **RECOMMENDATION IS BASED ON RECOVERING OVER A 2 YEAR (24**
16 **MONTH) PERIOD. OCA ST. NO. 1 AT 47; OCA EXHIBIT DM-18. PLEASE**
17 **RESPOND.**

18 A. PWSA does not agree with the recommendation to recover these costs over a 24 month
19 period. PWSA voluntarily deferred the recovery of COVID-19 expenses in the last rate
20 case to lessen the burden on ratepayers given the grim economic conditions of the
21 pandemic. As a cash flow company, it was an enormous burden to have to fund these
22 expenses but to defer receiving the cash necessary to pay them. Now., under these
23 proposals PWSA will have to wait even longer to be reimbursed for it good faith
24 compliance with the Commission’s directives.

1 **XXI. EQUIPMENT EXPENSE**

2 **Q. I&E RECOMMENDS A REDUCTION OF \$2,201,117 (\$3,411,233 - \$1,210,116) TO**
 3 **PWSA’S CLAIM FOR EQUIPMENT EXPENSE FOR THE FPPTY. I&E ST. NO.**
 4 **2 AT 29-31. I&E’S RECOMMENDATION IS BASED ON ANNUALIZING THE**
 5 **COST OF CERTAIN EQUIPMENT OVER THE USEFUL SERVICE LIFE OF**
 6 **THE RESPECTIVE EQUIPMENT. I&E ST. NO. 2 AT 29-31. PLEASE**
 7 **RESPOND?**

8 A. I disagree with Ms. Okum’s methodology to normalize the equipment expenses since
 9 PWSA is a cash based utility. PWSA fully pays for all expenses within the year that they
 10 are incurred, and must have the funds to do so. Ms. Okum’s recommendation for a cash-
 11 based utility to normalize costs is the equivalent of buying a good or service and only
 12 being able to pay the merchant for a portion of the cost at the time of sale. From an
 13 accounting and budgeting perspective, normalization is not feasible for PWSA.
 14 Moreover, while these items of equipment have useful lives that are longer than one year,
 15 PWSA expects to experience the same level of equipment expenditures in each
 16 subsequent year.

17 Furthermore, even if the PWSA was able to normalize these costs (which is not
 18 possible), Ms. Okum assumes all of the expenses within equipment expenses are eligible
 19 to be capitalized per PWSA’s Capital Asset Policy. PWSA’s Capital Asset Policy clearly
 20 defines that the minimum capitalization threshold for buildings, structures, and capital
 21 leases is \$25,000, with \$10,000 being the single asset capitalization minimum for all
 22 other assets. The majority of the equipment expenses do not meet those capitalization
 23 thresholds.

24 **Q. DID I&E MAKE ANY RECOMMENDATIONS FOR EQUIPMENT EXPENSE**
 25 **FOR THE FORECAST PERIOD.**

26 A. Yes. I&E recommends a reduction of \$3,552,424 in FY 2025 and a reduction of
 27 \$3,765,569 in FY 2026. I&E St. No. 2 at 29-31.

1 **Q. DOES PWSA AGREE WITH EITHER OF THE RECOMMENDATIONS FOR**
 2 **THE FORECAST PERIOD?**

3 A. No. PWSA disagrees with the recommendations for the Forecast Period for the same
 4 reasons that PWSA disagrees with the recommendations for the FPPTY.

5 **XXII. NORMALIZATION**

6 **Q. DID ANY OF THE PARTIES RECOMMEND NORMALIZATION OF PWSA’S**
 7 **EXPENSES?**

8 A. Yes. OCA recommends that numerous expenses be normalized on a two-year basis. OCA
 9 St. No. 1 at 15-16. OCA’s normalization recommendations would result in reductions
 10 totaling \$3,670,495.

11 **Q. DID PWSA COMPILE A LIST OF THE NORMALIZATION ADJUSTMENTS**
 12 **RECOMMENDATIONS.**

13 A. Yes, the following table lists the OCA’s recommended normalization adjustments:
 14

OCA Normalization Adjustments						
#	PWSA Account Reference	OCA Reference	PWSA Expense Claim	OCA: 2 Year Normalize	OCA Adjustment Recommendation	OCA Position Allowed Expenses
1	Finance – 913 Vehicles	OCA Exhibit DM-6 OCA St. No. 1 at 25	\$2,000,000	Prior costs (2020-2022) average out to about \$785,000	(\$1,000,000)	\$1,000,000
2	Finance – 913 Pagers/ EE Parking	OCA Exhibit DM-6 OCA St. No. 1 at 25	60,000	There were no prior costs for this expense in the 2020-2023 period	(\$30,000)	\$30,000
3	Legal – 916 Claims Deductible	OCA Exhibit DM-8 OCA St. No. 1 at 28	750,000	Prior costs averaged out to about \$685,000 (2020-2022)	(\$397,500)	352,000
4	Safety & Security – 917 Radionuclides	OCA Exhibit DM-9 OCA St. No. 1 at	\$651,399	PWSA has not provided any reconciliation of these reclassified costs nor provided how these costs are now allocated	(\$325,700)	325,700

				under Account 5375		
5	Safety & Security – 917 Grounds and Maintenance	OCA Exhibit DM-9 OCA St. No. 1 at 30-31	\$53,250	Prior costs were \$0 in 2020, \$0 in 2021 and \$102,089 in 2023	(\$26,625)	26,625
6	Safety & Security – 917 Grounds and Maintenance	OCA Exhibit DM-9 OCA St. No. 1 at 30-31	27,000	Prior costs were \$0 in 2020, \$0 in 2021 30 and \$5,472 in 2022.	(\$13,500)	13,500
7	Public Affairs – 921 Grounds and Maintenance	OCA Exhibit DM-10 OCA St. No. 1 at 32	159,000	Prior costs were \$0 in 2020, \$0 in 2021 and \$0 in 2022. I am 23 recommending normalizing these costs over a two- year period using FY 2023 costs of 24 \$150,000 or \$75,000 annually.	(\$75,000)	75,000
8	Environmental Compliance – 931 Ground Maintenance	OCA Exhibit DM-11 OCA St. No. 1 at 41	45,500		(\$22,750)	22,750
9	Environmental Compliance – 931 Repairs and Maintenance	OCA Exhibit DM-11 OCA St. No. 1 at 41	60,000		(\$30,000)	30,000
10	Environmental Compliance – 931 Testing	OCA Exhibit DM-11 OCA St. No. 1 at 41	56,000		(\$28,000)	28,000
11	Environmental Compliance – 931 Inspection	OCA Exhibit DM-11 OCA St. No. 1 at 41	60,000		(\$30,000)	30,000
12	Environmental Compliance – 931 Construction Management	OCA Exhibit DM-11	86,490		(\$43,425)	43,245

		OCA St. No. 1 at 41				
13	Water Quality- 321 Machinery Repairs	OCA Exhibit DM-13 OCA St. No. 1 at 35	128,112	Prior costs were \$0 in 2020, \$21,961 in 2021 and \$22,314 in 2023. PWSA 15 increased this balance by \$105,798 to arrive at the balance of \$128,112 in the FY 2023	(\$64,056)	\$64,056
14	Water Treatment - 322 Pump & Motor Contracts	OCA Exhibit DM-14 OCA St. No. 1 at 37	600,000	Prior costs were \$0 in 2020, 3 \$0 in 2021 and \$0 in 2023.	(\$300,000)	300,000
15	Sewer Operations – 424 Welding	OCA Exhibit DM-15 OCA St. No. 1 at 40	117,927	Prior costs were \$0 in 2020, \$0 in 2021 and \$0 in 2023. PWSA increased 7 this balance by \$117,927 in the FPFTY 2024.	(\$58,964)	58,964
16	Water Distribution – 325 Panther Hollow	OCA Exhibit DM-16 OCA St. No. 1 at 43	471,709		(\$235,855)	235,855
17	Water Distribution – 325 Fines and Penalties	OCA Exhibit DM-16 OCA St. No. 1 at 43	18,000		(\$18,000)	0
18	Water Distribution – 321 Chlorine Cylinders	OCA Exhibit DM-16 OCA St. No. 1 at 43	96,000		(\$44,746)	51,264
19	Water Distribution – 321 Meters	OCA Exhibit DM-16 OCA St. No. 1 at 43	199,992		(\$99,996)	99,996
20	Engineering & Construction – 930	OCA Exhibit DM-17	1,500,000		(\$750,000)	750,000

	Manhole	OCA St. No. 1 at 45				
21	Engineering & Construction – 930	OCA Exhibit DM-17	152,756		(\$76,378)	76,378
	Landscaping and Grounds	OCA St. No. 1 at 45				
				Total ADJ:	(\$3,670,495)	

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Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION ADJUSTMENTS?

A. No. The approach used by the opposing parties may be reasonable when it is applied to an investor-owned utility that is regulated on a rate of return/rate base basis but, for several reasons, is not reasonable for PWSA.

First, as I have already discussed, PWSA is in a dynamic, ramp-up mode. Using historical data to condemn future projections is self-defeating and amounts to a repudiation of the Authority’s efforts to repair the neglect and inadequacies of the past. Be sure of this: if PWSA is held to historic spending levels for ratemaking purposes it will be forced to reduce its levels of expenditures to those levels. In turn it will not be able to accomplish the myriad projects and initiatives it has agreed or has been ordered to do by the regulators.

Second, it is important to note that, unlike investor-owned utilities, PWSA has asked for no increment above the revenues it needs to fund its Operating Budget to be able to attain financial indicators that would be consistent with its peer utilities. As such, PWSA has no “cushion” (such as that produced by a return on equity allowance) to be able to fund its operating budget if it does not receive the revenues it needs to provide that funding. Again, if PWSA receives a rate increase that only reflects a level of

1 employees that it experienced in 2021, for example, it has no way to hire additional
2 employees above that level. That means that all the service improvements that those
3 additional employees could have provided simply will not occur. This is a path toward
4 the inadequate performance and operations that was so widely condemned in the past.

5 Third, unlike an investor-owned utility, if PWSA does encounter unforeseen
6 circumstances and is unable to expend all of its FY 2024 Budget funding provided in
7 rates, it is important to recognize that 100% of the revenues PWSA collects from
8 customers is retained by PWSA and will be used to support the Authority's continued
9 operation in a safe and reasonable manner and will not go to shareholders or an owner.

10 The Authority would, in fact commit to using any excess revenues net of expenses in FY
11 2024 to reduce its cost of service by paying down debt or other borrowing, adding the
12 amount to its cash on hand, or crediting its Reserve Fund. Any of these steps will reduce
13 its revenue requirement – and needed rate relief – in future years.

14 **Q. DOES PWSA AGREE WITH OCA'S RECOMMENDED NORMALIZATION**
15 **VEHICLE ADJUSTMENTS (OCA ST. 1, AT 25)?**

16 A. No. Mr. Mugrace recommends normalizing the cost of vehicles over a two-year period
17 because he feels that PWSA's \$2,000,000 claim is excessive and not reflective of what
18 PWSA has expensed in the past. What Mr. Mugrace fails to understand is that vehicle
19 purchases were funded out of the operating budget prior to FY 2021. This means that the
20 dollar amount represented in general ledger 5190 prior to FY 2021 is not representative
21 of the amount PWSA spent on vehicle replacements. The amounts below represent what
22 was spent from FY 2018 – FY 2022 as well as a year-to-date comparison of the amount
23 spent in FY 2023. PWSA's historical spending on vehicles has been well in excess of the
24 \$2 million claimed in the FPFTY. Less than \$1 million was spent in year FY 2021

1 because PWSA had to reduce spending to cope with the budgetary impact of receiving
 2 less of a rate increase from the PUC than anticipated – not because additional vehicles
 3 replacements were not needed. In addition, PWSA would have spent over \$2 million on
 4 vehicles in FY 2022 if supply chain disruptions did not severely delay the arrival of new
 5 orders. These supply chain disruptions have started to ease in the vehicle industry,
 6 resulting in the anticipation of over \$2 million being spent in FY 2023.

	FY 2018 Actual*	FY 2019 Actual*	FY 2020 Actual**	FY 2021 Actual	FY 2022 Actual	FY 2022 YTD (7/31/22)	FY 2023 YTD (7/31/23)	PWSA Proposed FPFTY Claim
Vehicles	\$2,102,604	\$2,320,215	\$2,214,875	\$801,884	\$1,571,317	\$949,745	\$1,230,253	\$2,067,840

7

*Includes amounts spent through the capital budget.
 **Includes amounts spent through both the capital and operating budgets.

8

9 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 10 **PAGERS/EE PARKING COSTS (OCA ST. 1, AT 25)?**

11 A. No. See Exhibit EB-11. PWSA has an active parking lease which requires lease payments
 12 of \$11,000 per month from June 1, 2022 – May 31, 2023, \$11,550 per month from June
 13 1, 2023 – May 31, 2024 and \$12,100 per month from June 1, 2024 – May 31, 2025.
 14 PWSA pays a portion of the lease amounts on the behalf of employees, with the \$60,000
 15 claim being the portion that PWSA will pay in FPFTY. Normalizing these costs does not
 16 make sense because they are known, measurable, and an outstanding obligation per the
 17 lease agreement.

1 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 2 **CLAIMS DEDUCTIBLES (OCA ST. 1, AT 28)?**

3 A. No. See below. Mr. Mugrace’s \$397,500 reduction to claims and deductibles results in a
 4 budget amount of \$352,500. This is well below the \$500,000 minimum that PWSA has
 5 paid every year since FY 2019. PWSA’s proposed claim of \$795,000 in the FPFTY is
 6 reasonable given that almost a \$1 million was paid in FY 2021. No allocating enough
 7 budget to this general ledger account will result in PWSA’s having to defund other items
 8 in order to pay claims, which are not discretionary. PWSA’s FPFTY claim of \$750,000 is
 9 reasonable given these facts and should be accepted.

	FY 2019 Actual	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	PWSA Proposed FPFTY Claim
Claims Deductibles	\$587,017	\$556,304	\$988,353	\$505,098	\$795,000

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11 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 12 **RADIONUCLIDES EXPENSE (OCA ST. 1, AT 31)?**

13 A. No. To be clear, the Radionuclides general ledger account was repurposed to capture
 14 external security guard cost starting in FY 2023. Prior to FY 2023, external security
 15 guard costs were captured under the Operating Contracts Other general ledger account.
 16 To make it easier to understand, I included the prior year cost of the external security
 17 guard contract. Note that FY 2020 was the first year that this cost was incurred. PWSA’s
 18 claim to recover \$690,483 in the FPFTY is very reasonable considering the prior year
 19 cost. The reason that the FPFTY amount is so much lower than prior years is the result of
 20 PWSA’s hiring in-house security guards. This practice was done in order to have more
 21 control over the guards as well as save cost related to outsourcing the work.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	PWSA Proposed FPFTY Claim
Security Guards	\$751,673	\$844,528	\$932,045	\$690,483

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2 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 3 **GROUNDS & MAINTENANCE (ACCOUNT 5145) AND GROUNDS &**
 4 **MAINTENANCE SUPPLIES (ACCOUNT 7440) EXPENSE FOR THE SAFETY**
 5 **AND SECURITY DEPARTMENT (OCA ST. 1, AT 30-31)?**

6 A. No. Mr. Mugrace justifies normalizing these costs because he states no costs were
 7 incurred in FY 2020 and FY 2021, with minimal cost being expended in FY 2022.
 8 However, Mr. Mugrace does not acknowledge that the reason for this was because the
 9 Safety and Security department was only created in FY 2022. This invalidates the
 10 justification for normalization as PWSA clearly needs the requested funds to continue to
 11 grow and expand a department that enforces critical principals, such as safety and
 12 security, throughout the organization.

13 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 14 **GROUNDS & MAINTENANCE (ACCOUNT 5145) EXPENSE FOR THE PUBLIC**
 15 **AFFAIRS DEPARTMENT (OCA ST. 1, AT 32)?**

16 A. No. The cost claimed in the budget of the Public Affairs department under Grounds &
 17 Maintenance is for the design and creation of signs for capital projects and community
 18 events. The reason that there are costs incurred in FY 2020, FY 2021, and FY 2022 was
 19 because this signage initiative only started in FY 2023. There is an active purchase order
 20 to have a vendor perform this work. Discarding this commitment will only hurt PWSA’s
 21 reputation with its vendor pool, which could impact the ability to complete future work.

1 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
2 **GROUND & MAINTENANCE (ACCOUNT 5145), REPAIRS &**
3 **MAINTENANCE (ACCOUNT 5496), TESTING (ACCOUNT 5570), INSPECTION**
4 **(ACCOUNT 5345), AND CONSTRUCTION MANAGEMENT (ACCOUNT 7330)**
5 **ADJUSTMENTS FOR THE ENVIRONMENTAL COMPLIANCE**
6 **DEPARTMENT (OCA ST. 1, AT 41)?**

7 A. No. Normalizing these costs are not appropriate given PWSA’s renewed focus on
8 environmental compliance. PWSA’s FPFTY claim for Grounds & Maintenance, Repairs
9 & Maintenance, Testing, and Inspection are necessary to support the growing
10 environmental compliance team as well as provide the necessary resources to ensure
11 compliance with all regulatory requirements. Also, the Construction Management
12 account (7330) was created in FY 2023 to better track costs. Simply looking at historical
13 actuals for all of these expenses as an indicator for the recommended level of future
14 expenses is not appropriate.

15 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
16 **MACHINERY REPAIRS (5452) EXPENSE FOR THE WATER QUALITY**
17 **DEPARTMENT (OCA ST. 1, AT 35)?**

18 A. No. The recommendation to normalize the machinery repairs claim does not provide
19 PWSA with adequate funds to maintain the complex testing machines and equipment
20 within the water laboratory. It will also result in PWSA having to reduce other projects or
21 initiatives to pay for machinery repairs as they arise.

22 Prior to 2021, PWSA did not allocate any resources to machinery repairs in the
23 lab, which prolonged the rate at which repairs were completed. This is not a best practice
24 and was the main reason funding was allocated to this budget line item in FY 2022.
25 Given the unique nature of the lab equipment, increasing this budget line item to PWSA’s
26 requested FPFTY claim is appropriate to ensure the lab is running as efficiently and
27 effectively as possible.

1 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 2 **PUMPS & MOTORS EXPENSE FOR THE WATER TREATMENT PLANT (OCA**
 3 **ST. 1, AT 37)?**

4 A. No, the full amount of PWSA’s claim should be granted. Starting in FY 2023, PWSA
 5 created the Pumps & Motors account (5344) to better track costs. Prior to this change,
 6 Pumps & Motors costs were charged to a different account.

7 The chart below outlines the costs incurred for Pumps & Motors since FY 2020.
 8 As the name implies, this account is used to repairs pumps and motors as they break.
 9 PWSA heavily relies on this contract for repairs given the age of the infrastructure.

10 PWSA bids this contract out annually, with an existing contract in place to repair
 11 pumps and motors, which will account for about half of PWSA’s FPPTY claim. The
 12 remaining amounts will be obligated under a new contract when it is procured in the
 13 coming months. This information clearly shows that 1) prior year expenses were
 14 incurred, 2) PWSA is capable of spending the funds requested in the FPPTY, and 3) there
 15 is an existing contract commitment in place to perform this work. Not providing PWSA
 16 with the funds to fulfill this contract will force PWSA to cancel agreed upon
 17 commitments.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	PWSA Proposed FPPTY Claim
Pumps & Motors	\$942,895	\$708,779	\$519,549	\$636,000

18 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION**
 19 **ADJUSTMENT FOR WELDING (5390) EXPENSE FOR THE SEWER**
 20 **OPERATIONS DEPARTMENT (OCA ST. 1, AT 40)?**

21 A. No. Normalizing these costs does not provide for an adequate level to fund PWSA’s
 22 welding needs. Rather, it will force PWSA to substantially reduce its purchases or not

1 purchase anything at all. PWSA is a cash-flow utility and must have the full amount of
 2 funds available to make a purchase.

3 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 4 **METERS (ACCOUNT 5360) EXPENSE FOR THE WATER DISTRIBUTION**
 5 **DEPARTMENT (OCA ST. 1, AT 43)?**

6 A. No. The Meters account (5360) was repurposed to Flagging starting in FY 2023 to better
 7 track costs. The chart below outlines the costs incurred for Flagging costs since FY 2020.
 8 PWSA bids this contract out annually, with an existing contract in place, which will
 9 account for about half of PWSA’s FPFTY claim. The remaining dollars will be obligated
 10 under a new contract when it is procured in the coming months. This information clearly
 11 shows that 1) prior year expenses were incurred, 2) PWSA is capable of spending the
 12 funds requested in the FPFTY, and 3) there is an existing contract commitment in place
 13 to perform this work. Not providing PWSA with the funds to fulfill this contract will
 14 force PWSA to cancel agreed upon commitments.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	FY 2023 YTD (7/31/2023)	PWSA Proposed FPFTY Claim
Flagging	\$0	\$165,870	\$308,879	\$111,645	\$264,989

15 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION**
 16 **ADJUSTMENT FOR PANTHER HOLLOW (ACCOUNT 5380) EXPENSE FOR**
 17 **THE WATER DISTRIBUTION DEPARTMENT (OCA ST. 1, AT 43)?**

18 A. No. The Panther Hollow account (5380) was repurposed to Line Locating starting in FY
 19 2023 to better track costs. Line locating is a new initiative that was launched in FY 2023
 20 to ensure PWSA has accurate records of its infrastructure. PWSA has spent \$184,622 on
 21 this initiative through 7/31/2023, further justifying the FPFTY claim of \$471,709.

1 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED DISALLOWANCE OF**
2 **FINES AND PENALTIES (ACCOUNT 7730) FOR THE WATER DISTRIBUTION**
3 **DEPARTMENT (OCA ST. 1, AT 43)?**

4 A. No. OCA’s recommendation is to disallow this claim since PWSA does not anticipate
5 any future fines or penalties. It is the goal of PWSA to never be fined or charged a
6 penalty – so of course there are no anticipated costs for this account in the future.
7 However, that does not eliminate the chance of a fine or penalty occurring, making it
8 prudent to accept PWSA’s FPFTY claim to cover any expenses that may occur.

9 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
10 **CHLORINE CYLINDERS (ACCOUNT 5030) EXPENSE FOR THE WATER**
11 **DISTRIBUTION DEPARTMENT (OCA ST. 1, AT 43)?**

12 A. No. OCA’s recommendation is to normalize the cost for chlorine cylinders due to a lack
13 of historical expenses. As part of a regulatory recommendation, PWSA purchased
14 chlorine cylinders in FY 2022 for \$73,048. It is for this reason that there were no
15 historical expenses prior to FY 2022. However, PWSA plans to continue to purchase
16 chlorine cylinders as the regulatory recommendation was applicable to future years.

17 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
18 **MANHOLE & POINT REPAIR CONTRACT (ACCOUNT 5343) EXPENSE FOR**
19 **THE ENGINEERING & CONSTRUCTION DEPARTMENT (OCA ST. 1, AT 45)?**

20 A. No, the full amount of PWSA’s claim should be granted. Starting in FY 2023, PWSA
21 created the Manhole & Point Repair Contract account (5343) to better track costs. Prior
22 to this change, Manhole & Point Repair costs were charged to a different account.

23 The chart below outlines the costs incurred for Manhole & Point Repair costs
24 since FY 2020. PWSA bids this contract out annually, with an existing contract in place
25 to repair pumps and motors, which will account for about half of PWSA’s FPFTY claim.
26 The remaining amounts will be obligated under a new contract when it is procured in the
27 coming months. This information clearly shows that 1) prior year expenses were

1 incurred, 2) PWSA is capable of spending the funds requested in the FPPTY, and 3) there
 2 is an existing contract commitment in place to perform this work. Not providing PWSA
 3 with the funds to fulfill this contract will force PWSA to cancel agreed upon
 4 commitments.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	FY 2023 YTD (7/31/2023)	PWSA Proposed FPPTY Claim
Manhole & Point Repair	\$884,944	\$1,593,672	\$1,781,564	\$400,696	\$1,590,000

5
 6 **Q. DOES PWSA AGREE WITH OCA’S RECOMMENDED NORMALIZATION OF**
 7 **LANDSCAPING AND GROUNDS (ACCOUNT 5355) EXPENSE FOR THE**
 8 **ENGINEERING & CONSTRUCTION DEPARTMENT (OCA ST. 1, AT 45)?**
 9 A. No, the full amount of PWSA’s claim should be granted. This account pays for the
 10 maintenance of green infrastructure throughout PWSA’s service area. This maintenance
 11 contract was entered into starting in FY 2021, with expenses growing annually due to the
 12 expansion of green infrastructure. PWSA must be granted the full amount of its claim to
 13 ensure the benefits of green infrastructure are realized.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	FY 2023 YTD (7/31/2023)	PWSA Proposed FPPTY Claim
Landscaping and Grounds	\$0	\$41,179	\$60,378	\$29,989	\$161,921

14
 15 **XXIII. INFLATION ADJUSTMENT**

16 **Q. DID ANY OF THE PARTIES MAKE RECOMMENDATIONS REGARDING**
 17 **PWSA’S INFLATION ADJUSTMENTS?**
 18 A. Yes. Both OSBA and OCA made recommendations regarding the inflation adjustment.

1 **Q. BOTH OSBA AND OCA CHARACTERIZES PWSA’S INFLATION**
2 **ADJUSTMENT AS A “BLANKET” ADJUSTMENT. OSBA ST. NO. 1 AT 13-14;**
3 **OCA ST. NO. 1 AT 17. PLEASE RESPOND.**

4 A. I do not agree with their characterizations of PWSA’s projections as a blanket
5 generalized inflation adjustment. Both OSBA and OCA attempt to characterize PWSA’s
6 adjustments as a blanket inflation adjustment applied to numerous expense claims. That
7 is not what PWSA did.

8 PWSA expects all expenses/costs to increase from the FTY to the FPFTY. I
9 explained PWSA’s budget process in my direct testimony. In short, the FTY (FY 2023)
10 and FPFTY (FY 2024) results were derived through a comprehensive Authority-wide
11 budgeting process. PWSA uses a zero-based budgeting method to develop annual
12 budgets. The previous year’s budgets are referenced when developing the FPFTY budget,
13 but each cost is individually considered when developing the budget. This is contrary to a
14 traditional budgeting approach in which an escalation factor is applied for an anticipated
15 increase in a specific type of cost.

16 PWSA has 15 operating departments. For each budget, including the budget for
17 the FPFTY, each operating department was asked to identify their expenses/costs. So, the
18 “inflation adjustment” used by PWSA was actually a targeted adjustment produced by
19 subject matter experts for specific expenses that relates to the actual costs expected to be
20 incurred in each expense account in the FPFTY.

21 PWSA’s inflation adjustment is reasonable and does not overstate the expense
22 claims for the FPFTY. PWSA’s annual operating budget is reviewed and approved by its
23 Board. PWSA is required to track expenses, and to control costs. Therefore, PWSA’s
24 Budget claims, including the application of an inflation adjustment where the item-

1 specific level of increase could not be determined, has been vetted and approved by the
 2 PWSA Board.

3 **Q. OSBA RECOMMENDS THAT PWSA’S INFLATION ADJUSTMENTS BE
 4 REMOVED IN THEIR ENTIRETY. OSBA ST. NO. 1 AT 4-5, 11-15.¹⁵ PLEASE
 5 RESPOND.**

6 A. Mr. Higgins opines that an inflation adjustment is somehow against public policy
 7 because it would create a “self-fulfilling prophecy,” To my knowledge, the PUC has
 8 never outright rejected a cost escalator on this basis. It also does not make sense. PWSA
 9 is not going to increase the prices it pays to its vendors to come up to any inflation
 10 adjusted level of allowed costs. It is simply trying to come up with a reasonable
 11 projection of what its 2024 costs actually will be. To deny otherwise valid cost escalation
 12 projections on the basis of avoiding “self-fulfilling prophecy” is irrational and flies in the
 13 face of the requirement that a utility’s otherwise reasonable and prudent costs should be
 14 allowed to be recovered in its rates.

15 **Q. OCA ACKNOWLEDGES THAT ANY COSTS WILL BE HIGHER IN THE
 16 FPPTY BY 2.3% AND MAKES VARIOUS CHANGES TO PWSA’S CLAIMS.
 17 OCA ST. NO. 1 AT 17. PLEASE RESPOND.**

18 A. OCA’s general inflation adjustments will result in reductions totaling \$8,807,791 plus a
 19 reduction for chemicals of \$1,059,087 as show in the following table:

OCA Adjustments				6% to 2.3%
		Operating Expenses	Inventory	General & Administrative
Executive Director - 910	OCA Exhibit DM-3 OCA St. No. 1 at 20-21	\$0	(\$2)	(\$57,293)
Customer Service - 911	OCA Exhibit DM-4 OCA St. No. 1 at 22	(\$8,788)	\$0	(\$82,128)

¹⁵ Removing the 6% inflation adjustment would reduce the revenue requirement by \$4,143,358 in FPPTY 2024, \$7,491,750 in FY 2025, and \$12,266,358 in FY 2026. OSBA St. No. 1 at 4-5, 11-15.

Management Information Systems - 912	OCA Exhibit DM-5 OCA St. No. 1 at 23-24	(\$103,401)	(\$38)	(\$19,088)
OCA Exhibit DM-5 OCA St. No. 1 at 23	OCA Exhibit DM-6 OCA St. No. 1 at 25	(\$1,142,745)	(\$13,691)	(\$528,293)
Human Resources - 915	OCA Exhibit DM-7 OCA St. No. 1 at 26-27	(\$203)	(\$145)	(\$12,499)
Legal - 916	OCA Exhibit DM-8 OCA St. No. 1 at 28	\$0	\$0	(\$1,557,605)
Safety & Security – 917	OCA Exhibit DM-9 OCA St. No. 1 at 30	(\$393,070)	(\$36)	(\$18,764)
Public Affairs - 921	OCA Exhibit DM-10 OCA St. No. 1 at 32	(\$85,812)	\$0	(\$14,626)
Environmental Compliance – 931	OCA Exhibit DM-11 OCA St. No. 1 at 41	(\$923,937)	(\$105)	(\$104,003)
Warehouse - 918	OCA Exhibit DM-12 OCA St. No. 1 at 33-34	\$331	\$0	(\$453)
Water Quality- 321	OCA Exhibit DM-13 OCA St. No. 1 at 35	(\$85,924)	(\$93)	(\$17,904)
Plant Operations – 322 Water Treatment	OCA Exhibit DM-14 OCA St. No. 1 at 37	\$0	(\$4,409)	(\$981,044)
Sewer Operations – 424	OCA Exhibit DM-15 OCA St. No. 1 at 39-40	(\$100,993)	(\$3,167)	(\$3,445)
Water Distribution - 325	OCA Exhibit DM-16 OCA St. No. 1 at 42-43	(\$466,509)	(\$63,363)	(\$27,461)
Engineering & Construction – 930	OCA Exhibit DM-17 OCA St. No. 1 at 44-45	(\$1,799,123)	(\$169)	\$248,058
Other Operating Expenses City Services	OCA Exhibit DM-18 OCA St. No. 1 at 47			(\$187,462)
	Subtotals	(\$5,110,505)	(\$85,218)	(\$3,612,068)

			Total	(\$8,807,791)
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In addition:

20% to 6.8%: Chemicals))				
Plant Operations – 322 Water Treatment	OCA Exhibit DM-14 OCA St. No. 1 at 37	\$7,400,234	(\$1,059,087)	\$6,341,147

4

Q. DOES PWSA AGREE WITH OCA’S OR OSBA’S RECOMMENDED INFLATION ADJUSTMENTS?

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A. OCA’s 2.3% inflation adjustment and OSBA’s recommendation to remove all inflationary adjustments or to cap them at 3% is more fitting for consumer goods and not the utility industry. Industry specific indices, such as the Construction Cost Index calculated by the engineering news-record, which has a city-specific construction cost for Pittsburgh, would be a better measure for PWSA. Below are the escalation factors for the four most recent years, clearly showing that the requested 6% inflation adjustment for most expenses is very reasonable.

	FY 2020	FY 2021	FY 2022	FY 2023
Construction Cost Index ¹⁶	6.3%	8.5%	7.9%	7.3%

14

Q. DOES PWSA AGREE WITH OCA’S CHEMICAL INFLATION ADJUSTMENTS?

15
16
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19

A. No. OCA’s 6.8% chemical inflation adjustment is still below the most recent levels for the Construction Cost Index and the increases that PWSA is experiencing, which I elaborated on in my direct testimony.

¹⁶ [Engineering News-Record](#)

1 **Q. CAN YOU ELABORATE ON THE BIDDING PROCESS FOR CHEMICALS?**

2 A. Yes. Chemicals, like most materials and services, are competitively bid to ensure PWSA
 3 is receiving the best product or service at the best possible price. PWSA released a bid for
 4 chemicals in October 2021, ultimately signing a contract with a supplier that included
 5 additional option year terms. However, the supplier terminated the contract in FY 2022
 6 through the force majeure clause as a result of a shortage of chemicals and supply chain
 7 issues. This resulted in PWSA having to pay dramatic price increases to a small group of
 8 vendors that had the chemical needed to treat the water. Suppliers are hesitant to commit
 9 to long-term prices given these inconsistencies. PWSA will look to rebid the chemicals
 10 when the market returns to normal.

11 **XXIV. EXECUTIVE BONUS**

12 **Q. OCA RECOMMENDS DISALLOWANCE OF PWSA’S CLAIM (OF \$47,223)**
 13 **FOR BONUSES FOR THE CHIEF EXECUTIVE OFFICER IN ITS ENTIRETY.**
 14 **OCA ST. NO. 1 AT 20. THE BASIS FOR OCA’S ADJUSTMENT IS THAT PWSA**
 15 **DID NOT PROVIDE ANY PERFORMANCE GOALS OR METRICS RELATED**
 16 **TO THE RECEIPT OF MONEY ATTRIBUTABLE TO THE CHIEF**
 17 **EXECUTIVE OFFICER. OCA ST. NO. 1 AT 20. PLEASE RESPOND.**

18 A. PWSA disagrees with this recommendation. The performance goals and metrics that
 19 justify the bonus for the Chief Executive Officer are determined annually and approved at
 20 the discretion of PWSA’s Board of Directors. This incentivizes the Chief Executive
 21 Officer to continue to improve all aspects of the PWSA.

22 The goals to be used for the end of FY 2024 will be set in early FY 2024. Such
 23 goals have been instrumental in supporting PWSA’s improved customer service,
 24 financial health, and system safety and reliability. The goal-based incentives for the Chief
 25 Executive Officer have also been utilized to retain a highly qualified employee. Such
 26 information (together with the information provided in discovery) sufficiently supports its
 27 claim for the incentive plan for the Chief Executive Officer.

1 **XXV. UTILITY EXPENSES**

2 **A. ELECTRIC**

3 **Q. OCA RECOMMENDS A REDUCTION OF \$900,000 TO PWSA’S CLAIM FOR**
 4 **ELECTRICITY IN THE FPFTY. OCA ST. NO. 1 AT 38; OCA EXHIBIT DM-14.**
 5 **PLEASE RESPOND.**

6 A. PWSA disagrees with this recommendation. PWSA’s electric distributor is Duquesne
 7 Light with Direct Energy/NRG being its electric supplier. Direct Energy/NRG is not
 8 regulated by the PUC with the amount that PWSA is obligated to pay being set by the
 9 contract, which I have attached as Exhibit EB-12.

10

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual		FY 2022 YTD (7/31/22)	FY 2023 YTD (7/31/23)	PWSA Proposed FPFTY Claim
Natural Gas	\$3,784,526	\$4,759,105	\$5,558,804		\$3,026,087	\$4,088,205	\$6,900,000
% Change	-	25.75%	16.80%		-	35.10%	-

11 As shown below, PWSA has experienced growth of at least 17% in electric
 12 expenses in FY 2021 and FY 2022. In addition, electric expenses are up 35% through
 13 July 31, 2023 as compared to the prior year as a result of increased demand. These
 14 increases clearly contradict OCA’s \$900,000 reduction recommendation, which would
 15 result in no budgetary increase from FY 2023 to FY 2024.

16 **B. NATURAL GAS**

17 **Q. OCA RECOMMENDS A REDUCTION OF \$54,000 TO PWSA’S CLAIM FOR**
 18 **NATURAL GAS IN THE FPFTY. OCA ST. NO. 1 AT 38; OCA EXHIBIT DM-14.**
 19 **PLEASE RESPOND.**

20 A. PWSA disagrees with this recommendation. PWSA’s gas distributor is People’s Gas with
 21 Snyder Brothers Inc. being its gas supplier. Snyder Brother Inc. is not regulated by the
 22 PUC with the amount that PWSA is obligated to pay being set by the contract that is

1 attached as Exhibit EB-13. PWSA proactively locked in natural gas pricing with this
 2 contract, which spans from January 2023 – December 2024. PWSA was exposed to
 3 variable pricing prior to January 2023 and will be exposed again starting in January 2025
 4 leading up to the new contract.

5 As shown below, PWSA has experienced over 8% growth in natural gas expenses
 6 in FY 2021 and FY 2022. Even with fixed pricing under the current contract, natural gas
 7 expenses are up 3.15% through July 31, 2023 as compared to the prior year as a result of
 8 increased demand. These increases clearly contradict OCA’s \$54,000 reduction, which
 9 would result in no budgetary increase from FY 2023 to FY 2024.

	FY 2020 Actual	FY 2021 Actual	FY 2022 Actual	FY 2022 YTD (7/31/22)	FY 2023 YTD (7/31/23)	PWSA Proposed FPPTY Claim
Natural Gas	\$314,785	\$340,044	\$370,175	\$280,789	\$289,645	\$414,000
% Change	-	8.02%	8.86%	-	3.15%	-

10

11 **XXVI. CHARITABLE CONTRIBUTIONS AND MEMBERSHIP EXPENSES.**

12 **Q. OCA RECOMMENDS DISALLOWANCE OF PWSA’S CLAIMS (OF \$29,118)**
 13 **FOR CHARITABLE CONTRIBUTIONS, MEMBERSHIPS, DUE EXPENSES,**
 14 **SPONSORSHIPS IN THEIR ENTIRETY. OCA ST. NO. 1 AT 45; OCA EXHIBIT**
 15 **DM-2 (OTHER ADJUSTMENTS). PLEASE RESPOND.**

16 **A.** PWSA does not agree with this recommendation. To be clear, the entire claim of \$29,118
 17 in the FPPTY is to pay for membership fees to professional organizations and is not
 18 associated with charitable contributions or sponsorships. Examples of these organizations
 19 include, but are not limited to, the US Water Alliance, American Water Works
 20 Association, Water Environment Federation, Pennsylvania Municipal Authorities
 21 Association, and PaWARN. Membership fees are a legitimate expense that allows PWSA
 22 and its employees to collaborate and learn from other utilities and professionals. This

1 knowledge can then be implemented into PWSA's business practices, which will benefit
 2 ratepayers. For example, through the American Water Works Association, PWSA's Chief
 3 Executive Officer is a member of multiple committees that work to address customer
 4 affordability as well as the expansion of customer assistance programs. Being a member
 5 of these organizations also help PWSA employees to obtain continuing education credits
 6 to maintain their professional licenses. PWSA's membership fee claim is legitimate, as
 7 described above, and cannot be discounted by Mr. Mugrace as having not direct benefit
 8 to ratepayers.

XXVII. LOBBYING EXPENSES

10 **Q. BOTH I&E AND OCA RECOMMEND THE DISALLOWANCE OF THE**
 11 **ENTIRE AMOUNT OF \$98,262 FOR PWSA'S CLAIM FOR LOBBYING**
 12 **EXPENSES IN THE FPFTY. I&E ST. NO. 2 AT 27-28. OCA ST. NO. 1 AT 45-46;**
 13 **OCA EXHIBIT DM-2 (OTHER ADJUSTMENTS). PLEASE RESPOND.**

14 A. While I understand and acknowledge the Commission's general rule with respect to
 15 lobbying expense, I respectfully submit that these amounts are reasonable for PWSA.
 16 PWSA is a municipal authority and has an obligation to maintain lines of communication
 17 with other parts of government. Moreover, I understand that PWSA's government
 18 relations professionals assist in obtaining information and appropriate low interest or
 19 grant funding from PENNVEST or the federal government. Accordingly, these
 20 expenditures are not so much "lobbying" but government relations expense. These efforts
 21 directly benefit customers. In fact, since PWSA has no shareholders, all of PWSA's
 22 lobbying efforts accrue to the benefit of customers. Under these circumstances, I believe
 23 that lobbying expense should be deemed a reasonable pro forma expense for PWSA. It
 24 would, therefore, be inappropriate to exclude PWSA's claim for lobbying expense in its
 25 entirety and I&E's proposed adjustment should be rejected.

1 **Q. SHOULD THE COMMISSION DEPART FROM THE COMMISSION'S**
2 **GENERAL RULE FOR LOBBYING EXPENSES?**

3 A. Yes. Normal regulatory treatment of lobbying expenses is not appropriate for PWSA.
4 Unlike an investor-owned utility, every dollar of increased surplus accrues to the benefit
5 of customers since it obviates the need for additional rate increases. Accordingly, PWSA
6 continues to respectfully request that its lobbying expenses also be included in pro forma
7 expenses. In addition, I am informed by counsel that the PUC can waive provisions of the
8 Public Utility Code if such a waiver would be reasonable considering PWSA's special
9 circumstances.

10 **Q. I&E RECOMMENDS THE DISALLOWANCE OF THE ENTIRE AMOUNTS OF**
11 **PWSA'S CLAIMS FOR LOBBYING EXPENSES IN THE FORECAST PERIOD.**
12 **I&E ST. NO. 2 AT 27-28. PLEASE RESPOND.**

13 A. PWSA disagrees with this recommendation for the same reasons that were provide
14 above.

15 **Q. DID OCA MAKE ANY RECOMMENDATIONS FOR LOBBYING EXPENSES**
16 **FOR THE FORECAST PERIOD.**

17 A. No. PWSA disagrees with the recommendations for the Forecast Period for the same
18 reasons that PWSA disagrees with the recommendations for the FPFTY.

19 **XXVIII. INCREASED CUSTOMER SERVICE EXPENSES**

20 **A. BILL DISCOUNT PROGRAM**

21 **Q. OCA'S RECOMMENDATIONS INCLUDE ADDING \$560,915 IN EXPENSES**
22 **FOR THE BILL DISCOUNT PROGRAM. OCA ST. NO. 1 AT 22; OCA ST. NO. 1**
23 **AT 13; OCA EXHIBIT DM-4; OCA ST. 4. PLEASE RESPOND.**

24 A. PWSA does not agree with the addition of \$560,915. As explained in Ms. Mechling's
25 rebuttal testimony, PWSA St. No. 6-R, PWSA does not have the customer Federal
26 Poverty Level (FPL) data that is required to implement the bill discount program changes
27 that OCA is recommending. Furthermore, PWSA is not able to quantify the impact of
28 these changes due to the lack of data.

1 **B. ARREARAGE FORGIVENESS**

2 **Q. OCA RECOMMENDATIONS INCLUDE ADDING \$631,461 FOR THE**
 3 **ARREARAGE FUNDING. OCA ST. NO. 1 AT 22; OCA ST. NO. 9 AT 13; OCA**
 4 **EXHIBIT DM-4; OCA ST. 4. PLEASE RESPOND.**

5 A. PWSA does not agree with this recommendation due to the extension of the Low-Income
 6 Household Water Assistance Program (LIHWAP) funding. The first round of LIHWAP
 7 funding provided \$1.6 million in relief to PWSA customers. The second round, which
 8 was reopened in July 2023, provided additional assistance to customers with past-due
 9 water bills and the termination of utility services. PWSA feels it is prudent to understand
 10 the impact of the second round of funding before considering changes to the arrearage
 11 forgiveness program.

12 **Q. MR. COLTON CLAIMS THAT THE COST-BENEFIT ANALYSIS COMPLETED**
 13 **BY PWSA WAS FLAWED AND INCONSISTENT WITH PWSA’S FILING IN**
 14 **THIS PROCEEDING. OCA ST. NO. 4 AT 69-72. PLEASE RESPOND.**

15 A. Mr. Colton claims that the cost-benefit analysis completed by PWSA is flawed because
 16 1) it assumes that 100% of payments are made by AFP participants, 2) it assumes a
 17 collection rate of 100%, and 3) no effort was made to identify “benefits”. Using historical
 18 information as assumptions, such as the amount of customer arrears and collectability
 19 rate, would not have been accurate because the information is skewed by the vast amount
 20 of aid provided by the LIHWAP program. PWSA would need multiple years without
 21 LIHWAP funding to reflect “accurate” historical information, with invalidates Mr.
 22 Colton’s first two arguments. Mr. Colton’s third argument is his opinion rather than a
 23 fact. PWSA considered the potential benefits when completing the analysis. The analysis
 24 shows that \$3,695,166 in arrearages would be forgiven - providing a huge benefit to
 25 customers. It will also provide customers a “fresh start” for making on-time payments
 26 moving forward, yet another benefit.

1 In addition, Mr. Colton claims the “fallacy” of PWSA’s analysis is that it does
 2 not connect with the information in the filing. However, this claim is misleading because
 3 PWSA’s cost-benefit analysis was completed in FY 2022 and represents FY 2022, FY
 4 2023, and FY 2024 while the rate filing analysis was completed in FY 2023 and
 5 represents FY 2024, FY 2025, and FY 2026. Given these facts, it is obvious that the data
 6 sets would not match, dismissing Mr. Colton’s claim.

7 **Q. MR. GELLER MAKES SIMILAR CLAIMS ABOUT PWSA’S COST-BENEFIT**
 8 **ANALYSIS AS IT RELATES TO THE ASSUMPTIONS AND THE**
 9 **CONSIDERATION OF POTENTIAL BENEFITS. UNITED ST. NO. 1 AT 38.**
 10 **PLEASE RESPOND.**

11 A. PWSA disagrees with Mr. Geller’s claims for the reasons discussed above.

12 **C. PROCESSING FEES**

13 **Q. OCA’S RECOMMENDATIONS INCLUDE ADDING \$470,000 FOR DEBIT**
 14 **CARD/CREDIT CARD PROCESSING FEES. OCA ST. NO. 1 AT 22; OCA ST.**
 15 **NO. 1 AT 13; OCA EXHIBIT DM-4; OCA ST. 5. PLEASE RESPOND.**

16 A. This issue is discussed by Julie A. Mechling in her rebuttal, PWSA St. No. 6-R. I would
 17 note however that the recommended amount is too low. Processing fees include the card
 18 processing fee as well as the ACH fee and the Lockbox fee. For January 2023 through
 19 April 2023, PWSA incurred \$168,273 in processing fees. Projecting that number out for
 20 the remainder of FY 2023 results in \$504,817.65. PWSA would project an even higher
 21 number for FY 2024.

22 In addition, PWSA does not agree with OCA’s recommendation of adding
 23 \$470,000 to the revenue requirement since it will be at the cost of not being able to
 24 charge back credit/debit card payment processing fees to the customers who impose
 25 them. PWSA eliminated these fees for residential customers due to the economic
 26 conditions of COVID-19. Those negative conditions have since reserved, making it more
 27 appropriate to reimplement the processing fees.

1 OCA’s recommendation is flawed for several reasons – 1) OCA also does not
 2 consider the fact the customers currently paying by debit card also have a bank account
 3 and could continue to pay by ACH free of charge, 2) Residential customers are currently
 4 not incentivized to use one specific payment method because they are all free. This
 5 invalidates OCA’s assumption that current payment trends will continue if the fees are
 6 passed onto customers, burdening low-income customers who have historically paid by
 7 credit card.

8 **XXIX. ADDITIONAL ADJUSTMENTS**

9 **Q. OCA NOTES THAT A FLOW-THROUGH ADJUSTMENT TO BAD DEBT IS**
 10 **NECESSARY IF A REVENUE REQUIREMENT PROPOSAL IS ADOPTED.**
 11 **OCA ST. NO. 1 AT 48; OCA EXHIBIT DM-20. FOR EXAMPLE, OCA**
 12 **COMPUTES THAT USING ITS RECOMMENDATIONS WOULD RESULT IN**
 13 **TOTAL BAD DEBT EXPENSE OF \$4,636,887, WHICH IS A REDUCTION OF**
 14 **\$1,334,649 FROM THE AUTHORITY’S BALANCE OF \$5,971,536 (FPFTY 2024).**
 15 **PLEASE RESPOND.**

16 A. PWSA is requesting a collection rate of 98%, and a corresponding bad debt expense of
 17 2% for water and wastewater operations. OCA is not challenging either of those
 18 percentages. The dollar amount of projected bad debt expense is the result of the
 19 percentage times the revenue requirement. The purpose of OCA’s adjustment is to
 20 determine the effect on the dollar amount of PWSA’s bad debt expense with a different
 21 revenue requirement.

22 **XXX. CONCLUSION**

23 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

24 A. Yes. I do reserve the right to supplement this testimony as may be appropriate.

PWSA Exhibit EB-10

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated project and the controlling laws and regulations.

**AGREEMENT
BETWEEN OWNER AND ENGINEER
FOR PROFESSIONAL SERVICES**

TASK ORDER EDITION

Prepared by



Issued and Published Jointly by



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**AGREEMENT
BETWEEN OWNER AND ENGINEER
FOR PROFESSIONAL SERVICES**

TASK ORDER EDITION

THIS IS AN AGREEMENT effective as of 11/2/2021 (“Effective Date of the Agreement”) between
Pittsburgh Water and Sewer Authority (“Owner”) and
Wade Trim, Inc. (“Engineer”).

Other terms used in this Agreement are defined in Article 7.

From time to time Owner may request that Engineer provide professional services for Specific Projects. Each engagement will be documented by a Task Order. This Agreement sets forth the general terms and conditions which shall apply to all Task Orders duly executed under this Agreement.

Owner and Engineer further agree as follows:

ARTICLE 1 – SERVICES OF ENGINEER

1.01 *Scope*

- A. Engineer’s services will be detailed in a duly executed Task Order for each Specific Project. The general format of a Task Order is shown in Attachment 1 to this Agreement. Each Task Order will indicate the specific services to be performed and deliverables to be provided.
- B. This Agreement is not a commitment by Owner to Engineer to issue any Task Orders.
- C. Engineer shall not be obligated to perform any prospective Task Order unless and until Owner and Engineer agree as to the particulars of the Specific Project, including the scope of Engineer’s services, time for performance, Engineer’s compensation, and all other appropriate matters.

1.02 *Task Order Procedure*

- A. Owner and Engineer shall agree on the scope, time for performance, and basis of compensation for each Task Order. With respect to the scope of Engineer’s services, each specific Task Order shall either (1) be accompanied by and incorporate a customized Exhibit A, “Engineer’s Services for Task Order,” or Exhibit B, “Construction Manager’s Services for Task Order,” prepared for the Specific Project, (2) state the scope of services in the Task Order document itself, or (3) incorporate by reference all or portions of Exhibit A, “Engineer’s Services for Task Order,” or Exhibit B, “Construction Manager’s Services for Task Order,” as attached to this Agreement. Each duly executed Task Order shall be subject to the terms and conditions of this Agreement.
- B. Engineer will commence performance as set forth in the Task Order. The Task Order shall expire on the date set forth in specific Task Order, unless agreed upon by Owner and Engineer, prior to the expiration of the specific Task Order at issue in writing, to extend the term of the Task Order. Any work performed after the expiration of the specific Task Order, without written extension, shall be at Engineer’s risk and Owner

does not agree to payment for such work performed after the expiration of the specific Task Order, without written extension by Owner.

- C. Engineer shall provide, or cause to be provided, the services set forth in the Task Order.

ARTICLE 2 – OWNER’S RESPONSIBILITIES

2.01 General

- A. Owner shall have the responsibilities set forth in this Agreement; and in each Task Order.
- B. Owner shall pay Engineer as set forth in each Task Order, pursuant to the applicable terms of Article 4 and Exhibit C.
- C. Owner shall be responsible for all requirements and instructions that it furnishes to Engineer pursuant to this Agreement, and for the accuracy and completeness of all programs, reports, data, and other information furnished by Owner to Engineer pursuant to this Agreement; such responsibility extends to requirements, instructions, programs, reports, data, and other information furnished by Owner pursuant to any Task Order. Engineer may use and rely upon such requirements, programs, instructions, reports, data, and information in performing or furnishing services under this Agreement, subject to any express limitations or reservations applicable to the furnished items.
- D. Owner shall give prompt written notice to Engineer whenever Owner observes or otherwise becomes aware of: (1) any development that affects the scope or time of performance of Engineer’s services; (2) the presence at the Site of any Constituent of Concern; or (3) any relevant, material defect or nonconformance in Engineer’s services, the Work, the performance of any Contractor, or in Owner’s performance of its responsibilities under this Agreement.

ARTICLE 3 – TERM; TIMES FOR RENDERING SERVICES

3.01 Term

- A. This Agreement shall be effective and applicable to Task Orders issued from the Effective Date of the Agreement and shall continue for three (3) years. If the term of this Agreement expires prior to the expiration of a Task Order, Engineer shall complete the work on such Task Order consistent with the terms of this Agreement and such Task Order.
- B. The parties may extend or renew this Agreement, with or without changes, by written instrument establishing a new term.

3.02 Times for Rendering Services

- A. The Effective Date of the Task Order and the times for completing services or providing deliverables will be stated in each Task Order. Engineer is authorized to begin rendering services under a Task Order as of the Effective Date of the Task Order.
- B. If, through no fault of Engineer, such periods of time or dates are changed, or the orderly and continuous progress of Engineer’s services is impaired, or Engineer’s services are delayed or suspended, then the time for completion of Engineer’s services, and the rates and amounts of Engineer’s compensation, may be adjusted equitably, subject to written agreement by Owner and Engineer.

- C. If Owner authorizes changes in the scope, extent, or character of the Specific Project, or Engineer's services, then the time for completion of Engineer's services, and the rates and amounts of Engineer's compensation, may be adjusted equitably, subject to written agreement by Owner and Engineer.
- D. Owner shall make decisions and carry out its other responsibilities in a timely manner so as not to delay Engineer's performance of its services.
- E. If Engineer fails, through its own fault, to complete the performance required in a Task Order within the time set forth, as duly adjusted, then Owner shall be entitled, as its sole remedy, to the recovery of damages, if any, resulting from such failure.
- F. With respect to each Task Order, the number of Construction Contracts for Work designed or specified by Engineer upon which Engineer's compensation has been established shall be identified in the Task Order. If the Work designed or specified by Engineer under a Task Order is to be performed or furnished under more than one prime contract, or if Engineer's services are to be separately sequenced with the work of one or more prime Contractors (such as in the case of fast-tracking), then the Task Order will state the schedule for performance of Engineer's services in order to sequence and properly coordinate such services as are applicable to the Work under the Construction Contracts. If the Task Order does not address such sequencing and coordination, then Owner and Engineer shall jointly develop a schedule for sequencing and coordination of services prior to commencement of final design services; this schedule is to be prepared and included in or become an amendment to the authorizing Task Order whether or not the work under such contracts is to proceed concurrently.

ARTICLE 4 – INVOICES AND PAYMENTS

4.01 Invoices

- A. *Preparation and Submittal of Invoices:* Engineer shall prepare invoices in accordance with Owner's invoicing requirements, the terms of Exhibit C, and the specific Task Order. Engineer shall submit its invoices to Owner on a monthly basis. Invoices are due and payable within forty-five (45) days of receipt and approval/acceptance by Owner.

4.02 Payments

- A. *Failure to Pay:* If Owner fails to make any payment due Engineer for services and expenses within forty-five (45) days after receipt of Engineer's invoice, then:
 - 1. amounts due Engineer will be increased at the rate of 0.5% per month from said 45th day; and
 - 2. Engineer may, after giving fourteen (14) days written notice to Owner, suspend services under any Task Order issued until Owner has paid in full all amounts due for services. Owner waives any and all claims against Engineer for any such suspension.
- B. *Disputed Invoices:* If Owner disputes an invoice, either as to amount or entitlement, then Owner shall promptly advise Engineer in writing of the specific basis for doing so, may withhold only that portion so disputed, and must pay the undisputed portion subject to the terms of Paragraph 4.01.
- C. *Sales or Use Taxes:* If after the Effective Date of a Task Order any governmental entity takes a legislative action that imposes additional sales or use taxes on Engineer's services or compensation under the Task Order, then Engineer may invoice such additional sales or use taxes for reimbursement by Owner. Owner

shall reimburse Engineer for the cost of such invoiced additional sales or use taxes; such reimbursement shall be in addition to the compensation to which Engineer is entitled under the terms of Exhibit C and the specific Task Order.

ARTICLE 5 – OPINIONS OF COST

5.01 *Opinions of Probable Construction Cost*

- A. Engineer's opinions (if any) of probable Construction Cost are to be made on the basis of Engineer's experience, qualifications, and general familiarity with the construction industry. However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual Construction Cost will not vary from opinions of probable Construction Cost prepared by Engineer. If Owner requires greater assurance as to probable Construction Cost, then Owner agrees to obtain an independent cost estimate. In the event that Engineer is providing such probable construction cost as a deliverable under a Task Order, this Section 5.01(a) shall not apply.

5.02 *Opinions of Total Project Costs*

- A. The services, if any, of Engineer with respect to Total Project Costs for a Specific Project shall be limited to assisting Owner in tabulating the various categories that comprise Total Project Costs. Engineer assumes no responsibility for the accuracy of any opinions of Total Project Costs.

ARTICLE 6 – GENERAL CONSIDERATIONS

6.01 *Standards of Performance*

- A. *Standard of Care:* The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of the subject profession.
- B. *Technical Accuracy:* Owner shall not be responsible for discovering deficiencies in the technical accuracy of Engineer's services. Engineer shall correct deficiencies in technical accuracy without additional compensation, unless such corrective action is directly attributable to deficiencies in Owner-furnished information.
- C. *Correction of Error and/or Omission:* If any of the Services provided by Engineer contains an error or omission which was within Engineer's control and was not attributable to any act or omission of Owner, Engineer shall furnish all services as shall be necessary to correct or revise any such error or omission during the course of performance of any Task Order and for a period of twelve (12) months following the expiration or other termination of the applicable Task Order. In the event Engineer fails or refuses to perform those services necessary to correct or revise its error or omission, Owner shall have the right to undertake such corrective services itself or to retain third parties to undertake them. In that event, Engineer shall be obligated to reimburse Owner for the actual costs incurred in connection with the corrective services, plus administrative costs equal to five (5) percent of the actual costs, within thirty (30) days of being invoiced therefor. The obligations shall be in addition to and shall not limit in any way any other applicable rights or remedies available to Owner at law or in equity under applicable law or this Agreement.

- D. *Consultants:* Engineer may retain such Consultants as Engineer deems necessary to assist in the performance or furnishing of the services, subject to reasonable, timely, and substantive objections by Owner. Engineer shall remain responsible for Owner for any Consultant(s) performed or furnished services.
- E. *Reliance on Others:* Subject to the standard of care set forth in Paragraph 6.01.A, Engineer and its Consultants may use or rely upon design elements and information ordinarily or customarily furnished by others, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards. Engineer shall remain responsible to Owner for any design elements and/or information furnished.
- F. *Compliance with Laws and Regulations, and Policies and Procedures*
1. Engineer and Owner shall comply with applicable Laws and Regulations.
 2. Engineer shall comply with the policies, procedures, and instructions of Owner that are applicable to Engineer's performance of services under this Agreement and that Owner provides to Engineer in writing, subject to the standard of care set forth in Paragraph 6.01.A, and to the extent compliance is not inconsistent with professional practice requirements.
 3. Each Task Order is based on Laws and Regulations and Owner-provided written policies and procedures as of the Effective Date of the Task Order. The following may be the basis for modifications to Owner's responsibilities or to Engineer's scope of services, times of performance, or compensation:
 - a. changes after the Effective Date of the Task Order to Laws and Regulations;
 - b. the receipt by Engineer after the Effective Date of the Task Order of Owner-provided written policies and procedures;
 - c. changes after the Effective Date of the Task Order to Owner-provided policies or procedures.
- G. Engineer shall not be required to sign any document, no matter by whom requested, that would result in Engineer having to certify, guarantee, or warrant the existence of conditions whose existence Engineer cannot ascertain within its services for that Specific Project. Owner agrees not to make resolution of any dispute with Engineer or payment of any amount due to Engineer in any way contingent upon Engineer signing any such document.
- H. Engineer shall not at any time supervise, direct, control, or have authority over any Contractor's work, nor shall Engineer have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any Contractor, or the safety precautions and programs incident thereto, for security or safety at the Site, nor for any failure of a Contractor to comply with Laws and Regulations applicable to such Contractor's furnishing and performing of its work. Engineer shall not be responsible for the acts or omissions of any Contractor.
- I. Engineer neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform the Work in accordance with the Construction Contract Documents.

- J. Engineer shall not be responsible for any decision made regarding the Construction Contract Documents, or any application, interpretation, clarification, or modification of the Construction Contract Documents, other than those made by Engineer or its Consultants.
 - K. Engineer is not required to provide and does not have any responsibility for surety bonding or insurance-related advice, recommendations, counseling, or research, or for enforcement of construction insurance or surety bonding requirements.
 - L. Engineer's services do not include providing legal advice or representation.
 - M. Engineer's services do not include (1) serving as a "municipal advisor" for purposes of the registration requirements of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) or the municipal advisor registration rules issued by the Securities and Exchange Commission, or (2) advising Owner, or any municipal entity or other person or entity, regarding municipal financial products or the issuance of municipal securities, including advice with respect to the structure, timing, terms, or other similar matters concerning such products or issuances.
 - N. While at a Site, Engineer, its Consultant, and their employees and representatives shall comply with the applicable requirements of Contractor's and Owner's safety programs of which Engineer has been informed in writing.
- 6.02 *Design Without Construction Phase Services*

- A. For each design performed or furnished, Engineer shall be responsible only for those Construction Phase services that have been expressly required of Engineer in the authorizing Task Order.

6.03 *Use of Documents*

- A. All Documents developed pursuant to this Agreement and/or any Task Order shall be the property of Owner and Owner shall have the full right to use such Documents for any official purpose and in whatever manner deemed desirable and appropriate, including making it available to the general public. Such use shall be without any additional payment to or approval by Engineer. Owner shall have unrestricted authority to publish, disclose, distribute and otherwise use, in whole or in part, any Documents developed or prepared under this Agreement and/or any Task Order. However, any reuse of such Documents by Owner on any other project shall be at the sole risk of Owner.
- B. No Documents developed or prepared in whole or in part under this Agreement and/or any Task Order shall be subject to copyright in the United States of America or in any other country.
- C. Engineer hereby relinquishes or shall cause to be relinquished any and all copyrights and/or privileges to Documents developed or prepared under this Agreement and/or any Task Order without any additional payment to Engineer therefor. However, Engineer may use copies of Engineer's work products prepared pursuant to this Agreement as part of its record of professional activity. Engineer shall not include in the Documents any copyrighted matter unless Engineer obtains the written approval of Owner and provides Owner with written permission of the copyright owner for Engineer to use such copyrighted matter in the manner provided herein.
- D. If Engineer is required to prepare or furnish Drawings or Specifications under the specific Task Order, then Engineer shall deliver to Owner at least one original printed record version of such Drawings and Specifications, signed and sealed according to applicable Laws and Regulations.

6.04 *Electronic Transmittals*

- A. Owner and Engineer may transmit, and shall accept, Specific Project-related correspondence, Documents, text, data, drawings, information, and graphics, in electronic media or digital format, either directly, or through access to a secure Specific Project website, in accordance with a mutually agreeable protocol.
- B. If this Agreement or a Task Order does not establish protocols for electronic or digital transmittals, then Owner and Engineer shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

6.05 *Insurance*

- A. Commencing with the Effective Date of the Agreement, Engineer shall procure and maintain insurance as set forth in Exhibit E, "Insurance." Engineer shall cause Owner to be listed as an additional insured on any applicable general liability insurance policy carried by Engineer that is applicable to a Specific Project.
- B. Owner may require Contractors to purchase and maintain policies of insurance covering workers' compensation, general liability, motor vehicle damage and injuries, and other insurance necessary to protect Owner's and Engineer's interests in the Specific Project. Owner may require Contractor to cause Engineer and its Consultants to be listed as additional insureds with respect to such liability insurance purchased and maintained by Contractor.
- C. Engineer shall each deliver to the other certificates of insurance evidencing the coverages indicated in Exhibit E. Such certificates shall be furnished promptly after the Effective Date of the Agreement and at renewals thereafter during the life of this Agreement.
- D. All policies of property insurance relating to a Specific Project, including but not limited to any builder's risk policy, shall allow for waiver of subrogation rights and contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insured thereunder or against Engineer or its Consultants. Engineer waives all rights against Owner and its respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by any builder's risk policy and any other property insurance relating to the Specific Project. Engineer shall take appropriate measures in other Specific Project-related contracts to secure waivers of rights consistent with those set forth in this paragraph.
- E. All policies of insurance shall contain a provision or endorsement that the coverage afforded will not be canceled or reduced in limits by endorsement, and that renewal will not be refused, until at least ten (10) days prior written notice has been given to the primary insured. Upon receipt of such notice, the receiving party shall promptly forward a copy of the notice to the other party to this Agreement.
- F. Under the terms of any Task Order, or after commencement of performance of a Task Order, Owner may request that Engineer or its Consultants, at Owner's sole expense, provide additional insurance coverage, increased limits, or revised deductibles that are more protective than those specified in Exhibit E. If so, requested by Owner, and if commercially available, Engineer shall obtain and shall require its Consultants to

obtain such additional insurance coverage, different limits, or revised deductibles for such periods of time as requested by Owner.

- G. All insurance coverages must be placed with insurance carriers having an AM Best rating of A- or equivalent rating.
- H. Each policy required shall be endorsed to state that coverage shall not be suspended, voided, cancelled, reduced, or limits or certificate holder be deleted as an additional insured except after thirty (30) days' prior written notice, by certified mail, return-receipt requested, has been given to Owner.
- I. All deductibles and self-insured retentions required under this Agreement and/or any Task Order shall be the responsibility of Engineer.
- J. The failure of Owner to pursue or obtain any certificate of insurance or endorsement or to point out any non-compliance of any certificate of insurance or endorsement shall not constitute a waiver of any of the insurance requirements of this Agreement or relieve Engineer of any of its obligations hereunder.
- K. Self-funded or other non-risk transfer insurance mechanisms are not acceptable to Owner. If Engineer has such a program, full disclosure must be made to Owner prior to any consideration being given.
- L. These insurance provisions are intended to be a separate and distinct obligation on the part of Engineer. Owner's acceptance of insurance submitted by Engineer does not relieve or decrease in any way the liability of Engineer for performance under this Agreement.

6.06 *Suspension and Termination*

A. *Suspension*

- 1. By Owner: Owner may suspend a Task Order for up to ninety (90) days upon seven (7) days written notice to Engineer.
- 2. By Engineer: Engineer may suspend services under a Task Order (a) if Owner has failed to pay Engineer for invoiced services and expenses, as set forth in Paragraph 4.02.B, or (b) in response to the presence of Constituents of Concern at the Site, as set forth in Paragraph 6.10.A.4.
- 3. A suspension on a specific Task Order, whether by Owner or Engineer, shall not affect the duty of either party to proceed with their obligations under other Task Orders.

B. *Termination for Cause—Task Order*: The obligation to provide further services under a specific Task Order may be terminated for cause:

- 1. By either party upon thirty (30) days written notice in the event of substantial failure by the other party to perform in accordance with the terms of the specific Task Order or this Agreement, whose terms govern the specific Task Order, through no fault of the terminating party.
- 2. By Engineer:
 - a. upon seven (7) days written notice if Owner demands that Engineer furnish or perform services contrary to Engineer's responsibilities as a licensed professional; or

- b. upon seven (7) days written notice if Engineer's services under a Task Order are delayed or suspended for more than ninety (90) days for reasons beyond Engineer's control, or as the result of the presence at the Site of undisclosed Constituents of Concern, as set forth in Paragraph 6.10.A.5.
 - c. Notwithstanding the foregoing, neither this Agreement nor the Task Order will terminate under Paragraph 6.06.B.1 if the party receiving such notice begins, within seven (7) days of receipt of such notice, to correct its substantial failure to perform and proceeds diligently to cure such failure within no more than thirty (30) days of receipt thereof; provided, however, that if and to the extent such substantial failure cannot be reasonably cured within such thirty (30) day period, and if such party has diligently attempted to cure the same and thereafter continues diligently to cure the same, then the cure period provided for herein shall extend up to, but in no case more than, sixty (60) days after the date of receipt of the notice.
- C. *Termination for Convenience by Owner:* Owner may terminate, for any reason whatsoever, a Task Order or this Agreement for Owner's convenience, effective upon Engineer's receipt of notice from Owner. In such event, Owner shall pay Engineer all billings for Services satisfactorily completed through the date of termination, less the sums Engineer shall have already been paid on account of the Services performed.
- D. *Effective Date of Termination:* The terminating party under Paragraphs 6.06.B and C may set the effective date of termination at a time up to thirty (30) days later than otherwise provided to allow Engineer to demobilize personnel and equipment from the Site, to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble Task Order materials in orderly files.
- E. *Payments Upon Termination:*
- 1. In the event of any termination under Paragraph 6.06.B.2, Engineer will be entitled to invoice Owner and to receive full payment for all services performed or furnished in accordance with the specific Task Order and this Agreement, and for all expenses incurred through the effective date of termination, to the extent that the specific Task Order (or Task Orders) allows reimbursement for such expenses. Engineer shall provide Owner with all deliverables completed up through and including the date of termination.
 - 2. In the event of termination by Engineer for cause, Engineer shall be entitled, in addition to invoicing for those items identified in Paragraph 6.06.F.1, to invoice Owner and receive payment of a reasonable amount for services and expenses directly attributable to termination, both before and after the effective date of termination, such as reassignment of personnel, costs of terminating contracts with Engineer's Consultants, and other related close-out costs, using the basis of compensation for Additional Services, as indicated in the specific Task Order. Engineer shall provide Owner with all deliverables completed up through and including the date of termination.

6.07 *Controlling Law*

- A. This Agreement is to be governed by the Laws and Regulations of the Commonwealth of Pennsylvania.

6.08 *Successors, Assigns, and Beneficiaries*

- A. Owner and Engineer are hereby bound and the successors, executors, administrators, and legal representatives of Owner and Engineer (and to the extent permitted by Paragraph 6.08.B the assigns of

Owner and Engineer) are hereby bound to the other party to this Agreement and to the successors, executors, administrators and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements and obligations of this Agreement.

- B. Engineer may not assign, sublet, or transfer any rights under or interest (including, but without limitation, money that is due or may become due) in this Agreement without the written consent of the Owner, except to the extent that any assignment, subletting, or transfer is mandated or restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the Engineer from any duty or responsibility under this Agreement.
- C. Unless expressly provided otherwise in this Agreement:
 - 1. Nothing in this Agreement shall be construed to create, impose, or give rise to any duty owed by Owner or Engineer to any Contractor, other third-party individual or entity, or to any surety for or employee of any of them.
 - 2. All duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of Owner and Engineer and not for the benefit of any other party.
 - 3. Owner agrees that the substance of the provisions of this Paragraph 6.08.C shall appear in any Construction Contract Documents prepared for any Specific Project under this Agreement.

6.09 *Dispute Resolution*

- A. Owner and Engineer agree to negotiate all disputes between them in good faith for a period of thirty (30) days from the date of notice prior to invoking the procedures of Exhibit F or other provisions of this Agreement or exercising their rights at law.
- B. If the parties fail to resolve a dispute through negotiation under Paragraph 6.09.A, then either or both may invoke the procedures of Exhibit F. If Exhibit F is not included, or if no dispute resolution method is specified in Exhibit F, then the parties may exercise their rights at law.

6.10 *Environmental Condition of Site*

- A. With respect to each specific Task Order, Specific Project, and Site (unless indicated otherwise in a specific Task Order):
 - 1. Owner represents to Engineer that as of the Effective Date of the Task Order, to the best of Owner's knowledge no Constituents of Concern, other than those disclosed in writing to Engineer, exist at or adjacent to the Site.
 - 2. If Engineer encounters or learns of an undisclosed Constituent of Concern at the Site, then Engineer shall notify (a) Owner and (b) appropriate governmental officials if Engineer reasonably concludes that doing so is required by applicable Laws or Regulations.
 - 3. It is acknowledged by both parties that Engineer's scope of services does not include any services related to unknown or undisclosed Constituents of Concern. If Engineer or any other party encounters, uncovers, or reveals an undisclosed Constituent of Concern, then Owner shall promptly determine whether to retain a qualified expert to evaluate such condition or take any necessary corrective action.

4. If investigative or remedial action, or other professional services, are necessary with respect to undisclosed Constituents of Concern, or if investigative or remedial action beyond that reasonably contemplated is needed to address a disclosed or known Constituent of Concern, then Owner may, at its option and without liability for consequential or any other damages, immediately suspend Engineer's performance of services on the portion of the Specific Project affected thereby until such portion of the Specific Project is no longer affected.
5. If the presence at the Site of undisclosed Constituents of Concern adversely affects the performance of Engineer's services under the specific Task Order, then Engineer may be entitled to an equitable adjustment in its compensation or in the time of completion, or both.
6. Owner acknowledges that Engineer is performing professional services for Owner and that Engineer is not and shall not be required to become an "owner," "arranger," "operator," "generator," or "transporter" of hazardous substances, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, which are or may be encountered at or near the Site in connection with Engineer's activities under a specific Task Order or this Agreement.

6.11 *Indemnification and Mutual Waiver*

- A. *Indemnification by Engineer:* To the fullest extent permitted by Laws and Regulations, Engineer shall indemnify and hold harmless Owner, and Owner's officers, directors, members, partners, consultants, and employees from losses, damages, and judgments (including reasonable consultants' and attorneys' fees and expenses) arising from and against any and all claims, damages, losses, expenses and/or actions relating to and/or arising from this Agreement, any Task Order, or any Specific Project, provided that any such claim, action, loss, damages, or judgment is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Engineer or Engineer's officers, directors, members, partners, employees, or Consultants.
 1. To the fullest extent permitted by law, Engineer shall indemnify and hold harmless Owner, its officers, and employees, from and against claims and damages arising out of or resulting from the performance of the professional services of Owner under this Agreement, any Task Order or any Specific Project, but only to the extent caused in whole or in part by the negligent acts or omissions of Engineer, its employees, or persons for whose acts Engineer may be liable.
 2. To the fullest extent permitted by law, Engineer shall indemnify, save and hold harmless, its officers, and employees from all liens, charges, claims, demands, losses, costs, judgments, liabilities and damages, including, but not limited to, court costs and attorney's fees arising from or based upon any violation by Engineer of any applicable laws, regulations, ordinances or codes.
 3. The defense and indemnification obligations accepted by Engineer shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by Engineer, or by Engineer's subcontractors or permitted assigns, pursuant to any applicable workers' compensation statute or disability benefit statute or any other employee benefit law, rule or regulation.
- B. *Mutual Waiver:* To the fullest extent permitted by law, Owner and Engineer waive against each other, and the other's employees, officers, directors, members, insurers, partners, and consultants, any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to this Agreement, any Task Order, or a Specific Project, from any cause or causes.

6.12 *Records Retention*

- A. Engineer shall maintain on file in legible form, for a period of five (5) years following completion or termination of its services under each Task Order, all Documents, records (including cost records), and design calculations related to Engineer's services or pertinent to Engineer's performance under the Task Order. Upon Owner's request, Engineer shall provide a copy of any such item to Owner at cost for such copies only.

6.13 *Miscellaneous Provisions*

- A. *Notices:* Any notice required under this Agreement shall be in writing, addressed to the appropriate party at its address on the signature page and given personally, by registered or certified mail postage prepaid, or by a commercial courier service. All notices shall be effective upon the date of receipt. Unless otherwise notified in writing, each party shall send notices and other communications to the other party at the address shown below:

To Owner: The Pittsburgh Water and Sewer Authority
1200 Penn Avenue, 2nd Floor
Pittsburgh, PA 15222
Attention: Director of Engineering

With a copy to: The Pittsburgh Water and Sewer Authority
1200 Penn Avenue, 2nd Floor
Pittsburgh, PA 15222
Attention: Legal Counsel

To Engineer: Wade Trim, Inc.
Three Gateway Center, 401 Liberty Avenue, Suite 160
Pittsburgh, PA 15222
Attention: Jason McBride

- B. *Survival:* All express representations, waivers, indemnifications, and limitations of liability included in this Agreement will survive its completion or termination for any reason.
- C. *Severability:* Any provision or part of the Agreement held to be void or unenforceable under any Laws or Regulations shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Engineer, which agree that the Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- D. *Waiver:* A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Agreement.
- E. *Accrual of Claims:* To the fullest extent permitted by Laws and Regulations, all causes of action arising under a Specific Project shall be deemed to have accrued, and all statutory periods of limitation shall commence, no later than the date of Substantial Completion of such Specific Project.
- F. *Applicability to Task Orders:* The terms and conditions set forth in this Agreement apply to each Task Order as if set forth in the Task Order, unless specifically modified. In the event of conflicts between this

Agreement and a Task Order, the conflicting provisions of the Task Order shall take precedence for that Task Order. The provisions of this Agreement shall be modified only by a written instrument. Such amendments shall be applicable to all Task Orders issued after the effective date of the amendment if not otherwise set forth in the amendment.

- G. *Non-Exclusive Agreement:* Nothing herein shall establish an exclusive relationship between Owner and Engineer. Owner may enter into similar agreements with other professionals for the same or different types of services contemplated hereunder, and Engineer may enter into similar or different agreements with other project owners for the same or different services contemplated hereunder.
- H. *Relationship of the Parties:* Engineer will act as an independent contractor and is retained by Owner only for the purposes and to the extent set forth in this Agreement, any Task Order or any Specific Project. Unless specifically set forth in any Task Order, Engineer, its employees, agents, and permitted assigns, are not to be considered the agents or employees of Owner for any purpose.
- I. *Anti-Discrimination:* Engineer shall not discriminate in its employment on the basis of race, color, religion, ancestry, national origin, place of birth, sex, age, disability, non-job-related handicap or sexual orientation. Engineer shall comply with the applicable provisions of the Pittsburgh Code, Title Six - Conduct, Article V - Discrimination, and any amendments thereto. Engineer shall also comply with the applicable provisions of Title I and Title II of the Americans with Disabilities Act, any amendments thereto and any regulations issued thereunder. Engineer shall incorporate in any subcontracts which may be permitted under the terms of this Agreement a requirement that said subcontractors also comply with the provisions of this Section.
- J. *Equal Opportunity Participation:* Owner's current goal for Minority Business Enterprise ("MBE"), Women Business Enterprise ("WBE"), Disadvantaged Small Business Enterprise ("DBE"), Small Business Enterprises ("SBE"), Veteran Business Enterprise ("VBE")/Service Disabled-Veteran Business Enterprises ("SDVBE") participation is between ten percent (10%) to twenty-five percent (25%) of the total dollar value of Owner's contracts. Owner's duty and obligation to make final payment under this Agreement is conditioned upon Owner's receipt of a report from Engineer, with each invoice submitted by Engineer, detailing (i) the total dollar amount of the Agreement that went to WBEs, along with the names and addresses of the WBEs (if any), (ii) the total dollar amount of the Agreement that went to MBEs, along with the names and addresses of the MBEs (if any), (iii) the total dollar amount of the Agreement that went to DBEs, along with the names and addresses of the DBEs (if any), (iv) the total dollar amount of the Agreement that went to SBEs, along with the names and addresses of the SBEs (if any), (v) the total dollar amount of the Agreement that went to VBEs/SDVBEs, along with the names and addresses of the VBEs/SDVBEs (if any), and (vi) an explanation of any failure to meet the MBE, WBE, DBE, SBE and VBE/SDVBE goals set forth herein. This Section does not convey a requirement to meet MBE, WBE, DBE, SBE and VBE/SDVBE goals and final payment to Engineer shall not be withheld if Owner's goal is not achieved, unless Engineer fails to provide an explanation as to why the MBE, WBE, DBE, SBE and VBE/SDVBE goals were not met.
- K. *Force Majeure:* No delay or failure of performance by either party shall constitute default hereunder or give rise to any claims for damage if, and to the extent, such delay or failure is caused by fire or other casualty, labor dispute or transportation delay not caused in any way by the affected party, or by government or military action, pandemic, epidemic, inclement weather not reasonably anticipatable, act of God, act or omission of the other party or its other contractors, failure of any government authority to timely review or to approve the services or to grant permits or approvals, or any other cause beyond the affected party's reasonable control.
- L. *Dissemination of Information:* Engineer agrees to not release any information related to the Services or the performance of Services under this Agreement or any Task Order, nor publish any reports or documents

related to the Agreement or any Task Order with the prior written consent of Owner. Engineer agrees to hold all materials and information belonging to Owner or Owner's agents in the strictest confidence and not to make use thereof other than for the performance of its contractual obligations, to release it or to disclose it to any other entity and/or individual. Any information of a restricted nature provided to Engineer by Owner in the course of implementation of this Agreement or any Task Order shall be handled in accordance with the restrictions placed thereon by Owner. Information or documents given to or generated by Engineer in the course of the Agreement or any Task Order shall be considered restricted information and subject to handling and dissemination restrictions as specified herein and/or as specified by Owner.

- M. *Confidentiality*: Engineer agrees to not, either during or after performance of the Agreement or any Task Order, except as required in the performance of the Services or with the prior written consent of Owner, communicate or divulge to, or use for the benefit of Engineer, or any other person, firm, association, or corporation, any confidential and/or proprietary information of Owner, including but not limited to the deliverables of this Agreement or any Task Order and other data reviewed or developed during the course of the Agreement or any Task Order. Engineer agrees to hold all materials and information belonging to Owner or Owner's agents in the strictest confidence and not to make use thereof other than for the performance of its contractual obligations, to release it or to disclose it to any other entity and/or individual. Any information of a restricted nature provided to Engineer by Owner in the course of implementation of this Agreement shall be handled in accordance with the restrictions placed thereon by Owner. Information or documents given to or generated by Engineer in the course of the Agreement shall be considered restricted information and subject to handling and dissemination restrictions as specified herein and/or as specified by Owner.
- N. *Audit*: Owner may inspect and copy Engineer's records, books, correspondence, instructions, drawings, estimate sheets, bids, purchase orders, back-charges, receipts, vouchers, cancelled checks, memorandum and similar data that are related in any way to the Agreement or any Task Order at any time up to five (5) years after the day of final payment. All subcontracts shall be subject to this provision. This provision shall have full force and effect regardless of any dispute between the Parties.
- O. *Section headings*: Section headings in this Agreement are for convenience of reference only and shall not constitute a part of this Agreement for any purpose.

ARTICLE 7 – DEFINITIONS

7.01 *Defined Terms*

- A. Wherever used in this Agreement (including the Exhibits hereto and any Task Order) terms (including the singular and plural forms) printed with initial capital letters have the meanings indicated in the text above, in the exhibits or Task Order, or in the following definitions:
1. *Addenda*—Written or graphic instruments issued prior to the opening of bids which clarify, correct, or change the bidding requirements or the proposed Construction Contract Documents.
 2. *Additional Services*—Services to be performed for or furnished to Owner by Engineer in accordance with a Task Order, but which are not included in Basic Services for that Task Order.
 3. *Agreement*—This written contract for professional services between Owner and Engineer, including all exhibits identified in Article 8.

4. *Application for Payment*—The form acceptable to Engineer which is to be used by a Contractor in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Construction Contract.
5. *Basic Services*—The services to be performed for or furnished to Owner by Engineer in accordance with a specific Task Order, as specified in the Task Order (but not including Additional Services performed or furnished pursuant to an amendment to the specific Task Order).
6. *Change Order*—A document which is signed by a Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Construction Contract Price or the Construction Contract Times, or other revision to the Construction Contract, issued on or after the effective date of the Construction Contract.
7. *Change Proposal*—A written request by a Contractor, duly submitted in compliance with the procedural requirements set forth in the Construction Contract, seeking an adjustment in Construction Contract Price or Construction Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Construction Contract Documents or the acceptability of Work under the Construction Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Construction Contract.
8. *Constituent of Concern*—Asbestos, petroleum, radioactive material, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
9. *Construction Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
10. *Construction Contract Documents*—Those items designated as “Contract Documents” in the Construction Contract, and which together comprise the Construction Contract.
11. *Construction Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Construction Contract Documents.
12. *Construction Contract Times*—The numbers of days or the dates by which a Contractor shall: (a) achieve milestones, if any, in the Construction Contract; (b) achieve Substantial Completion, and (c) complete the Work.
13. *Construction Cost*—The cost to Owner of the construction of those portions of an entire Specific Project designed or specified by or for Engineer under this Agreement and the specific Task Order, including construction labor, services, materials, equipment, insurance, and bonding costs, and allowances for contingencies. Construction Cost does not include costs of services of Engineer or other design professionals and consultants; cost of land or rights-of-way, or compensation for damage to property; Owner's costs for legal, accounting, insurance counseling, or auditing services;

interest or financing charges incurred in connection with a Specific Project; or the cost of other services to be provided by others to Owner. Construction Cost is one of the items comprising Total Project Costs.

14. *Consultants*—Individuals or entities having a contract with Engineer to furnish services with respect to a Specific Project as Engineer's independent professional associates, consultants, subcontractors, or vendors.
15. *Contractor*—The entity or individual with which Owner enters into a Construction Contract, and any of its subcontractors, sub-subcontractors, suppliers and/or any entity or individual that is performing work and/or providing materials under such Construction Contract on behalf of Contractor.
16. *Documents*—Data, reports, Drawings, Specifications, Record Drawings, building information models, civil integrated management models, and other deliverables, whether in printed or electronic media format, provided or furnished in appropriate phases by Engineer to Owner pursuant to this Agreement.
17. *Drawings*—That part of the Construction Contract Documents that graphically shows the scope, extent, and character of the Work to be performed by a Contractor.
18. *Effective Date of the Agreement*—The date indicated in this Agreement on which it becomes effective, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Effective Date of the Task Order*—The date indicated in the Task Order on which it becomes effective, it means the date on which the Task Order is signed and delivered by the last of the two parties to sign and deliver.
20. *Engineer*—The individual or entity named as such in this Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Construction Contract Price or the Construction Contract Times.
22. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
23. *Owner*—The individual or entity with which Engineer has entered into this Agreement and for which Engineer's services are to be performed. Unless indicated otherwise, this is the same individual or entity that will enter into any Construction Contracts concerning Specific Projects.
24. *Record Drawings*—Drawings depicting the completed Specific Project, or a specific portion of the completed Specific Project, prepared by Engineer as an Additional Service and based solely on Contractor's record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications, as delivered to Engineer and annotated by Contractor to show changes made during construction.
25. *Resident Project Representative*—The authorized representative, if any, of Engineer assigned to assist Engineer at the Site of a Specific Project during the Construction Phase. As used herein, the

term Resident Project Representative or "RPR" includes any assistants or field staff of the RPR. The duties and responsibilities of the RPR will be as set forth in each Task Order.

26. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
27. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for a Contractor and submitted by a Contractor to Engineer to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Construction Contract Documents.
28. *Site*—Lands or areas indicated in the Construction Contract Documents for a Specific Project as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for use of a Contractor.
29. *Specifications*—The part of the Construction Contract Documents that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
30. *Specific Project*—The total specific undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the services to be performed or furnished by Engineer under a specific Task Order are a part.
31. *Subcontractor*—An individual or entity having a direct contract with a Contractor or with any other Subcontractor for the performance of a part of the Work.
32. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Construction Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.
33. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with a Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
34. *Task Order*—A document executed by Owner and Engineer, including amendments if any, stating the scope of services, Engineer's compensation, times for performance of services and other relevant information for a Specific Project.
35. *Total Project Costs*—The total cost of planning, studying, designing, constructing, testing, commissioning, and start-up of the Specific Project, including Construction Cost and all other Specific Project labor, services, materials, equipment, insurance, and bonding costs, allowances for contingencies, the total costs of services of Engineer or other design professionals and consultants, cost of land, rights-of-way, or compensation for damages to properties, or Owner's costs for legal, accounting, insurance counseling, and auditing services, interest and financing charges incurred in

connection with the Specific Project, and the cost of other services to be provided by others to Owner.

36. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Construction Contract Documents for a Specific Project. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning; all as required by such Construction Contract Documents.

37. *Work Change Directive*—A written directive to a Contractor issued on or after the effective date of the Construction Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

B. *Day*: The word “day” means a calendar day of twenty-four (24) hours measured from midnight to the next midnight.

ARTICLE 8 – EXHIBITS AND SPECIAL PROVISIONS

8.01 *Suggested Form of Task Order*

A. The Suggested Form of Task Order is attached as Attachment 1 and shall be used as the basis for preparing a specific Task Order for each Specific Project under this Agreement.

8.02 *Exhibits Included:*

A. Exhibit A, Engineer’s Services for Task Order. Services, tasks, and terms in Exhibit A as included with this Agreement are for reference in preparing the scope of services for specific Task Orders and are contractually binding only to the extent expressly incorporated in a specific Task Order.

B. Exhibit B, Construction Manager’s Services for Task Order. Services, tasks, and terms in Exhibit B as included with this Agreement are for reference in preparing the scope of services for specific Task Orders and are contractually binding only to the extent expressly incorporated in a specific Task Order.

C. Exhibit C, Payments to Engineer for Services and Reimbursable Expenses. The terms of Exhibit C that will be applicable to and govern compensation under a specific Task Order will be determined by the selection of compensation methods made in Paragraph 6, “Payments to Engineer,” of the specific Task Order.

D. Exhibit D, Notice of Acceptability of Work. Engineer shall use this Notice of Acceptability of Work form at the conclusion of construction on a Specific Project if (1) the form is expressly incorporated by reference in a specific Task Order, and Engineer’s scope of services in the specific Task Order includes providing such a notice to Owner and Contractor, and (2) the Work is in fact acceptable pursuant to applicable requirements, subject to the terms of the notice.

E. Exhibit E, Insurance. This Exhibit is applicable to all Task Orders.

F. Exhibit F, Dispute Resolution. This Exhibit is applicable to all Task Orders.

G. Exhibit G, Task Order Template. This Exhibit is applicable to all Task Orders.

8.03 *Total Agreement*

- A. This Agreement (together with the Exhibits included above) constitutes the entire agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a written instrument duly executed by both parties.
- B. An executed Task Order under this Agreement (including any incorporated exhibits or attachments) constitutes the entire agreement between Owner and Engineer with respect to the Specific Project and supersedes all prior written or oral understandings. Such a Task Order may only be amended, supplemented, modified, or canceled by a written instrument duly executed by both parties. Amendments to such a Task Order should be based whenever possible on the format of Exhibit K to this Agreement.

8.04 *Designated Representatives*

- A. With the execution of this Agreement, Engineer and Owner shall designate specific individuals to act as Engineer's and Owner's representatives with respect to the services to be performed or furnished by Engineer and responsibilities of Owner under this Agreement. Such individuals shall have authority to transmit instructions, receive information, and render decisions relative to this Agreement on behalf of the respective party that the individual represents. Each Task Order shall likewise designate representatives of the two parties with respect to that Task Order.

8.05 *Engineer's Certifications*

- A. Engineer certifies that it has not engaged in corrupt, fraudulent, or coercive practices in competing for or in executing the Agreement. For the purposes of this Paragraph 8.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the selection process or in the Agreement execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the selection process or the execution of the Agreement to the detriment of Owner, or (b) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more companies, with or without the knowledge of Owner, a purpose of which is to establish Agreement prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the selection process or affect the execution of the Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, the Effective Date of which is indicated on Page 1.

OWNER: Pittsburgh Water and Sewer Authority

ENGINEER: Wade Trim, Inc.

By: *William J. Pickering*

By: *Jason J. McBride*

Print Name: William J. Pickering

Print Name: Jason J. McBride

Title: Chief Executive Officer

Title: Vice President

Date Signed: October 29, 2021

Engineer License or Firm's Certificate No. (if required):

State of: _____

Date Signed: 11/2/2021

Date Signed: _____

Address for Owner's receipt of notices:

Address for Engineer's receipt of notices:

Pittsburgh Water and Sewer Authority

Three Gateway Center

1200 Penn Avenue

401 Liberty Avenue, Suite 1600

Pittsburgh, PA 15206

Pittsburgh, PA 15222

DESIGNATED REPRESENTATIVE
(Paragraph 8.04):

DESIGNATED REPRESENTATIVE
(Paragraph 8.04):

William J. Pickering

Jason McBride

Title: Chief Executive Officer

Title: Vice President

Phone Number: 412-255-8800

Phone Number: 412-454-5566

E-Mail Address: wpickering@pgh2o.com

E-Mail Address: jmcbride@wadetrim.com

PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSAs compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA's current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r^2 , PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.

- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
- A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
- An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
- The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

This is **EXHIBIT C**, consisting of [5] pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services – Task Order Edition** dated 11/2/2021.

Payments to Engineer for Services and Reimbursable Expenses

Article 2 of the Agreement is amended and supplemented to include the following agreement of the parties:

ARTICLE 2 – OWNER'S RESPONSIBILITIES

C2.01 Basis of Compensation

- A. The bases of compensation (compensation methods) for Basic Services (including if applicable the bases of compensation for individual phases of Basic Services) and for Additional Services shall be identified in each specific Task Order (see Task Order). Owner shall pay Engineer for services in accordance with the applicable basis of compensation.
- B. The basis of compensation used for services under the Task Orders, as identified in each specific Task Order, shall be:
 1. Direct Labor Costs and Indirect Labor Costs, as determined by Consultant's audited indirect rate, times a factor (plus any expenses expressly eligible for reimbursement).

C2.02 Explanation of Compensation Methods

A. Direct and Indirect Labor Costs Times a Factor

1. For services performed in the time preceding the date of the invoice and for the specified category of services, the Owner shall pay Engineer an amount equal to Engineer's Direct and Indirect Labor Costs times a factor of 10% for the services of Engineer's employees engaged on the Specific Project equal to a factor of [3.0] and 5% for Engineer's subconsultant employees engaged on the Specific Project. Direct Labor Costs means salaries and wages paid to employees but does not include payroll-related costs or benefits. Indirect Labor Costs are determined by Engineer's audited expenses attributable to indirect payroll-related costs and benefits.
2. The total estimated compensation for the specified category of services shall be stated in the Task Order. This total estimated compensation incorporates all labor, overhead, profit, and reimbursable expenses (including Consultant's charges, if any).
3. The amounts billed will be based on the applicable Direct and Indirect Labor Costs for the cumulative hours charged to the specified category of services on the Specific Project during the billing period times the above-designated Factor, plus reimbursable expenses.
4. The Direct and Indirect Labor Costs and the factor applied to Direct Labor Costs may be adjusted annually (as of [January 1st of each calendar year]) to reflect equitable changes in the compensation payable to Engineer.

C2.03 *Reimbursable Expenses*

- A. Expenses eligible for reimbursement include the following expenses reasonably and necessarily incurred by Engineer in connection with the performing or furnishing of Basic and Additional Services for the Task Order: transportation (including mileage), lodging, and subsistence incidental thereto; providing and maintaining field office facilities including furnishings and utilities; toll telephone calls, mobile phone services, and courier services; reproduction of reports, Drawings, Specifications, bidding-related or other procurement documents, Construction Contract Documents, and similar Specific Project-related items; Consultant charges; and any other expenses identified in Appendix 1. Engineer agrees that Owner shall not reimburse Engineer for the purchase of any alcoholic beverage.
- B. Reimbursable expenses reasonably and necessarily incurred in connection with services provided shall be paid at the rates set forth in Appendix 1, Reimbursable Expenses Schedule, subject to the factors set forth below.
- C. The amounts payable to Engineer for reimbursable expenses will be the Project-specific internal expenses actually incurred or allocated by Engineer, plus all invoiced external reimbursable expenses allocable to the Specific Project.
- D. Whenever Engineer is entitled to compensation for the charges of its Consultants, those charges shall be the amount billed by such Consultants to Engineer times a factor of 5%. Consultants of Engineer are not permitted to add a factor to rates.
- E. The external reimbursable expenses and Consultants' factors include Engineer's overhead and profit associated with Engineer's responsibility for the administration of such services and costs.

C2.04 *Serving as a Witness*

- A. For services performed by Engineer's employees as witnesses giving testimony in any litigation, arbitration or other legal or administrative proceeding under Paragraph A2.01.A.20, at the rate determined under Paragraph C2.02.A.1. Compensation for Consultants for such services will be by reimbursement of Consultants' reasonable charges to Engineer for such services.

C2.05 *Other Provisions Concerning Payment*

- A. *Restrictions on request for compensation for Engineer services and/or reimbursable expense.* Engineer agrees that it shall invoice all requests for compensation within ninety (90) days of the date in which the service was rendered, reimbursable expense was incurred and/or date in which Engineer's employee(s) served as a witness. Engineer acknowledges that such timing is critical to the Owner. Engineer expressly waives any claim or right to payment for a service and/or expense not identified on an invoice within ninety (90) days following the date in which such service and/or expense were provided for the benefit of the Owner.
- B. *Restriction on request for compensation for Engineer's subconsultant service and/or reimbursable expense.* Engineer agrees that it shall invoice all requests for compensation within one hundred twenty (120) days of the date in which Engineer's subconsultant(s) render a service, incur a reimbursable expense and/or serve as witness. Engineer acknowledges that such timing is critical to the Owner. Engineer expressly waives any claim or right to payment for subconsultant's service and/or expense not

identified on an invoice within one hundred twenty (120) days following the date in which such service and/or expense were provided for the benefit of the Owner.

C. *Extended Contract Times*: Should the Contract Times to complete the Work be extended beyond the period stated in the Task Order, payment for Engineer's services shall be continued based on the Direct Labor Costs Times a Factor, with the approval of a Task Order Amendment.

D. *Estimated Compensation Amounts*

1. Engineer's estimate of the amounts that will become payable for services are only estimates for planning purposes, are not binding on the parties, and are the maximum amounts payable to Engineer under the Agreement.
2. When estimated compensation amounts have been stated in a Task Order and it subsequently becomes apparent to Engineer that a compensation amount thus estimated will be exceeded, Engineer shall give Owner written notice thereof. Promptly thereafter Owner and Engineer shall review the matter of services remaining to be performed and compensation for such services. Owner shall either agree to such compensation exceeding said estimated amount or Owner and Engineer shall agree to a reduction in the remaining services to be rendered by Engineer so that total compensation for such services will not exceed said estimated amount when such services are completed. All changes in scope or compensation must be addressed via Task Order Amendment.

This is **Appendix 1 to EXHIBIT C**, referred to in and part of the **Agreement between Owner and Engineer for Professional Services – Task Order Edition**, dated 11/2/2021.

Reimbursable Expenses Schedule

Expenses eligible for reimbursement are subject to review and adjustment per Exhibit C. Rates and charges for reimbursable expenses as of the date of the Agreement are:

8"x11" Black and White Copies/Impressions	\$0.10/page
8"x11" Color Copies	\$0.25/page
Copies of Drawings	\$1.40/sheet
Mileage (auto)	\$0.56/mile
Air Transportation	at cost
Laboratory Testing	at cost
Meals and Lodging	at cost

[Note to User: Customize this Schedule to reflect anticipated reimbursable expenses on this Specific Project]

This is **Appendix 2 to EXHIBIT C**, referred to in and part of the **Agreement between Owner and Engineer for Professional Services – Task Order Edition** dated ~~11/2/2021~~.

Direct Labor Hourly Rates Schedule

The following standard hourly rates are subject to review and adjustment per Exhibit C. Hourly rates for services as of the Effective Date of the Task Order are:

Classification	Standard Hourly Rate Range
Principal	\$ <u>67</u> /hour - \$ <u>100</u> /hour
Senior Professional	\$ <u>50</u> /hour - \$ <u>85</u> /hour
Professional Engineer	\$ <u>35</u> /hour - \$ <u>67</u> /hour
Engineering Associate	\$ <u>25</u> /hour - \$ <u>55</u> /hour
GIS Professional	\$ <u>28</u> /hour - \$ <u>63</u> /hour
Professional Landscape Architect	\$ <u>32</u> /hour - \$ <u>50</u> /hour
Landscape Architect	\$ <u>24</u> /hour - \$ <u>31</u> /hour
Construction Technician	\$ <u>20</u> /hour - \$ <u>42</u> /hour
CAD/GIS Technician	\$ <u>20</u> /hour - \$ <u>40</u> /hour
Engineering Technician	\$ <u>16</u> /hour - \$ <u>42</u> /hour
Project Admin/Aide	\$ <u>20</u> /hour - \$ <u>42</u> /hour

PWSA Exhibit EB-11

AGREEMENT

THIS AGREEMENT (this "Agreement") is made and entered into as of this 22 day of APRIL, 2022, by and among the **PUBLIC PARKING AUTHORITY OF PITTSBURGH**, a body corporate and politic organized and existing under the Parking Authority Law of June 5, 1947, P.L. 458, as amended and supplemented ("Authority"), and **THE PITTSBURGH WATER AND SEWER AUTHORITY**, a Pennsylvania municipal authority ("PWSA"). The Authority and PWSA are sometimes hereinafter referred to collectively as the "Parties" and each individually as a "Party".

WITNESSETH:

WHEREAS, the Authority owns and operates that certain parking facility located at 55 11th Street, Pittsburgh, Pennsylvania 15222, commonly known as the Grant Street Transportation Center, being further identified as Allegheny County Block and Lot Number 9-P-36 (the "Facility"); and

WHEREAS, in connection with PWSA having its headquarters adjacent to the Facility, PWSA desires to secure up to fifty-five (55) parking spaces for its employees at the Facility; and

WHEREAS, pursuant to Act of December 22, 2017, P.L. No. 76, the Authority is authorized to grant interests in public parking facilities and the Authority believes that given the on-going availability of a material number of parking spaces in the Facility and PWSA's governmental purpose, it is therefore in the best interest of the Authority and PWSA for the Authority to enter into this Agreement.

NOW, THEREFORE, the Parties hereto, for and in consideration of the terms and conditions hereof, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound hereby, agree as follows:

1. **Recitals.** The foregoing recitals are hereby incorporated by reference as if fully set forth herein.
2. **Term.** The term of this Agreement is one (1) year, with two one-year options commencing as of June 1, 2022 (the "Term").
3. **Lease.** Subject to the terms and conditions set forth in this Agreement, the Authority hereby grants to PWSA up to fifty-five (55) parking leases in the Facility which shall be entered into directly by PWSA Employees (hereinafter defined) and the Authority, in the form attached hereto as **Exhibit A** (the "Form Lease"). The parking leases shall provide PWSA Employees with the right to access the Facility 24 hours per day/7 days per week (the "Employee Leases"). The term "Leased Premises" shall include the drive aisles, common stairs and common elevators in the Facility.
4. **Use of Employee Leases.** Prior to the Effective Date, PWSA shall provide executed Form Leases for those employees that will be utilizing the Employee Leases (the "PWSA Employees") to the extent that a Form Lease has not been previously provided to the Authority by the PWSA employee.

5. Parking Fee.

(a) Commencing as of the Effective Date, and for every month thereafter during the Term, PWSA shall pay the Authority a parking fee for the Employee Leases (the "Parking Fee") on the following schedule:

YEAR	RENT PER LEASE	TOTAL MONTHLY RENT
Year 1 June 1, 2022 – May 31, 2023	\$200 per month	\$11,000 per month
Option Year 2 June 1, 2023 – May 31, 2024	\$210 per month	\$11,550 per month
Option Year 3 June 1, 2024 – May 31, 2025	\$220 per month	\$12,100 per month

(b) PWSA hereby acknowledges and agrees to pay to the Authority \$15.00 for any lease card replacement as agreed in the Form Lease during the Term.

(c) The Parking Fee shall be paid on a monthly basis. The Authority will e-mail an invoice (each, an "Invoice") to PWSA at accountspayable@pgh2o.com by the end of each month for the number of Employee Leases for the following month (the "Following Month"). PWSA shall pay the Invoice by the twentieth (20th) day of the Following Month (the "Payment Deadline"). If PWSA does not pay an Invoice by the Payment Deadline, a two percent (2%) late fee (the "Late Fee") will be assessed to the balance of the Invoice each month until the Invoice, and any associated Late Fee, is paid in full. The Billing Address shall only be used for invoices and all other correspondence from the Authority to PWSA shall be sent in accordance with Section 15 below.

6. Authority's Obligations. During the Term, the Authority shall:

(a) Comply with all federal, state and local laws, regulations, rules and ordinances in effect (the "Laws").

(b) Not be obligated to repair any damage caused by any act, omission or negligence of PWSA or PWSA Employees.

(c) Have no responsibility for the loss, theft, mysterious disappearance of, or damage to, the vehicles belonging to PWSA Employees, contents therein or other personal property of PWSA or PWSA Employees, unless caused by the Authority's gross negligence or willful misconduct.

(d) Provide snow removal and keep the Facility in good and orderly fashion.

(e) Provide PWSA with the Rules and Regulations, as defined below, prior to the Effective Date and provide any amendments thereto to PWSA upon reasonable prior written notice.

(f) Provide a level of security for the Facility that is reasonably comparable to the level of security in other facilities owned by the Authority in Pittsburgh's Commercial Business District.

7. PWSA Obligations. During the Term:

(a) PWSA and its officers, employees (including, without limitation, PWSA Employees), agents, invitees, contractors and its contractors' subcontractors shall comply with any and all Laws applicable to the Leased Premises.

(b) PWSA and PWSA Employees shall comply with all reasonable policies, procedures, rules and regulations of the Authority relating to the use of the Leased Premises (the "Rules and Regulations"). The Authority has the right to make such Rules and Regulations as in its judgment may be necessary for the safety, care, cleanliness, condition or good order of the Leased Premises. PWSA acknowledges that the Authority's enforcement procedures may include ticketing, wheel booting and towing of vehicles.

(c) PWSA shall take all reasonable precautions to prevent injury and loss to persons and property. Except as more fully set forth in Section 9, the Authority shall have no liability for any damages to persons or property caused by PWSA, or any PWSA Employees. PWSA agrees to immediately report to the Authority any event involving an incident, accident or other instance of potential injury to persons or damage to property associated with PWSA's (or PWSA Employees') use of the Leased Premises and, if requested, to furnish a full written report of such incident.

(d) Any vehicles or other property of PWSA that is not removed from the Facility as required by this Agreement shall be deemed abandoned ten (10) days following delivery of written notice to PWSA and the Authority may store or dispose of the same as it sees fit at the expense of PWSA. PWSA shall be liable to the Authority for any and all damages, costs and expenses (including reasonable attorneys' fees) incurred by the Authority in relation to PWSA's failure to remove such property, including without limitation (i) removal costs; (ii) disposal costs and/or (iii) storage costs.

(e) In the event of any termination pursuant to Section 13 of this Agreement, PWSA shall be responsible for payment of all Invoices or other amounts due pursuant to the terms of this Agreement through and including the last day of the month in which such termination takes effect. This Section 7(e) shall survive the termination or expiration of this Agreement.

8. Condition of Leased Premises. PWSA has inspected and knows the condition of the Leased Premises and acknowledges that PWSA Employees shall use the Leased Premises in its "AS-IS, WHERE-IS" condition as of the Effective Date. The Leased Premises are leased to PWSA Employees, subject to the terms and conditions of this Agreement, without any obligation on the part of the Authority to make any additions, improvements or alterations thereto. Neither PWSA nor PWSA Employees shall make any alterations to the Leased Premises without the prior written

approval of the Authority, which may be withheld in the Authority's sole discretion. PWSA acknowledges that the Authority may temporarily close the Leased Premises from time to time for required repairs and maintenance and may, but is under no obligation to, make available alternative parking facilities to PWSA Employees in such instances. The Authority shall provide PWSA with, at least, five (5) days' prior notice of any such scheduled closures.

9. Indemnification. Except to the extent and percentage attributable to the Authority's gross negligence or willful misconduct, PWSA, shall release, defend, indemnify and hold harmless the Authority, its employees, agents, representatives, contractors, its contractors' subcontractors, officers, invitees, successors and assigns from and against any and all costs, expenses (including, without limitation, reasonable attorneys' fees), liabilities, losses, damages, suits, actions, fines, penalties, claims or demands of any kind whatsoever arising from: (1) challenges to the validity of this Agreement; and (2) any failure by PWSA to perform any of the agreements, terms, covenants or conditions of this Agreement required to be performed by PWSA. This Section 9 shall survive the termination or expiration of this Agreement.

10. Liens. PWSA shall not create, suffer, permit or allow any lien or encumbrance to be created or perfected against the Facility or any other of the Authority's property. In the event that a lien or encumbrance is created or perfected against any of the Authority's property as a result of PWSA's use of the Facility, PWSA shall, at its expense, cause such lien or encumbrance to be discharged of record by payment, bond or otherwise within thirty (30) days after the filing thereof. If PWSA shall fail to cause any such lien or encumbrance to be discharged of record within the thirty (30) day period, the Authority may cause such lien to be discharged by payment, bond or otherwise without investigation as to the validity thereof or as to any offsets or defenses thereto, and PWSA shall, upon demand, reimburse the Authority for all amounts paid and costs incurred in connection therewith including, without limitation, reasonable attorneys' fees and disbursements hereunder. This Section 10 shall survive this Agreement.

11. Rights and Restrictions of the Authority. During the Term, the Authority shall have the right to full use and enjoyment of the Facility, including without limitation, the right to sell, lease or otherwise encumber the Facility or the property on which the Facility is located.

12. Termination. Either Party may terminate this Agreement upon ninety (90) days' advance written notice to the other Party. In the event of a termination as set forth in this Section 12, this Agreement shall be null and void and of no further force or effect and no party shall have any further rights or obligations under this Agreement, except for those provisions that explicitly survive the termination or expiration of this Agreement.

13. Entire Agreement. This Agreement contains the entire understanding of the parties with respect to the subject matter hereof and may not be amended or modified except by written agreement executed by both parties.

14. Notices. All notices required pursuant to this Agreement must be given by certified mail or registered mail, addressed to the proper party, at the following addresses (or to such other addresses as the parties may designate to one another in writing from time to time):

To the Authority: Public Parking Authority of Pittsburgh
232 Boulevard of the Allies
Pittsburgh, PA 15222
Attention: Executive Director

With a copy to: Buchanan Ingersoll & Rooney PC
501 Grant Street, Suite 200
Pittsburgh, PA 15219-6498
Attention: Jason P. Wrona, Esq.

To PWSA: The Pittsburgh Water and Sewer Authority
1200 Penn Avenue
Pittsburgh, PA 15222
Attention: Logan Carmichael

15. Assignment and Subleasing. This Agreement is non-assignable, and therefore PWSA shall not assign, sublicense, sublet, rent or otherwise transfer this Agreement, the Leased Premises, the Employee Leases or any part thereof, nor transfer possession or occupancy thereof, to any person, corporation, partnership or association other than PWSA Employees, nor advertise the same in any newspaper or other place, nor shall any assignment hereof be effected by operation of law or otherwise (collectively, an "Assignment"). Notwithstanding anything to the contrary herein, any Assignment shall result in the automatic termination of this Agreement.

16. Waiver. The failure or delay on the part of either party to enforce or exercise at any time any of the terms and conditions of this Agreement shall in no way be construed to be a waiver thereof, nor in any way to affect the validity of this Agreement or any part hereof, or the right of the party to thereafter enforce each and every such term and condition. No waiver of any breach of this Agreement shall be held to be a waiver of any other or subsequent breach.

17. Choice of Law. The laws of the Commonwealth of Pennsylvania (without giving effect to its conflict of law principles) shall govern all matters arising out of or relating to this Agreement and all of the transactions contemplated hereby, including, without limitation, the validity, interpretation, construction, performance and enforcement of this Agreement.

18. Designation of Forum. Any party to this Agreement bringing a legal action or proceeding against any other party arising out of or relating to this Agreement or the transactions contemplated hereby shall bring the legal action or proceeding in either the United States District Court for the Western District of Pennsylvania or in any court of the Commonwealth of Pennsylvania sitting in Pittsburgh, Pennsylvania (the "Designated Courts"). Each party consents to the exclusive jurisdiction of the Designated Courts for the purpose of all legal actions and proceedings arising out of or relating to this Agreement or the transactions contemplated hereby. Each party agrees that the exclusive choice of forum set forth in this Section does not prohibit the enforcement of any judgment obtained in the Designated Courts or any other appropriate forum.

19. Relationship of Parties. Nothing contained in this Agreement shall be deemed or construed by the Parties or by any third person to create the relationship of employer and employee, principal and agent, of partnership, of joint venture or of any association between the Authority and PWSA, other than landlord and tenant.

20. Attorney's Fees. In the event any Party engages an attorney to enforce or interpret this Agreement, by legal action, the substantially prevailing party will be entitled to attorneys' fees and all reasonable costs incurred as a result of such event.

21. Counterpart Signatures. This Agreement may be executed in counterparts and by electronic means. Each party hereto may furnish their signature via electronic transmission, each of which shall be deemed an original and all of which when taken together shall constitute one and the same Agreement.

22. Effective Date. This Agreement shall be effective thirty (30) days after PWSA has filed a copy thereof with the Pennsylvania Public Utility Commission "PUC" or in the event that the Pennsylvania PUC institutes an investigation, at such time as the PUC grants its approval. PWSA shall file a copy of this Agreement with the PUC within ten (10) days of its execution by the parties.

23. PWSA Authorizing Resolution. This Agreement is entered into pursuant to PWSA signatories as noted on the Signature Page.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the Effective Date.

THE AUTHORITY:

**PUBLIC PARKING AUTHORITY OF
PITTSBURGH**

WITNESS:

Christopher J. Lewis

By: *David Onorato*
Name: David Onorato, CAPP
Title: Executive Director

PWSA:

**THE PITTSBURGH WATER AND SEWER
AUTHORITY**

By: *William J. Pickering*
Name: William J. Pickering
Title: Chief Executive Officer

Edward Barca
Finance Director for PWSA

APPROVED AS TO FORM:

Monica Walaan
Legal Counsel for PWSA

EXHIBIT A

Form Lease

[Attached]



Pittsburgh **PARKING** Authority

The Value Parking Network

PARKING LEASE APPLICATION

Please complete and return this application along with a check in the amount of the first month's lease. Make initial check payable to "Pittsburgh Parking Authority." All leases are renewed on a month-to-month basis and continue until the Authority receives written notice of cancellation. This lease is not transferable. Leases will be effective the first of the month and can only be cancelled the end of the month.

DAY LEASE

Grant Street Transportation Center	
Pittsburgh Water & Sewer Authority - Employee Lease	Rate Per Agreement

PWSA EMPLOYEE NAME: _____

BILLING ADDRESS: _____

BUSINESS PHONE: () _____ HOME PHONE: () _____

CELL PHONE: () _____ E-MAIL ADDRESS: _____

VEHICLE PLATE #: _____ MODEL: _____

By signing this application, you agree to the Lease Terms and Conditions listed on the reverse side of this parking lease application

SIGNATURE: _____

FOR AUTHORITY USE ONLY

EFFECTIVE DATE: _____

CUSTOMER NUMBER: _____ LEASE CARD NUMBER: _____

CHECK AMOUNT: _____ CHECK NUMBER: _____

MAIL APPLICATION AND CHECK TO:
PITTSBURGH PARKING AUTHORITY, ATTN: PARKING SERVICES
232 BOULEVARD OF THE ALLIES, PITTSBURGH PA 15222-1616
www.pittsburghparking.com
(412) 560-PARK (7275)

Revised 07/21

LEASE TERMS AND CONDITIONS

1. This lease entitles the holder access to the facility during normal hours of operation.
2. You may terminate the monthly lease agreement upon 30 days advance WRITTEN notice (i.e. notice given at any time during a month will be effective as of the last day of that month.)
3. Parking Lease Rates are subject to change by the Public Parking Authority of Pittsburgh upon 30 days written notice.
4. In the event that a Leaseholder does not have their lease card they will be responsible for payment of that day's parking rate.
5. If a lease card is lost or stolen, a non-refundable charge of \$25.00 is required for a replacement. The \$25.00 charge must be paid before a replacement lease card is issued.
6. If a lease card is damaged or faded and cannot be read, return the lease card to the facility manager and a replacement lease card will be available to you the next business day at no charge.
7. Misuse of the lease card may result in the immediate cancellation of your lease.
8. Lease payments must be received by the invoice due date, the 28th of the previous month. Late payments may result in suspension of parking privileges and/or cancellation of your lease. In the event that your lease card has been suspended for late payment, you will be responsible for the daily parking charges.
9. Lease cards are not transferable.
10. No particular parking space is assigned or reserved for your vehicle. In the event the facility is full, an attendant may need to valet park your vehicle and retain your keys.
11. The parking facility will be used only for parking the vehicle and not for storage of vehicles. Your vehicle must be moved at least once every 72 hours unless authorized by the Authority.
12. The Leaseholder assumes all risks, liability and hazards in connection with the use and occupancy of the facility and hereby covenants to protect, indemnify and save harmless the Lessor and the Public Parking Authority of Pittsburgh.
13. Hours of operation are subject to change upon 30-days written notification by the Authority.

If you have any questions, please call the Parking Authority at (412) 560-2504

Your signature acknowledges your agreement to comply with the above conditions.

PWSA Exhibit EB-12

DIRECT ENERGY BUSINESS COMMODITY MASTER AND PROFESSIONAL SERVICE AGREEMENT

MADE July 1, 2021

This Commodity Master Agreement ("CMA" or "Agreement") among **Direct Energy Business, LLC, Direct Energy Business Marketing, LLC d/b/a Direct Energy Business**, (collectively "Seller"), each a Delaware limited liability company, and Pittsburgh Water & Sewer Authority ("Buyer" or "Customer"), located at :1200 Penn Avenue, Pittsburgh, PA, 15222 (each a "Party" and collectively, the "Parties") is entered into and effective as of date identified above.

1. Scope of Work/Transactions: Buyer hereby engages Seller as independent contractor for Services in regard to the provision of electricity supply and related services in conjunction with aggregated electricity purchases by members of the Western Pennsylvania Energy Consortium (WPEC), including the establishment of a subaccount on behalf of WPEC members, procuring electricity through Power Purchase Agreements and Seller hereby agrees to perform said services upon the terms and conditions hereinafter set forth. The terms of this CMA, as more fully set forth below ("Commodity Master Agreement and Sample Transaction Confirmation Form") apply to all end-use sales of electric power and/or natural gas as applicable (each a "Commodity" and collectively, the "Commodities"), by the applicable Seller to Buyer (each sale a "Transaction") which will be memorialized in a transaction confirmation signed by both Parties (each a "Transaction Confirmation"). Each Transaction Confirmation shall set forth the Seller party providing service to Customer for such Transaction. This CMA, any amendments to this CMA and related Transaction Confirmation(s) (together, a single integrated, "Agreement") is the entire understanding between Parties with respect to the Commodities and supersedes all other communication and prior writings with respect thereto; no oral statements are effective.

2. Performance: Buyer is obligated to purchase and receive, and Seller is obligated to sell and provide, the Contract Quantity of Commodity specified in a Transaction Confirmation. Buyer will only use the Commodity at the listed Service Locations in the applicable Transaction Confirmation and will not resell the Commodity.

3. Term: The Term of this Agreement is 59 months, commencing June 1, 2021. The Delivery Period and any Renewal Term are set forth in the applicable Transaction Confirmation. This CMA shall remain in effect until expired, terminated by either Party pursuant to Section 14 or as otherwise terminated by either Party for convenience upon at least Thirty (30) days' prior written notice; provided, however, that this CMA will remain in effect with respect to Transactions entered into prior to the effective date of the termination or expiration until both Parties have fulfilled all outstanding obligations.

4. Purchase Price: Buyer will pay the Purchase Price stated in each Transaction Confirmation, subject to Section 5. If the Purchase Price incorporates an index and the index is not announced or published on any day for any reason or if the Seller reasonably determines that a material change in the formula for or the method of determining the Purchase Price has occurred, then the Parties will use a commercially reasonable replacement price calculated by the Seller.

5. Changes to Purchase Price: In the event there is a change to any tariff, law, order, rule, tax, regulation, transmission rate, or any LDC, EDC or ISO changes to Seller obligations to serve, which increase or decrease Seller's costs, the Purchase Price may be adjusted by Seller to include such costs

6. Billing and Payment: Seller will invoice Buyer for the Actual Quantity of Commodity and for any other amounts for which Buyer is responsible under this Agreement. Except as otherwise set forth herein, payment is due within thirty (30) days of the date of the invoice. If Seller cannot verify the Actual Quantity at the time an invoice is issued, Seller will estimate the Actual Quantity. Seller will adjust Buyer's account following (i) confirmation of the Actual Quantity, (ii) any Utility adjustment or (iii) any other corrections or adjustments, including adjustments to, or re-calculation of Taxes. Buyer is also responsible for all costs and fees, including reasonable attorney's fees, incurred in collecting any amounts owed to Seller and any fee charged to Seller for insufficient funds of Buyer. "Actual Quantity" means the actual quantity of Commodity that is either delivered or metered, as applicable, to Buyer's account. "Utility" means a state regulated entity engaged in the distribution of the applicable Commodity.

7. Taxes: The Purchase Price does not include Gross Receipt Taxes that are or may be the responsibility of the Buyer, unless such inclusion is required by law. Buyer will reimburse Seller for any Taxes that Seller is required to collect and pay on Buyer's behalf and will hold Seller harmless from any liability against all Taxes for which Buyer is responsible, as indicated as a separate line item on the invoice. Buyer must provide Seller with any applicable Tax exemption documentation and Buyer will be liable for any Taxes assessed against Seller because of Buyer's failure to timely provide or properly complete any such documentation. "Taxes" means Gross Receipt Taxes and any other applicable federal, state or local taxes, including any associated penalties and interest and any new taxes imposed in the future during the term of this Agreement. Liabilities imposed in this Section will survive the termination or expiration of this Agreement.

8. Disputes: If either Party in good faith disputes amounts owed hereunder, the disputing Party will contact the non-disputing Party in writing and pay the undisputed amount owed by the payment due date. The Parties will have 30 Business Days to negotiate a resolution regarding disputed amounts. If such dispute is not resolved, the disputing Party will pay the balance of the original invoice and either Party may exercise any remedy available to it at law or equity. "Business Day" means any day on which banks are open for commercial business in New York, New York; any reference to "day(s)" means calendar days.

9. Title and Risk of Loss: Title to, possession of and risk of loss to the Commodity will pass to Buyer at the Delivery Point specified in the applicable Transaction Confirmation.

10. Force Majeure: Other than payment obligations, a Party claiming Force Majeure will be excused from its obligations under Section 2 only if it provides prompt notice of the Force Majeure, uses due diligence to remove its cause and resumes performance as promptly as reasonably possible. During a Force Majeure, Buyer will not be excused from its responsibility to pay for Balancing Charges nor from its responsibility to pay for Commodity received. "Force Majeure" means a material, unavoidable occurrence beyond a Party's control, and does not include inability to pay, an increase or decrease in Taxes or the cost of Commodity, the economic hardships of a Party, the full or partial closure of Buyer's facilities, unless such closure itself is due to Force Majeure.

11. Financial Responsibility: Seller's entry into this Agreement and each Transaction is conditioned on Buyer, its parent, any guarantor or any successor maintaining its creditworthiness during the Delivery Period and any Renewal Term. When Seller has reasonable grounds for insecurity regarding Buyer's ability or willingness to perform all of its outstanding obligations under any agreement between the Parties, Seller may request Buyer to provide adequate assurance, which may include security in the form of cash deposits, prepayments, letters of credit or other guaranty of payment or performance ("Credit Assurance").

12. Default: "Default" means: (i) failure of either Party to make payment by the applicable due date and the payment is not made within Thirty (30) Days of a written demand; (ii) failure of Buyer to provide Credit Assurance within 2 Business Days of Seller's demand; (iii) any representation or warranty made by a Party in this Agreement proves to have been false or misleading in any material respect when made or ceases to remain true and such breach is not cured within 15 Business Days after written notice; (iv) a secured party has taken possession of all or any substantial portion of its assets or is dissolved or has a resolution passed for its winding-up, official management or liquidation (other than pursuant to a consolidation or merger); (v) failure of a Party to fulfill any of its material obligations in this Agreement (except as otherwise provided in subsections (i), (ii) (iii) and (iv) hereof) and such failure is not cured within 15 Business Days after written notice, or within another timeframe as agreed upon by the parties in writing; provided that no cure period or demand for cure applies to an early termination of a Transaction Confirmation by Buyer or under Section 14(A)(iii).

13. Remedies:

A) In the event of a Default, the non-defaulting Party may: (i) withhold any payments or, after providing notice of Thirty (30)Days, suspend performance; (ii) terminate any Transactions and/or this Agreement between the parties and/or their affiliates ; (iii) calculate a settlement amount by calculating all amounts due to Seller for Actual Quantity and the Close-out Value for each Transaction being terminated; and/or (iv) net or aggregate all settlement amounts and all other amounts deemed to be owing between the Parties and their affiliates under this Agreement and other energy-related agreements between them and their affiliates, whether or not due and whether or not subject to any contingencies, plus costs, into one single amount ("Net Settlement Amount").

B) Any Net Settlement Amount due from the defaulting Party to the non-defaulting Party will be paid within Forty-Five (45)Days of written notice from the non-defaulting Party. Interest on any unpaid portion of the Net Settlement Amount will accrue daily at the Interest Rate. "Close-out Value" is the sum of (a) the amount due to the non-defaulting Party regarding the Contract Quantities (or, as applicable, estimated Contract Quantities) remaining to be delivered as stated in the applicable Transaction Confirmation(s) during the Delivery Period or, if applicable, the current Renewal Term, calculated by determining the difference between the Purchase Price and the Market Price for such quantities; and (b) without duplication, any net losses or costs incurred by the non-defaulting Party for terminating the Transaction(s), including costs of obtaining, maintaining and/or liquidating commercially reasonable hedges, Balancing Charges and/or transaction costs.

C. "Market Price" means the price for similar quantities of Commodity at the Delivery Point during the Delivery Period or Renewal Term. For purposes of determining Close-out Value, Market Price may be established by Seller through information available to Seller internally or through third parties. The Parties agree that Close-out Value constitutes a reasonable approximation of damages and is not a penalty or punitive in any respect. Physical liquidation of a Transaction or entering into a replacement transaction is not required to determine Close-out Value or Net Settlement Amount. The defaulting Party is responsible for all costs and fees incurred for collection of Net Settlement Amount, including, reasonable attorney's fees and expert witness. If this agreement terminates early or expires without Buyer agreeing to enter into a new Supply Services Agreement with Seller, and if any open hedges remain once physical delivery starts with the Successor Seller, Buyer at its option will arrange to either:

1. Novate the remaining hedges from Seller to the Successor Seller; or

2. Direct Seller to liquidate the remaining hedges and any gains or losses on those hedges will pass to Buyer as part of the Working Capital True-Up as described in Section 9 (b) of Buyer's RFP solicitation, attached hereto at **EXHIBIT C**.

14. Representations, Warranties and Covenants: Each of the following are deemed to be repeated each time a Transaction is entered into and during the Delivery Period and any Renewal Period: **A.** Each Party represents that: (i) it is duly organized, validly existing and in good standing under the laws of the jurisdiction of its formation and is qualified to conduct its business in those jurisdictions necessary to perform to this Agreement; (ii) the execution of this Agreement is within its powers, has been duly authorized and does not violate any of the terms or conditions in its governing documents or any contract to which it is a party or any law applicable to it; and (iii) there are no bankruptcy, insolvency, reorganization, receivership or other similar proceedings pending or being contemplated by it, its parent or guarantor or to its knowledge, threatened against it, its parent or guarantor. **B.** Buyer represents, warrants and covenants that: (i) it is not a residential customer; (ii) execution of this Agreement initiates enrollment and service for the Delivery Period and any Renewal Term; (iii) if it is the person or entity executing this Agreement is doing so in its capacity as an agent, such Party represents and warrants that it has the authority to bind the principal to all the provisions contained herein and agrees to provide Seller true, correct and complete documentation of such agency relationship, and (iv) (a) it has and will provide, to Seller, all information reasonably required to substantiate its usage requirements; (b) acceptance of this Agreement constitutes an authorization for release of such usage information; (c) it will assist Seller in taking all actions necessary to effectuate Transactions, including providing an authorization form permitting Seller to obtain its usage information; and (d) the usage information provided is true and accurate as of the date furnished and as of the effective date of the Agreement. **C.** Each Party acknowledges that: (i) this Agreement is a forward contract and a master netting agreement as defined in the United States Bankruptcy Code ("Code"); (ii) this Agreement shall not be construed as creating an association, trust, partnership, or joint venture in any way between the Parties, nor as creating any relationship between the Parties other than that of independent contractors for the sale and purchase of Commodity; (iii) Seller is not a "utility" or an "energy generation facility" as defined in the Code; (iv) Commodity supply will be provided by Seller under this Agreement, but delivery will be provided by Buyer's Utility; (v) Seller does not own or operate transmission and distribution systems through which the Commodity is delivered to Buyer, and Seller is not liable for any damages or Losses associated with such transmission or distribution systems; and (vi) Buyer's Utility, and not Seller, is responsible for responding to leaks or emergencies should they occur. **D.** Seller warrants that (i) it has good title to Commodity delivered, (ii) it has the right to sell the Commodity, and (iii) the Commodity as delivered will be free from all royalties, liens, encumbrances, and claims. EXCEPT AS EXPRESSLY SET FORTH IN THIS SECTION, ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ARE DISCLAIMED.

15. Confidentiality: Except as required by law, including but not limited to the Pennsylvania Right-to-Know Law, 65 P.S. 67.101 *et seq.*, Buyer will not disclose the terms of this Agreement, without prior written consent of the Seller, to any third party, other than Buyer's employees, affiliates, agents, auditors and counsel who are bound by substantially similar confidentiality obligations, trading exchanges, governmental authorities, courts, adjudicatory proceedings, pricing indices, and credit ratings agencies; provided that if Buyer receives a demand for disclosure pursuant to court order or other proceeding, it will first notify Seller, to the extent practicable, before making the disclosure.

16. Indemnification; Limitation of Liability: **A.** Seller will be responsible for and shall indemnify Buyer against all losses, cost and expenses which attach before title passes to Buyer. Seller hereby agrees to indemnify, save and hold harmless, and defend Customer, its officers, agents and employees from and against all liens, charges, claims, demands, losses, costs, judgments, liabilities, and damages of every kind and nature whatsoever, including court costs and

Exhibit EB-12

attorney's fees arising by reason of: the performance by Seller of any Services under this Agreement; any act, error or omission of Seller or of an agent, employee, licensee, Seller or subSeller of Seller; and any breach by Seller of any of the terms, conditions or provisions of this Agreement.

C. NEITHER PARTY WILL BE LIABLE TO THE OTHER UNDER THIS AGREEMENT FOR CONSEQUENTIAL, INDIRECT OR PUNITIVE DAMAGES, LOST PROFITS OR SPECIFIC PERFORMANCE.

17. Other: (A) The Agreement, and any dispute arising hereunder, is governed by the law of the state in which Customer's Service Locations are located (i.e. City of Pittsburgh in the County of Allegheny) including with regard to venue and forum and without regard to any conflict of rules doctrine. **(B)** No delay or failure by a Party to exercise any right or remedy to which it may become entitled under this Agreement will constitute a waiver of that right or remedy **(D)** Any notice or waiver including without limitation any termination or disconnection notice, shall be provided in writing and, if sent to Seller, a copy delivered to: Direct Energy Business, Attn: Customer Services Manager, 1001 Liberty Avenue, Pittsburgh, PA 15222, Phone: (888) 925-9115; Fax: (866) 421-0257; Email: CustomerRelations@directenergy.com; and if sent to Buyer, chris.hornstein@pittsburghpa.gov. Notice sent by electronic means shall be deemed to have been received by the close of the Business Day on which it was transmitted, or such earlier time as is confirmed by the receiving Party. Notice delivered by overnight courier shall be deemed to have been received on the Business Day after it was sent, or such earlier time as is confirmed by the receiving Party. Notice delivered by first class mail (postage prepaid) shall be deemed to have been received at the end of the third Business Day after the date of mailing. **(C)** No amendment to this Agreement will be enforceable unless reduced to writing and executed by both Parties. **(D)** Seller may pledge, encumber or assign this Agreement or the accounts, revenues and proceeds thereof without Buyer's consent. Buyer may not assign this Agreement without Seller's consent not to be unreasonably withheld. **(E)** This Agreement may be executed in separate counterparts by the Parties, each of which when executed and delivered shall be an original, but all of which shall constitute one and the same instrument. **(F)** Any capitalized terms not defined in this CMA are defined in the Transaction Confirmation or shall have the meaning set forth in the applicable Utility rules, tariffs or other governmental regulations, or if not defined therein then it shall have the generally accepted meaning customarily attributed to it in the natural gas or electricity generation industries, as applicable. **(G)** Any document generated by the Parties with respect to the Agreement, including the Agreement, may be imaged and stored electronically and may be introduced as evidence in any proceeding as if it were an original business record and shall not be contested by either party as admissible evidence. **(H)** Where multiple parties are Party to this Agreement with Seller and are represented by the same agent, this Agreement will constitute a separate agreement with each such Party, as if each such Party executed a separate Agreement, and that no such Party shall have any liability under this document for the obligations of any other Parties. **(I)** If a conflict arises between the terms of this CMA and a Transaction Confirmation, the Transaction Confirmation will control with respect to that particular Transaction. **(J)** If a broker or agent has been involved in any Transaction, such broker is an agent of Buyer only and not an agent of Seller.



Direct Energy Business, LLC
 1001 Liberty Avenue Pittsburgh, PA 15222
 1.888.925.9115
www.directenergy.com

Date: May 18, 2021
Product Code: PJM NSTC Portfolio PA
Contract ID: 5334885

CUSTOMER INFORMATION

Customer Name: Pittsburgh Water & Sewer Authority

Contact Name: James Stitt

Address: 1200 Penn Avenue, Pittsburgh, PA, 15222

Telephone: (412) 255-8800

Fax:

Email: jstitt@pgh2o.com

Billing Contact: John Nagel

3rd Party Bill Pay:

Billing Address: : 1200 Penn Avenue, Pittsburgh, PA, 15222

Telephone: 412.255.8800

Fax:

Email: jnagel@pgh2o.com

ELECTRICITY TRANSACTION CONFIRMATION -

This Transaction Confirmation confirms the terms of the Electricity Transaction entered into between Direct Energy Business, LLC ("Seller"), and the customer above ("Buyer" or "Customer") pursuant to the terms of the Commodity Master Agreement between Customer and Seller and/or Seller's affiliate Direct Energy Business Marketing, LLC, d/b/a Direct Energy Business dated July 1, 2021, as may be amended, (the "CMA"). If the referenced CMA is between Customer and Direct Energy Business Marketing, LLC, d/b/a Direct Energy Business, Customer and Seller agree that this Transaction Confirmation shall be governed by and incorporate the terms of such CMA. All attachments and exhibits hereto, including any request for a Forward Purchase or a PowerPortfolio Transaction Report, are made a part of and incorporated into this Transaction Confirmation. The Purchase Price excludes Utility transmission and distribution charges and Taxes that are or may be the responsibility of Customer. Customer's execution and submission of this Transaction Confirmation, including Exhibit A hereto, to Seller shall constitute an offer from Customer to Seller to purchase the Commodity on the terms set forth in the CMA This Transaction Confirmation shall become effective only upon (i) execution by Customer of this Transaction Confirmation, including Exhibit A, and CMA; and (ii) the earlier of (a) execution of the CMA and this Transaction Confirmation by Seller or (b) written confirmation by Seller of its acceptance of the Transaction Confirmation to Customer.

DELIVERY PERIOD

For each Service Location, the first meter read date will be on or after: June 01, 2021, and will continue for a term of 59 Months. Notwithstanding the foregoing, the Delivery Period will extend through the meter read date following the expiration of any Forward Purchase as confirmed by a PowerPortfolio Transaction Report. Seller will request the Utility to enroll Customer on the first meter read date in the first month of the Delivery Period as defined by the Utility. The service start date hereunder will be the date that the Utility enrolls Customer for Seller's services. Seller shall not be liable for any lost savings or lost opportunity as a result of a delay in service commencement due to actions or inactions of the Utility.

Upon the expiration of the Delivery Period, this Transaction shall continue for successive one month terms (collectively the "Renewal Term") until either Party notifies the other Party in writing of its intention to terminate, at least 15 days prior to the end of the Delivery Period or 15 days prior to the end of each successive month Renewal Term. The termination date shall be the next effective drop date permitted by the Utility. All terms of the Agreement will remain in effect through the termination date as set by the applicable Utility. During the Renewal Term, the Purchase Price for each successive month Renewal Term will be the then market-based price for similar quantities of Commodity at the Delivery Point, including all Taxes, costs, charges or fees which are set forth herein, unless otherwise agreed to in writing by the Parties.

DELIVERY POINT

The Delivery Point shall be the point(s) where Commodity is delivered to the Utility. The Utility is specified on Exhibit A.

BILL TYPE - DUAL

CONTRACT QUANTITY

Customer and Seller agree that the Contract Quantity purchased and received means a positive volume up to or greater than the estimated quantities listed on Exhibit A. The section of the CMA regarding material deviation shall not apply to this Transaction Confirmation.

PURCHASE PRICE

The Purchase Price per kWh to be paid by Buyer for the services provided hereunder during the Delivery Period of this Agreement shall be that set forth on Exhibit A. The Purchase Price includes a Services Fee, as well as the components marked below as "Included". For those components marked "Pass through", they will be passed through to you at cost and shown as a line item on your bill.

PJM	Value
Energy	Pass Through
RPS	Pass Through
Losses	Pass Through
Capacity	Pass Through
Transmission	Pass Through
Auction Revenue Rights (ARR)	Pass Through
Ancillaries	Pass Through
Marginal Loss Credits	Pass Through
Reliability Must Run	Pass Through
Applicable Taxes	Pass Through

DEFINITIONS

Ancillaries: Wholesale commodity services and products required to facilitate delivery of Commodity to the Utility.

Auction Revenue Rights (ARR): Entitlements allocated annually to Fixed Transmission Service Customers that entitle the holder to receive an allocation of the revenues from the Annual FTR Auction.

Block Purchase: Purchasing an amount of Electricity from Seller in an amount no less than 300kW, which may be increased in increments of 100kW, for a minimum term of one (1) calendar month.

Capacity: The Capacity obligations met through the provisions of the PJM Reliability Assurance Agreement (RAA).

Day-Ahead LMP Purchase: The purchase of a certain quantity of Commodity (per MWh(s)) on the day preceding the day in which the Energy (which includes the Commodity component) is to be delivered to the Delivery Point.

Exhibit A: The list of Service Locations attached to this Transaction Confirmation, which list specifies the Service Locations covered under the scope of this Transaction Confirmation for PowerPortfolio, Day-Ahead, Real-Time and other index products. For fixed price products, it refers to the pricing attachment to this Transaction Confirmation that sets forth (together with this Transaction Confirmation) the Purchase Price applicable to, and the Service Locations covered by, this Transaction Confirmation.

Exhibit B: A Forward Purchase Order Form which Customer may complete, execute, and submit to Seller to confirm their offer to Seller to make a Forward Purchase.

Forward Purchase: The purchase of a certain quantity of Commodity (power per MWh(s)) for a period of time greater than one day, which will be part of the Energy which is to be delivered to the Delivery Point.

Locational Marginal Price (LMP): The hourly integrated market clearing marginal price for Commodity at the location the Commodity is delivered or received as defined by the PJM RTO.

Marginal Loss Credit: A credit provided by certain RTOs as a result of an over-collection of funds for transmission and distribution losses.

Off-Peak: Monday through Sunday hours ending ("HE") 0100 through HE 0700 and HE 2400 and Saturday through Sunday HE 0800 through HE 2300. Off Peak also includes NERC Holidays HE 0100 through HE 2400. HE shall be at Eastern prevailing time.

On-Peak: Monday through Friday HE 0800 through HE 2300, excluding NERC Holidays. HE shall be at Eastern prevailing time.

PJM: The Pennsylvania New Jersey Maryland Interconnection, L.L.C.

PJM RTO: The PJM Interconnection Regional Transmission Organization.

PowerPortfolio Transaction Report: The written confirmation sent by Seller to confirm its acceptance of Customer's offer of a Forward Purchase.

Regional Transmission Expansion Plan (RTEP): PJM's Regional Transmission Expansion Plan identifies transmission system additions and improvements needed to keep electricity flowing to the millions of people throughout PJM's region.

Reliability Must Run (RMR): A unit that must run for operational or reliability reasons, regardless of economic considerations. Also called reliability agreement.

Renewable Portfolio Standard (RPS): A regulation that requires the increased production of energy from renewable energy sources.

Services Fee: The fee for the services provided by Seller to meet the Service Locations' load requirements, including any applicable broker fee, which is included in the Purchase Price to be paid by Buyer.

Transmission: The transportation of energy over high voltage wires from a generator to the Utility.

Utility Defined Loss Factor: Loss Factor as published in applicable utility tariff.

SPECIAL PROVISIONS

1.. Product Description: Seller will work with Buyer to develop an overall approach for Buyer's Commodity purchases ("Buying Strategy") that is mutually agreed upon by the Parties, based on the options given below. This Special Provision will outline the types of services that Seller provides as part of the PowerPortfolio Product, the Purchasing Options available to meet Buyer's Commodity requirements, the total cost of the Energy and services provided and the process by which Commodity purchases are to be effectuated.

A. Portfolio Purchasing Options: Seller will use the Purchasing Options below, as selected by Buyer, to meet Buyer's Commodity requirements at its Service Locations in accordance with the Buying Strategy:

1. Day-Ahead Locational Marginal Price ("Day-Ahead LMP") Purchase: The Day-Ahead LMP Purchase is the hourly integrated market clearing marginal prices for Commodity for the next operating day based on submitted demand bids and generation offers at the location of the Commodity is delivered or received. Day-Ahead LMP Purchase(s) are made in 0.1 megawatt ("MW") increments and are not permitted for Service Locations unless Buyer's forecasted usage for those Service Locations per Utility territory is equal to, or greater than, 0.1 MW.

2. Forward Purchase: During the Delivery Period of this Agreement, Buyer may purchase any amount of the Commodity component of its Energy requirements from Seller as a Forward Purchase. Buyer will request a Forward Purchase at least five (5) business days prior to Buyer's desired start date for such purchase. Forward Purchase(s) are no less than 300kW, in increments of 100kW, and is for a minimum term of one (1) calendar month and are not permitted for certain Service Locations unless Buyer's forecasted usage for those Service Locations per Utility territory is equal to, or greater than 300kW. In all events, Seller will make Forward Purchase amounts available to Buyer in a commercially reasonable timeframe following Buyer's request to effectuate a Forward Purchase. To initiate a Forward Purchase, Customer should complete and submit a Forward Purchase Order Form as set forth in Exhibit B or pursuant to an email transaction containing the required information set forth in Exhibit B and submit to Seller five business days prior to the desired start date. If Seller is able to fulfill the request, it will send Customer a PowerPortfolio Transaction Report. Seller will invoice Buyer, and Buyer will pay, for the entire quantity of any Block Purchase regardless of whether the entire amount is consumed. Buyer may not purchase a quantity of Commodity that is greater than Buyer's forecasted usage, as agreed to by Buyer and Seller.

3. If Buyer has not specifically selected a Day-Ahead LMP or Forward Purchase for any given day during the Delivery Period, Seller will purchase Commodity necessary to meet Buyer's Energy requirements for Buyer's forecasted usage on a Day-Ahead LMP basis as if Buyer and Seller had agreed upon such Day-Ahead LMP Purchase.

4. To the extent Buyer's Day-Ahead LMP and/or Forward Purchase(s) do not meet Buyer's hourly Commodity requirements, Seller will meet Buyer's remaining Commodity requirements with PJM Real-Time LMP. Buyer will pay Seller the associated Real-Time LMP for such additional Commodity purchase(s).

5. Seller will deliver all quantities of Energy made under Day-Ahead and/or Forward Purchase(s) into the PJM RTO regardless if they are actually consumed by Buyer. Although Buyer is obligated and shall pay Seller for the entire quantity of such Day-Ahead LMP and/or Forward Purchases, Seller will credit/debit Buyer for the dollar amount that Seller receives from the PJM RTO for such quantity(ies) of unconsumed Commodity. The dollar amount credited/debited to the Buyer for such unconsumed Commodity is derived from the PJM RTO's settlement of the unconsumed Commodity against the PJM RTO Real-Time LMP.

6. Purchasing Acknowledgement: Buyer acknowledges that under any Forward Purchase or Day-Ahead LMP Purchase selection, Buyer may not knowingly purchase or allow for the scheduling of a quantity of Commodity that is greater than Buyer's forecasted usage. In all cases all forecasts and Commodity purchases shall be, as reasonably determined by Buyer and Seller, in accordance with Buyer's full usage requirements.

7. Email Transactions: The Parties consent to the use of electronic agreements and to conduct Transactions and/or Forward Purchases via email and/or facsimile. Such electronic correspondence shall be deemed a "writing", by which the Parties intend to be bound, for purposes of satisfying any applicable state and federal legal requirements. The Parties agree that a typed name and title, including the use of an automated email signature block, in such writing(s) is the legal equivalent of such Party's representative's manual signature (an "E-signature"). The Parties agree that no certification of authority or other third-party verification shall be necessary to validate an E-signature and lack of such certification or third-party verification will not in any way affect the enforceability of a Party's E-signature. In all cases, the failure of Seller to send a PowerPortfolio Transaction Report or the failure of Buyer to acknowledge receipt of a PowerPortfolio Transaction Report shall not invalidate the Forward Purchase agreed to by the Parties. If there are any inconsistencies between this Transaction Confirmation and any finalized Forward Purchase, such inconsistencies will be resolved in favor of the latter for that applicable purchase.

2.. Change in Utility Account Numbers: The account number for a Service Location shall be the Utility Account Number set forth in the Service Locations attached in the Exhibit A, or any replacement account number issued by the Utility from time to time.

3.. Third Party Charges: Customer acknowledges that any costs assessed by the Utility or any third party as a result of Customer's switch to or from Seller, including but not limited to switching costs, are not included in the Purchase Price and shall be the responsibility of the Customer.

4.. Billing and Payment: The following is hereby added to the Billing and Payment section of the CMA:

"Seller and Buyer agree upon the following condition regarding its non-interval monthly meter accounts, if any: Seller will deaggregate the Buyer's usage, based on Utility and ISO settlement protocols, and Buyer agrees to accept the results of this deaggregation as its hourly billing determinants. Where Buyer has interval meters, Seller will use the interval meter hourly usage for billing only to the extent that the hourly usage is used by the applicable Utility and ISO for settlement purposes with Seller. In the event of an interval meter where the Utility and ISO do not use the hourly usage for settlements, Seller will deaggregate Buyer's usage, based on Utility and ISO settlement protocols, and Buyer agrees to accept the results of this deaggregation as its hourly billing determinants."

5.. Risk Acknowledgements: By selecting and executing this Transaction Confirmation, Buyer acknowledges that it is acting for its own account, and it has made its own independent decision to enter into this Agreement based solely upon its own judgment and upon advice from such advisors as it has deemed necessary. It is not relying on any communication (written or oral) of Seller or its affiliates (or its respective representatives) in any respect, and in particular, not as investment advice or as a recommendation to enter into any Agreement, it being understood that information and explanations related to the terms and conditions of any Agreement will not be considered investment advice or a recommendation to enter into the Agreement. Buyer understands and agrees that the energy market is a volatile market and that - except as to any agreed prices between the Parties described in this Agreement - no warranties (express or implied) and no guarantees regarding market movement or price trends are made by Seller or its affiliates in connection with this Agreement. No communication (written or oral) received from Seller or its affiliates (or their respective representatives) will be deemed to be an assurance or guarantee as to the expected results of any transaction elected by Buyer under this Agreement.

TAX EXEMPTION STATUS - If exempt, must attach certificate

In order to ensure accurate billing, tax status indication is required. Please check the appropriate status below:

Non-Exempt

Exempt (e.g. Residential, Non-Profit Organization, Manufacturing, Small Business, Agricultural, Resale, etc.)

DE Proprietary

DE Proprietary

EXHIBIT A PRICING ATTACHMENT

This Exhibit A is to the Transaction Confirmation dated May 18, 2021 between
DIRECT ENERGY BUSINESS LLC
 and
Pittsburgh Water & Sewer Authority
 for a term of **59 Months**
Contract ID: 5334885

PJM_NSTC_Portfolio_PA

Account Number	Service Location	Utility	Utility Rate Class	Zone	Capacity / Transmission Tags	*Estimated Meter Read Start Date (MM/DD/YYYY)	Purchase Price (cents/KWh)	Annual Historical Usage (kWh)
2565860246	BUNKER HILL ST (PITTSBURGH WATER & SEWER AUTHORIT_GL)	DLC	GL-C	DLCO	70.4 / 104.3	06/08/2021	0.149	713,701
6413230625	202 26th St (PGH WATER & SEWER AUTH_GM)	DLC	GM-C	DLCO	17.7 / 18.3	06/03/2021	0.149	98,043
6413230667	4476 EVERGREEN RD (PGH WATER & SEWER AUTH_GM)	DLC	GS-M	DLCO	1.0 / 0.6	06/03/2021	0.149	6,213
6413230736	BROWNS HILL RD (PITTSBURGH WATER & SEWER AUTHORITY_GM)	DLC	GM-C	DLCO	0.5 / 0.2	06/03/2021	0.149	3,958
6413230738	Camp and Finland (PGH WATER & SEWER AUTH_GM)	DLC	GM-C	DLCO	0.4 / 0.8	06/03/2021	0.149	19,353
6413230852	Saline and Greenfield Street (PGH WATER & SEWER AUTH_GM)	DLC	GMG2MI	DLCO	290.8 / 159.4	06/03/2021	0.149	1,994,686
6413230854	900 Freeport Road (PITTSBURGH WATER & SEWER AUTHORITY_GL)	DLC	GL-C	DLCO	993.4 / 938.7	06/03/2021	0.149	7,756,922
6413230856	7735 Lockway E (PGH WATER & SEWER AUTH_GM)	DLC	GM-25C	DLCO	34.5 / 37.4	06/03/2021	0.149	205,154
6413230858	Highland Park (PGH WATER & SEWER AUTH_GM)	DLC	GM-C	DLCO	5.5 / 2.6	06/03/2021	0.149	44,912
6413230860	801 Adelaide Street (PGH WATER & SEWER AUTH_GM)	DLC	GMH-C	DLCO	0.7 / 0.4	06/03/2021	0.149	15,308
6413230864	Mission Street (PITTSBURGH WATER & SEWER AUTHORITY_GL)	DLC	GL-C	DLCO	111.8 / 22.7	06/03/2021	0.149	3,168,458
6413230868	S Pacific and Coral Street Pump (PGH WATER & SEWER AUTH_GM)	DLC	GM-C	DLCO	4.9 / 5.8	06/03/2021	0.149	42,033
6413230870	900 Freeport Road (PITTSBURGH WATER & SEWER AUTHORITY_GL)	DLC	GL-C	DLCO	763.7 / 1117.9	06/03/2021	0.149	7,935,201
6413230872	Camp and Finland (PGH WATER & SEWER AUTH_GM)	DLC	GMH-25C	DLCO	26.6 / 0.6	06/03/2021	0.149	173,301
6413230874	Howard/Rising Mn Street (PITTSBURGH WATER & SEWER AUTHORITY_GL)	DLC	GL-C	DLCO	199.2 / 4.7	06/03/2021	0.149	3,432,240
6413230876	Friday Road (PGH WATER & SEWER AUTH_GM)	DLC	GM-C	DLCO	2.6 / 2.0	06/03/2021	0.149	29,914
6413230878	Center & Dithridge Street (PITTSBURGH WATER & SEWER AUTHORITY_GL)	DLC	GL-C	DLCO	680.4 / 490.8	06/03/2021	0.149	4,706,555
6413230880	6389 1/2 Olivant Street (PGH WATER & SEWER AUT_GM)	DLC	GM-25C	DLCO	80.1 / 121.7	06/03/2021	0.149	669,591
6413230882	7771 Lockway East Road (PITTSBURGH WATER & SEWER AUTHORITY_GL)	DLC	GL-C	DLCO	2662.0 / 2887.0	06/29/2021	0.149	22,528,299
6413230884	Lafayette/Biggs Street (PGH WATER & SEWER AUTH_GM)	DLC	GMH-C	DLCO	0.1 / 0.5	06/03/2021	0.149	11,532
6413230886	7735 Lockway E (PGH WATER & SEWER AUTH_GM)	DLC	GM-C	DLCO	1.5 / 1.6	06/03/2021	0.149	23,384
6413230888	1500 N Negley Avenue (PGH WATER & SEWER AUTH_GM)	DLC	GM200C	DLCO	300.8 / 265.9	06/03/2021	0.149	1,358,165

Exhibit EB-12

Account Number	Service Location	Utility	Utility Rate Class	Zone	Capacity / Transmission Tags	*Estimated Meter Read Start Date (MM/DD/YYYY)	Purchase Price (cents/KWh)	Annual Historical Usage (kWh)
6413230896	5701 RODGERS ST (PGH WATER & SEWER AUT_GM)	DLC	GM-25C	DLCO	8.0 / 3.2	06/03/2021	0.149	86,594
6413230898	6152 OLD MIFFLIN RD (PGH WATER & SEWER AUT_GM)	DLC	GM-C	DLCO	4.4 / 1.8	06/03/2021	0.149	32,653
6413230900	1909 HOWARD ST (PGH WATER & SEWER AUTH_GM)	DLC	GM-C	DLCO	12.7 / 9.8	06/03/2021	0.149	65,085

Total Annual Usage: 55,121,255

*The Estimated Meter Read Start Date is merely an approximation based upon Seller's best estimation as to when the service will begin and may not reflect the actual start date. Seller shall not be liable for any lost savings or lost opportunity relating to this estimation.

Monthly Contract Quantity

KWh	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021						2,544,137	4,641,237	4,685,561	4,540,817	4,496,730	4,577,308	4,857,313
2022	4,804,129	4,355,449	4,875,967	4,428,496	4,473,833	4,384,415	4,637,915	4,687,751	4,540,817	4,496,730	4,577,308	4,851,338
2023	4,804,129	4,355,449	4,875,967	4,429,917	4,477,638	4,384,415	4,637,915	4,687,751	4,534,486	4,497,895	4,577,308	4,848,351
2024	4,804,320	4,511,143	4,869,869	4,427,075	4,477,638	4,374,901	4,644,559	4,685,561	4,534,486	4,499,060	4,577,043	4,851,338
2025	4,804,320	4,355,449	4,869,869	4,427,075	4,473,833	4,379,658	4,644,559	4,683,371	4,540,817	4,499,060	4,576,777	4,854,326
2026	4,804,129	4,355,449	4,872,918	4,427,075	2,018,722							

*Usage values in the above table represent the aggregated Usage for all Service Locations for a month. Material Usage Deviation includes for the purposes of this Exhibit A, any deviation caused by net metering or other Buyer initiated energy efficiency measures.

This Exhibit is based on a Weighted Average Price. Any strikeouts of any of the accounts provided with a Weighted Average Price will render pricing for the accounts assigned with a Weighted Average Price null and void.

Term of Months: **59 Months**

Meter Read Start Date: **June, 2021**

Please aggregate my account onto one invoice
(If more than 50 accounts are to be aggregated, accounts will be separated by meter read date)

IN WITNESS WHEREOF, this Commodity Master and Professional Service Agreement is entered into and effective as of the date written above.

Buyer: Pittsburgh Water & Sewer Authority

Seller: Direct Energy Business, LLC

By: William J. Pickering
Name: William J. Pickering
Title: Chief Executive Officer
Date: 7/6/2021

By: James Connolly
Name: James Connolly
Title: VP Sales
Date: 7/7/21
Contract ID: 5334885
Internal ID: 00046302

Edward Barca
Edward Barca

Shannon F. Barkley
Shannon F. Barkley

Director of Finance

Corporate Counsel/Administration

PWSA Exhibit EB-13

Base Contract for Sale and Purchase of Natural Gas

This Base Contract is entered into as of the following date: 5/25/17. The parties to this Base Contract are the following:

Snyder Brothers, Inc.
P.O. Box 1022, Kittanning, PA 16201
 Duns Number: 101596310
 Contract Number: _____
 U.S. Federal Tax ID Number: 45-5465303

and Pittsburgh Water and Sewer Authority
1200 Penn Avenue, Pittsburgh, PA 15222
 Duns Number: 177822780
 Contract Number: _____
 U.S. Federal Tax ID Number: 25-1463997

Notices:
P.O. Box 1022, Kittanning, PA 16201
 Attn: Gas Marketing – gasmarketing@snydercos.com
 Phone (724) 548-8101 Fax: (724) 545-8243

1200 Penn Avenue, Pittsburgh, PA 15222
 Attn: James Stitt- jstitt@pgh2o.com
 Phone: 412-255-8800 x 8544 Fax: _____

Confirmations:
P.O. Box 1022, Kittanning, PA 16201
 Attn: Gas Marketing – gasmarketing@snydercos.com
 Phone (724) 548-8101 Fax: (724) 545-8243

1200 Penn Avenue, Pittsburgh, PA 15222
 Attn: Autumn Barna abarna@pgh2o.com
 Phone: 412-255-8800 x 8891 Fax: _____

Invoices and Payments:
Snyder Brothers Energy Marketing, LLC
P.O. Box 1022, Kittanning, PA 16201
 Attn: Gas Marketing – gasmarketing@snydercos.com
 Phone (724) 548-8101 Fax: (724) 545-8243

Pittsburgh Water and Sewer Authority
1200 Penn Avenue, Pittsburgh, PA 15222
 Attn: Charlene Juratovic cjuratovic@pgh2o.com
 Phone: 412-255-8800 x 8359 Fax: _____

Wire Transfer or ACH Numbers (if applicable):
 BANK: Citizens Bank
 ABA: 036-076-150
 ACCT: 6101715306
 Other Details: _____

BANK: _____
 ABA: _____
 ACCT: _____
 Other Details: _____

This Base Contract incorporates by reference for all purposes the General Terms and Conditions for Sale and Purchase of Natural Gas published by the North American Energy Standards Board. The parties hereby agree to the following provisions offered in said General Terms and Conditions. In the event the parties fail to check a box, the specified default provision shall apply. **Select only one box from each section:**

Section 1.2 Oral (default)
 Transaction Written
 Procedure

Section 7.2 25th Day of Month following Month of
 Payment Date delivery (default)
 ___ Day of Month following Month of delivery

Section 2.5 2 Business Days after receipt (default)
 Confirm ___ Business Days after receipt
 Deadline

Section 7.2 Wire transfer (default)
 Method of Automated Clearinghouse Credit (ACH)
 Payment Check

Section 2.6 Seller (default)
 Confirming Buyer
 Party Either Buyer or Seller

Section 7.7 Netting applies (default)
 Netting Netting does not apply

Section 3.2 Cover Standard (default)
 Performance Spot Price Standard
 Obligation

Section 10.3.1 Early Termination Damages Apply (default)
 Early Termination Early Termination Damages Do Not Apply
 Damages

Section 10.3.2 Other Agreement Setoffs Apply (default)
 Other Agreement Other Agreement Setoffs Do Not Apply
 Setoffs

Note: The following Spot Price Publication applies to both of the immediately preceding.

Section 2.26 Gas Daily Midpoint (default)
 Spot Price _____
 Publication

Section 14.5 Choice of Law Pennsylvania

Section 6 Buyer Pays at and After Delivery Point
 Taxes (default)
 Seller Pays Before and At Delivery Point

Section 14.10 Confidentiality applies (default)
 Confidentially Confidentiality does not apply

Special Provisions Number of sheets attached: 0
 Addendum(s): _____

IN WITNESS WHEREOF, the parties hereto have executed this Base Contract in duplicate.

Snyder Brothers, Inc.
 Party Name
 By Nathan A. Henry
 Name: Nathan A. Henry
 Title: Vice President

Pittsburgh Water and Sewer Authority
 Party Name
 By Robert A. Weimar
 Name: ROBERT A. WEIMAR
 Title: INTERIM EXEC DIR

ASP

General Terms and Conditions Base Contract for Sale and Purchase of Natural Gas

SECTION 1. PURPOSE AND PROCEDURES

1.1. These General Terms and Conditions are intended to facilitate purchase and sale transactions of Gas on a Firm or Interruptible basis. "Buyer" refers to the party receiving Gas and "Seller" refers to the party delivering Gas. The entire agreement between the parties shall be the Contract as defined in Section 2.7.

The parties have selected either the "Oral Transaction Procedure" or the "Written Transaction Procedure" as indicated on the Base Contract.

Oral Transaction Procedure:

1.2. The parties will use the following Transaction Confirmation procedure. Any Gas purchase and sale transaction may be effectuated in an EDI transmission or telephone conversation with the offer and acceptance constituting the agreement of the parties. The parties shall be legally bound from the time they so agree to transaction terms and may each rely thereon. Any such transaction shall be considered a "writing" and to have been "signed". Notwithstanding the foregoing sentence, the parties agree that Confirming Party shall, and the other party may, confirm a telephonic transaction by sending the other party a Transaction Confirmation by facsimile, EDI or mutually agreeable electronic means within three Business Days of a transaction covered by this Section 1.2 (Oral Transaction Procedure) provided that the failure to send a Transaction Confirmation shall not invalidate the oral agreement of the parties. Confirming Party adopts its confirming letterhead, or the like, as its signature on any Transaction Confirmation as the identification and authentication of Confirming Party. If the Transaction Confirmation contains any provisions other than those relating to the commercial terms of the transaction (i.e., price, quantity, performance obligation, delivery point, period of delivery and/or transportation conditions), which modify or supplement the Base Contract or General Terms and Conditions of this Contract (e.g., arbitration or additional representations and warranties), such provisions shall not be deemed to be accepted pursuant to Section 1.3 but must be expressly agreed to by both parties; provided that the foregoing shall not invalidate any transaction agreed to by the parties.

Written Transaction Procedure:

1.2. The parties will use the following Transaction Confirmation procedure. Should the parties come to an agreement regarding a Gas purchase and sale transaction for a particular Delivery Period, the Confirming Party shall, and the other party may, record that agreement on a Transaction Confirmation and communicate such Transaction Confirmation by facsimile, EDI or mutually agreeable electronic means, to the other party by the close of the Business Day following the date of agreement. The parties acknowledge that their agreement will not be binding until the exchange of nonconflicting Transaction Confirmations or the passage of the Confirm Deadline without objection from the receiving party, as provided in Section 1.3.

1.3. If a sending party's Transaction Confirmation is materially different from the receiving party's understanding of the agreement referred to in Section 1.2, such receiving party shall notify the sending party via facsimile, EDI or mutually agreeable electronic means by the Confirm Deadline, unless such receiving party has previously sent a Transaction Confirmation to the sending party. The failure of the receiving party to so notify the sending party in writing by the Confirm Deadline constitutes the receiving party's agreement to the terms of the transaction described in the sending party's Transaction Confirmation. If there are any material differences between timely sent Transaction Confirmations governing the same transaction, then neither Transaction Confirmation shall be binding until or unless such differences are resolved including the use of any evidence that clearly resolves the differences in the Transaction Confirmations. In the event of a conflict among the terms of (i) a binding Transaction Confirmation pursuant to Section 1.2, (ii) the oral agreement of the parties which may be evidenced by a recorded conversation, where the parties have selected the Oral Transaction Procedure of the Base Contract, (iii) the Base Contract, and (iv) these General Terms and Conditions, the terms of the documents shall govern in the priority listed in this sentence.

1.4. The parties agree that each party may electronically record all telephone conversations with respect to this Contract between their respective employees, without any special or further notice to the other party. Each party shall obtain any necessary consent of its agents and employees to such recording. Where the parties have selected the Oral Transaction Procedure in Section 1.2 of the Base Contract, the parties agree not to contest the validity or enforceability of telephonic recordings entered into in accordance with the requirements of this Base Contract. However, nothing herein shall be construed as a waiver of any objection to the admissibility of such evidence.

SECTION 2. DEFINITIONS

The terms set forth below shall have the meaning ascribed to them below. Other terms are also defined elsewhere in the Contract and shall have the meanings ascribed to them herein.

2.1. "Alternative Damages" shall mean such damages, expressed in dollars or dollars per MMBtu, as the parties shall agree upon in the Transaction Confirmation, in the event either Seller or Buyer fails to perform a Firm obligation to deliver Gas in the case of Seller or to receive Gas in the case of Buyer.

2.2. "Base Contract" shall mean a contract executed by the parties that incorporates these General Terms and Conditions by reference; that specifies the agreed selections of provisions contained herein; and that sets forth other information required herein and any Special Provisions and addendum(s) as identified on page one.

2.3. "British thermal unit" or "Btu" shall mean the International BTU, which is also called the Btu (IT).

- 2.4. "Business Day" shall mean any day except Saturday, Sunday or Federal Reserve Bank holidays.
- 2.5. "Confirm Deadline" shall mean 5:00 p.m. in the receiving party's time zone on the second Business Day following the Day a Transaction Confirmation is received or, if applicable, on the Business Day agreed to by the parties in the Base Contract; provided, if the Transaction Confirmation is time stamped after 5:00 p.m. in the receiving party's time zone, it shall be deemed received at the opening of the next Business Day.
- 2.6. "Confirming Party" shall mean the party designated in the Base Contract to prepare and forward Transaction Confirmations to the other party.
- 2.7. "Contract" shall mean the legally-binding relationship established by (i) the Base Contract, (ii) any and all binding Transaction Confirmations and (iii) where the parties have selected the Oral Transaction Procedure in Section 1.2 of the Base Contract, any and all transactions that the parties have entered into through an EDI transmission or by telephone, but that have not been confirmed in a binding Transaction Confirmation.
- 2.8. "Contract Price" shall mean the amount expressed in U.S. Dollars per MMBtu to be paid by Buyer to Seller for the purchase of Gas as agreed to by the parties in a transaction.
- 2.9. "Contract Quantity" shall mean the quantity of Gas to be delivered and taken as agreed to by the parties in a transaction.
- 2.10. "Cover Standard", as referred to in Section 3.2, shall mean that if there is an unexcused failure to take or deliver any quantity of Gas pursuant to this Contract, then the performing party shall use commercially reasonable efforts to (i) if Buyer is the performing party, obtain Gas, (or an alternate fuel if elected by Buyer and replacement Gas is not available), or (ii) if Seller is the performing party, sell Gas, in either case, at a price reasonable for the delivery or production area, as applicable, consistent with: the amount of notice provided by the nonperforming party; the immediacy of the Buyer's Gas consumption needs or Seller's Gas sales requirements, as applicable; the quantities involved; and the anticipated length of failure by the nonperforming party.
- 2.11. "Credit Support Obligation(s)" shall mean any obligation(s) to provide or establish credit support for, or on behalf of, a party to this Contract such as an irrevocable standby letter of credit, a margin agreement, a prepayment, a security interest in an asset, a performance bond, guaranty, or other good and sufficient security of a continuing nature.
- 2.12. "Day" shall mean a period of 24 consecutive hours, coextensive with a "day" as defined by the Receiving Transporter in a particular transaction.
- 2.13. "Delivery Period" shall be the period during which deliveries are to be made as agreed to by the parties in a transaction.
- 2.14. "Delivery Point(s)" shall mean such point(s) as are agreed to by the parties in a transaction.
- 2.15. "EDI" shall mean an electronic data interchange pursuant to an agreement entered into by the parties, specifically relating to the communication of Transaction Confirmations under this Contract.
- 2.16. "EFP" shall mean the purchase, sale or exchange of natural Gas as the "physical" side of an exchange for physical transaction involving gas futures contracts. EFP shall incorporate the meaning and remedies of "Firm", provided that a party's excuse for nonperformance of its obligations to deliver or receive Gas will be governed by the rules of the relevant futures exchange regulated under the Commodity Exchange Act.
- 2.17. "Firm" shall mean that either party may interrupt its performance without liability only to the extent that such performance is prevented for reasons of Force Majeure; provided, however, that during Force Majeure interruptions, the party invoking Force Majeure may be responsible for any Imbalance Charges as set forth in Section 4.3 related to its interruption after the nomination is made to the Transporter and until the change in deliveries and/or receipts is confirmed by the Transporter.
- 2.18. "Gas" shall mean any mixture of hydrocarbons and noncombustible gases in a gaseous state consisting primarily of methane.
- 2.19. "Imbalance Charges" shall mean any fees, penalties, costs or charges (in cash or in kind) assessed by a Transporter for failure to satisfy the Transporter's balance and/or nomination requirements.
- 2.20. "Interruptible" shall mean that either party may interrupt its performance at any time for any reason, whether or not caused by an event of Force Majeure, with no liability, except such interrupting party may be responsible for any Imbalance Charges as set forth in Section 4.3 related to its interruption after the nomination is made to the Transporter and until the change in deliveries and/or receipts is confirmed by Transporter.
- 2.21. "MMBtu" shall mean one million British thermal units, which is equivalent to one dekatherm.
- 2.22. "Month" shall mean the period beginning on the first Day of the calendar month and ending immediately prior to the commencement of the first Day of the next calendar month.
- 2.23. "Payment Date" shall mean a date, as indicated on the Base Contract, on or before which payment is due Seller for Gas received by Buyer in the previous Month.
- 2.24. "Receiving Transporter" shall mean the Transporter receiving Gas at a Delivery Point, or absent such receiving Transporter, the Transporter delivering Gas at a Delivery Point.
- 2.25. "Scheduled Gas" shall mean the quantity of Gas confirmed by Transporter(s) for movement, transportation or management.
- 2.26. "Spot Price" as referred to in Section 3.2 shall mean the price listed in the publication indicated on the Base Contract, under the listing applicable to the geographic location closest in proximity to the Delivery Point(s) for the relevant Day; provided, if there is no single price published for such location for such Day, but there is published a range of prices, then the Spot Price shall be the average

of such high and low prices. If no price or range of prices is published for such Day, then the Spot Price shall be the average of the following: (I) the price (determined as stated above) for the first Day for which a price or range of prices is published that next precedes the relevant Day; and (II) the price (determined as stated above) for the first Day for which a price or range of prices is published that next follows the relevant Day.

2.27. "Transaction Confirmation" shall mean a document, similar to the form of Exhibit A, setting forth the terms of a transaction formed pursuant to Section 1 for a particular Delivery Period.

2.28. "Termination Option" shall mean the option of either party to terminate a transaction in the event that the other party fails to perform a Firm obligation to deliver Gas in the case of Seller or to receive Gas in the case of Buyer for a designated number of days during a period as specified on the applicable Transaction Confirmation.

2.29. "Transporter(s)" shall mean all Gas gathering or pipeline companies, or local distribution companies, acting in the capacity of a transporter, transporting Gas for Seller or Buyer upstream or downstream, respectively, of the Delivery Point pursuant to a particular transaction.

SECTION 3. PERFORMANCE OBLIGATION

3.1. Seller agrees to sell and deliver, and Buyer agrees to receive and purchase, the Contract Quantity for a particular transaction in accordance with the terms of the Contract. Sales and purchases will be on a Firm or interruptible basis, as agreed to by the parties in a transaction.

The parties have selected either the "Cover Standard" or the "Spot Price Standard" as indicated on the Base Contract.

Cover Standard:

3.2. The sole and exclusive remedy of the parties in the event of a breach of a Firm obligation to deliver or receive Gas shall be recovery of the following: (i) in the event of a breach by Seller on any Day(s), payment by Seller to Buyer in an amount equal to the positive difference, if any, between the purchase price paid by Buyer utilizing the Cover Standard and the Contract Price, adjusted for commercially reasonable differences in transportation costs to or from the Delivery Point(s), multiplied by the difference between the Contract Quantity and the quantity actually delivered by Seller for such Day(s); or (ii) in the event of a breach by Buyer on any Day(s), payment by Buyer to Seller in the amount equal to the positive difference, if any, between the Contract Price and the price received by Seller utilizing the Cover Standard for the resale of such Gas, adjusted for commercially reasonable differences in transportation costs to or from the Delivery Point(s), multiplied by the difference between the Contract Quantity and the quantity actually taken by Buyer for such Day(s); or (iii) in the event that Buyer has used commercially reasonable efforts to replace the Gas or Seller has used commercially reasonable efforts to sell the Gas to a third party, and no such replacement or sale is available, then the sole and exclusive remedy of the performing party shall be any unfavorable difference between the Contract Price and the Spot Price, adjusted for such transportation to the applicable Delivery Point, multiplied by the difference between the Contract Quantity and the quantity actually delivered by Seller and received by Buyer for such Day(s). Imbalance Charges shall not be recovered under this Section 3.2, but Seller and/or Buyer shall be responsible for Imbalance Charges, if any, as provided in Section 4.3. The amount of such unfavorable difference shall be payable five Business Days after presentation of the performing party's invoice, which shall set forth the basis upon which such amount was calculated.

Spot Price Standard:

3.2. The sole and exclusive remedy of the parties in the event of a breach of a Firm obligation to deliver or receive Gas shall be recovery of the following: (i) in the event of a breach by Seller on any Day(s), payment by Seller to Buyer in an amount equal to the difference between the Contract Quantity and the actual quantity delivered by Seller and received by Buyer for such Day(s), multiplied by the positive difference, if any, obtained by subtracting the Contract Price from the Spot Price; or (ii) in the event of a breach by Buyer on any Day(s), payment by Buyer to Seller in an amount equal to the difference between the Contract Quantity and the actual quantity delivered by Seller and received by Buyer for such Day(s), multiplied by the positive difference, if any, obtained by subtracting the applicable Spot Price from the Contract Price. Imbalance Charges shall not be recovered under this Section 3.2, but Seller and/or Buyer shall be responsible for Imbalance Charges, if any, as provided in Section 4.3. The amount of such unfavorable difference shall be payable five Business Days after presentation of the performing party's invoice, which shall set forth the basis upon which such amount was calculated.

3.3. Notwithstanding Section 3.2, the parties may agree to Alternative Damages in a Transaction Confirmation executed in writing by both parties.

3.4. In addition to Sections 3.2 and 3.3, the parties may provide for a Termination Option in a Transaction Confirmation executed in writing by both parties. The Transaction Confirmation containing the Termination Option will designate the length of nonperformance triggering the Termination Option and the procedures for exercise thereof, how damages for nonperformance will be compensated, and how liquidation costs will be calculated.

SECTION 4. TRANSPORTATION, NOMINATIONS, AND IMBALANCES

4.1. Seller shall have the sole responsibility for transporting the Gas to the Delivery Point(s). Buyer shall have the sole responsibility for transporting the Gas from the Delivery Point(s).

4.2. The parties shall coordinate their nomination activities, giving sufficient time to meet the deadlines of the affected Transporter(s). Each party shall give the other party timely prior Notice, sufficient to meet the requirements of all Transporter(s) involved in the transaction, of the quantities of Gas to be delivered and purchased each Day. Should either party become aware that actual deliveries at the Delivery Point(s) are greater or lesser than the Scheduled Gas, such party shall promptly notify the other party.

4.3. The parties shall use commercially reasonable efforts to avoid imposition of any Imbalance Charges. If Buyer or Seller receives an Invoice from a Transporter that includes Imbalance Charges, the parties shall determine the validity as well as the cause of such Imbalance Charges. If the Imbalance Charges were incurred as a result of Buyer's receipt of quantities of Gas greater than or less than the Scheduled Gas, then Buyer shall pay for such Imbalance Charges or reimburse Seller for such Imbalance Charges paid by Seller. If the Imbalance Charges were incurred as a result of Seller's delivery of quantities of Gas greater than or less than the Scheduled Gas, then Seller shall pay for such Imbalance Charges or reimburse Buyer for such Imbalance Charges paid by Buyer.

SECTION 5. QUALITY AND MEASUREMENT

All Gas delivered by Seller shall meet the pressure, quality and heat content requirements of the Receiving Transporter. The unit of quantity measurement for purposes of this Contract shall be one MMBtu dry. Measurement of Gas quantities hereunder shall be in accordance with the established procedures of the Receiving Transporter.

SECTION 6. TAXES

The parties have selected either "Buyer Pays At and After Delivery Point" or "Seller Pays Before and At Delivery Point" as indicated on the Base Contract.

Buyer Pays At and After Delivery Point:

Seller shall pay or cause to be paid all taxes, fees, levies, penalties, licenses or charges imposed by any government authority ("Taxes") on or with respect to the Gas prior to the Delivery Point(s). Buyer shall pay or cause to be paid all Taxes on or with respect to the Gas at the Delivery Point(s) and all Taxes after the Delivery Point(s). If a party is required to remit or pay Taxes that are the other party's responsibility hereunder, the party responsible for such Taxes shall promptly reimburse the other party for such Taxes. Any party entitled to an exemption from any such Taxes or charges shall furnish the other party any necessary documentation thereof.

Seller Pays Before and At Delivery Point:

Seller shall pay or cause to be paid all taxes, fees, levies, penalties, licenses or charges imposed by any government authority ("Taxes") on or with respect to the Gas prior to the Delivery Point(s) and all Taxes at the Delivery Point(s). Buyer shall pay or cause to be paid all Taxes on or with respect to the Gas after the Delivery Point(s). If a party is required to remit or pay Taxes that are the other party's responsibility hereunder, the party responsible for such Taxes shall promptly reimburse the other party for such Taxes. Any party entitled to an exemption from any such Taxes or charges shall furnish the other party any necessary documentation thereof.

SECTION 7. BILLING, PAYMENT, AND AUDIT

7.1. Seller shall Invoice Buyer for Gas delivered and received in the preceding Month and for any other applicable charges, providing supporting documentation acceptable in industry practice to support the amount charged. If the actual quantity delivered is not known by the billing date, billing will be prepared based on the quantity of Scheduled Gas. The invoiced quantity will then be adjusted to the actual quantity on the following Month's billing or as soon thereafter as actual delivery information is available.

7.2. Buyer shall remit the amount due under Section 7.1 in the manner specified in the Base Contract, in immediately available funds, on or before the later of the Payment Date or 10 Days after receipt of the invoice by Buyer; provided that if the Payment Date is not a Business Day, payment is due on the next Business Day following that date. In the event any payments are due Buyer hereunder, payment to Buyer shall be made in accordance with this Section 7.2.

7.3. In the event payments become due pursuant to Sections 3.2 or 3.3, the performing party may submit an invoice to the nonperforming party for an accelerated payment setting forth the basis upon which the invoiced amount was calculated. Payment from the nonperforming party will be due five Business Days after receipt of invoice.

7.4. If the Invoiced party, in good faith, disputes the amount of any such invoice or any part thereof, such Invoiced party will pay such amount as it concedes to be correct; provided, however, if the invoiced party disputes the amount due, it must provide supporting documentation acceptable in industry practice to support the amount paid or disputed. In the event the parties are unable to resolve such dispute, either party may pursue any remedy available at law or in equity to enforce its rights pursuant to this Section.

7.5. If the invoiced party fails to remit the full amount payable when due, interest on the unpaid portion shall accrue from the date due until the date of payment at a rate equal to the lower of (i) the then-effective prime rate of interest published under "Money Rates" by The Wall Street Journal, plus two percent per annum; or (ii) the maximum applicable lawful interest rate.

7.6. A party shall have the right, at its own expense, upon reasonable Notice and at reasonable times, to examine and audit and to obtain copies of the relevant portion of the books, records, and telephone recordings of the other party only to the extent reasonably necessary to verify the accuracy of any statement, charge, payment, or computation made under the Contract. This right to examine, audit, and to obtain copies shall not be available with respect to proprietary information not directly relevant to transactions under this Contract. All invoices and billings shall be conclusively presumed final and accurate and all associated claims for under- or overpayments shall be deemed waived unless such invoices or billings are objected to in writing, with adequate explanation and/or documentation, within two years after the Month of Gas delivery. All retroactive adjustments under Section 7 shall be paid in full by the party owing payment within 30 Days of Notice and substantiation of such inaccuracy.

7.7. Unless the parties have elected on the Base Contract not to make this Section 7.7 applicable to this Contract, the parties shall net all undisputed amounts due and owing, and/or past due, arising under the Contract such that the party owing the greater amount shall make a single payment of the net amount to the other party in accordance with Section 7; provided that no payment required to be made pursuant to the terms of any Credit Support Obligation or pursuant to Section 7.3 shall be subject to netting under this Section. If the parties have executed a separate netting agreement, the terms and conditions therein shall prevail to the extent inconsistent herewith.

SECTION 8. TITLE, WARRANTY, AND INDEMNITY

8.1. Unless otherwise specifically agreed, title to the Gas shall pass from Seller to Buyer at the Delivery Point(s). Seller shall have responsibility for and assume any liability with respect to the Gas prior to its delivery to Buyer at the specified Delivery Point(s). Buyer shall have responsibility for and any liability with respect to said Gas after its delivery to Buyer at the Delivery Point(s).

8.2. Seller warrants that it will have the right to convey and will transfer good and merchantable title to all Gas sold hereunder and delivered by it to Buyer, free and clear of all liens, encumbrances, and claims. EXCEPT AS PROVIDED IN THIS SECTION 8.2 AND IN SECTION 14.8, ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE, ARE DISCLAIMED.

8.3. Seller agrees to indemnify Buyer and save it harmless from all losses, liabilities or claims including reasonable attorneys' fees and costs of court ("Claims"), from any and all persons, arising from or out of claims of title, personal injury or property damage from said Gas or other charges thereon which attach before title passes to Buyer. Buyer agrees to indemnify Seller and save it harmless from all Claims, from any and all persons, arising from or out of claims regarding payment, personal injury or property damage from said Gas or other charges thereon which attach after title passes to Buyer.

8.4. Notwithstanding the other provisions of this Section 8, as between Seller and Buyer, Seller will be liable for all Claims to the extent that such arise from the failure of Gas delivered by Seller to meet the quality requirements of Section 5.

SECTION 9. NOTICES

9.1. All Transaction Confirmations, Invoices, payments and other communications made pursuant to the Base Contract ("Notices") shall be made to the addresses specified in writing by the respective parties from time to time.

9.2. All Notices required hereunder may be sent by facsimile or mutually acceptable electronic means, a nationally recognized overnight courier service, first class mail or hand delivered.

9.3. Notice shall be given when received on a Business Day by the addressee. In the absence of proof of the actual receipt date, the following presumptions will apply. Notices sent by facsimile shall be deemed to have been received upon the sending party's receipt of its facsimile machine's confirmation of successful transmission. If the day on which such facsimile is received is not a Business Day or is after five p.m. on a Business Day, then such facsimile shall be deemed to have been received on the next following Business Day. Notice by overnight mail or courier shall be deemed to have been received on the next Business Day after it was sent or such earlier time as is confirmed by the receiving party. Notice via first class mail shall be considered delivered five Business Days after mailing.

SECTION 10. FINANCIAL RESPONSIBILITY

10.1. If either party ("X") has reasonable grounds for insecurity regarding the performance of any obligation under this Contract (whether or not then due) by the other party ("Y") (including, without limitation, the occurrence of a material change in the creditworthiness of Y), X may demand Adequate Assurance of Performance. "Adequate Assurance of Performance" shall mean sufficient security in the form, amount and for the term reasonably acceptable to X, including, but not limited to, a standby irrevocable letter of credit, a prepayment, a security interest in an asset or a performance bond or guaranty (including the issuer of any such security).

10.2. In the event (each an "Event of Default") either party (the "Defaulting Party") or its guarantor shall: (i) make an assignment or any general arrangement for the benefit of creditors; (ii) file a petition or otherwise commence, authorize, or acquiesce in the commencement of a proceeding or case under any bankruptcy or similar law for the protection of creditors or have such petition filed or proceeding commenced against it; (iii) otherwise become bankrupt or insolvent (however evidenced); (iv) be unable to pay its debts as they fall due; (v) have a receiver, provisional liquidator, conservator, custodian, trustee or other similar official appointed with respect to it or substantially all of its assets; (vi) fail to perform any obligation to the other party with respect to any Credit Support Obligations relating to the Contract; (vii) fail to give Adequate Assurance of Performance under Section 10.1 within 48 hours but at least one Business Day of a written request by the other party; or (viii) not have paid any amount due the other party hereunder on or before the second Business Day following written Notice that such payment is due; then the other party (the "Non-Defaulting Party") shall have the right, at its sole election, to immediately withhold and/or suspend deliveries or payments upon Notice and/or to terminate and liquidate the transactions under the Contract, in the manner provided in Section 10.3, in addition to any and all other remedies available hereunder.

10.3. If an Event of Default has occurred and is continuing, the Non-Defaulting Party shall have the right, by Notice to the Defaulting Party, to designate a Day, no earlier than the Day such Notice is given and no later than 20 Days after such Notice is given, as an early termination date (the "Early Termination Date") for the liquidation and termination pursuant to Section 10.3.1 of all transactions under the Contract, each a "Terminated Transaction". On the Early Termination Date, all transactions will terminate, other than those transactions, if any, that may not be liquidated and terminated under applicable law or that are, in the reasonable opinion of the Non-Defaulting Party, commercially impracticable to liquidate and terminate ("Excluded Transactions"), which Excluded Transactions must be liquidated and terminated as soon thereafter as is reasonably practicable, and upon termination shall be a Terminated Transaction and be valued consistent with Section 10.3.1 below. With respect to each Excluded Transaction, its actual termination date shall be the Early Termination Date for purposes of Section 10.3.1.

The parties have selected either "Early Termination Damages Apply" or "Early Termination Damages Do Not Apply" as indicated on the Base Contract.

Early Termination Damages Apply:

10.3.1. As of the Early Termination Date, the Non-Defaulting Party shall determine, in good faith and in a commercially reasonable manner, (i) the amount owed (whether or not then due) by each party with respect to all Gas delivered and received between the parties under Terminated Transactions and Excluded Transactions on and before the Early Termination Date and all other applicable charges relating to such deliveries and receipts (including without limitation any amounts owed under Section 3.2), for which payment has not yet been made by the party that owes such payment under this Contract and (ii) the Market Value, as defined below, of each Terminated Transaction. The Non-Defaulting Party shall (x) liquidate and accelerate each Terminated Transaction at its Market Value, so that each amount equal to the difference between such Market Value and the Contract Value, as defined below, of such Terminated Transaction(s) shall be due to the Buyer under the Terminated Transaction(s) if such Market Value exceeds the Contract Value and to the Seller if the opposite is the case; and (y) where appropriate, discount each amount then due under clause (x) above to present value in a commercially reasonable manner as of the Early Termination Date (to take account of the period between the date of liquidation and the date on which such amount would have otherwise been due pursuant to the relevant Terminated Transactions).

For purposes of this Section 10.3.1, "Contract Value" means the amount of Gas remaining to be delivered or purchased under a transaction multiplied by the Contract Price, and "Market Value" means the amount of Gas remaining to be delivered or purchased under a transaction multiplied by the market price for a similar transaction at the Delivery Point determined by the Non-Defaulting Party in a commercially reasonable manner. To ascertain the Market Value, the Non-Defaulting Party may consider, among other valuations, any or all of the settlement prices of NYMEX Gas futures contracts, quotations from leading dealers in energy swap contracts or physical gas trading markets, similar sales or purchases and any other bona fide third-party offers, all adjusted for the length of the term and differences in transportation costs. A party shall not be required to enter into a replacement transaction(s) in order to determine the Market Value. Any extension(s) of the term of a transaction to which parties are not bound as of the Early Termination Date (including but not limited to "evergreen provisions") shall not be considered in determining Contract Values and Market Values. For the avoidance of doubt, any option pursuant to which one party has the right to extend the term of a transaction shall be considered in determining Contract Values and Market Values. The rate of interest used in calculating net present value shall be determined by the Non-Defaulting Party in a commercially reasonable manner.

Early Termination Damages Do Not Apply:

10.3.1. As of the Early Termination Date, the Non-Defaulting Party shall determine, in good faith and in a commercially reasonable manner, the amount owed (whether or not then due) by each party with respect to all Gas delivered and received between the parties under Terminated Transactions and Excluded Transactions on and before the Early Termination Date and all other applicable charges relating to such deliveries and receipts (including without limitation any amounts owed under Section 3.2), for which payment has not yet been made by the party that owes such payment under this Contract.

The parties have selected either "Other Agreement Setoffs Apply" or "Other Agreement Setoffs Do Not Apply" as indicated on the Base Contract.

Other Agreement Setoffs Apply:

10.3.2. The Non-Defaulting Party shall net or aggregate, as appropriate, any and all amounts owing between the parties under Section 10.3.1, so that all such amounts are netted or aggregated to a single liquidated amount payable by one party to the other (the "Net Settlement Amount"). At its sole option and without prior Notice to the Defaulting Party, the Non-Defaulting Party may setoff (i) any Net Settlement Amount owed to the Non-Defaulting Party against any margin or other collateral held by it in connection with any Credit Support Obligation relating to the Contract; or (ii) any Net Settlement Amount payable to the Defaulting Party against any amount(s) payable by the Defaulting Party to the Non-Defaulting Party under any other agreement or arrangement between the parties.

Other Agreement Setoffs Do Not Apply:

10.3.2. The Non-Defaulting Party shall net or aggregate, as appropriate, any and all amounts owing between the parties under Section 10.3.1, so that all such amounts are netted or aggregated to a single liquidated amount payable by one party to the other (the "Net Settlement Amount"). At its sole option and without prior Notice to the Defaulting Party, the Non-Defaulting Party may setoff any Net Settlement Amount owed to the Non-Defaulting Party against any margin or other collateral held by it in connection with any Credit Support Obligation relating to the Contract.

10.3.3. If any obligation that is to be included in any netting, aggregation or setoff pursuant to Section 10.3.2 is unascertained, the Non-Defaulting Party may in good faith estimate that obligation and net, aggregate or setoff, as applicable, in respect of the estimate, subject to the Non-Defaulting Party accounting to the Defaulting Party when the obligation is ascertained. Any amount not then due which is included in any netting, aggregation or setoff pursuant to Section 10.3.2 shall be discounted to net present value in a commercially reasonable manner determined by the Non-Defaulting Party.

10.4. As soon as practicable after a liquidation, Notice shall be given by the Non-Defaulting Party to the Defaulting Party of the Net Settlement Amount, and whether the Net Settlement Amount is due to or due from the Non-Defaulting Party. The Notice shall include a written statement explaining in reasonable detail the calculation of such amount, provided that failure to give such Notice shall not affect the validity or enforceability of the liquidation or give rise to any claim by the Defaulting Party against the Non-Defaulting Party. The Net Settlement Amount shall be paid by the close of business on the second Business Day following such Notice, which date shall not be earlier than the Early Termination Date. Interest on any unpaid portion of the Net Settlement Amount shall accrue from the date due until the

date of payment at a rate equal to the lower of (i) the then-effective prime rate of interest published under "Money Rates" by The Wall Street Journal, plus two percent per annum; or (ii) the maximum applicable lawful interest rate.

10.5. The parties agree that the transactions hereunder constitute a "forward contract" within the meaning of the United States Bankruptcy Code and that Buyer and Seller are each "forward contract merchants" within the meaning of the United States Bankruptcy Code.

10.6. The Non-Defaulting Party's remedies under this Section 10 are the sole and exclusive remedies of the Non-Defaulting Party with respect to the occurrence of any Early Termination Date. Each party reserves to itself all other rights, setoffs, counterclaims and other defenses that it is or may be entitled to arising from the Contract.

10.7. With respect to this Section 10, if the parties have executed a separate netting agreement with close-out netting provisions, the terms and conditions therein shall prevail to the extent inconsistent herewith.

SECTION 11. FORCE MAJEURE

11.1. Except with regard to a party's obligation to make payment(s) due under Section 7, Section 10.4, and Imbalance Charges under Section 4, neither party shall be liable to the other for failure to perform a Firm obligation, to the extent such failure was caused by Force Majeure. The term "Force Majeure" as employed herein means any cause not reasonably within the control of the party claiming suspension, as further defined in Section 11.2.

11.2. Force Majeure shall include, but not be limited to, the following: (i) physical events such as acts of God, landslides, lightning, earthquakes, fires, storms or storm warnings, such as hurricanes, which result in evacuation of the affected area, floods, washouts, explosions, breakage or accident or necessity of repairs to machinery or equipment or lines of pipe; (ii) weather related events affecting an entire geographic region, such as low temperatures which cause freezing or failure of wells or lines of pipe; (iii) interruption and/or curtailment of Firm transportation and/or storage by Transporters; (iv) acts of others such as strikes, lockouts or other industrial disturbances, riots, sabotage, insurrections or wars; and (v) governmental actions such as necessity for compliance with any court order, law, statute, ordinance, regulation, or policy having the effect of law promulgated by a governmental authority having jurisdiction. Seller and Buyer shall make reasonable efforts to avoid the adverse impacts of a Force Majeure and to resolve the event or occurrence once it has occurred in order to resume performance.

11.3. Neither party shall be entitled to the benefit of the provisions of Force Majeure to the extent performance is affected by any or all of the following circumstances: (i) the curtailment of interruptible or secondary Firm transportation unless primary, in-path, Firm transportation is also curtailed; (ii) the party claiming excuse failed to remedy the condition and to resume the performance of such covenants or obligations with reasonable dispatch; or (iii) economic hardship, to include, without limitation, Seller's ability to sell Gas at a higher or more advantageous price than the Contract Price, Buyer's ability to purchase Gas at a lower or more advantageous price than the Contract Price, or a regulatory agency disallowing, in whole or in part, the pass through of costs resulting from this Agreement; (iv) the loss of Buyer's market(s) or Buyer's inability to use or resell Gas purchased hereunder, except, in either case, as provided in Section 11.2; or (v) the loss or failure of Seller's gas supply or depletion of reserves, except, in either case, as provided in Section 11.2. The party claiming Force Majeure shall not be excused from its responsibility for Imbalance Charges.

11.4. Notwithstanding anything to the contrary herein, the parties agree that the settlement of strikes, lockouts or other industrial disturbances shall be within the sole discretion of the party experiencing such disturbance.

11.5. The party whose performance is prevented by Force Majeure must provide Notice to the other party. Initial Notice may be given orally; however, written Notice with reasonably full particulars of the event or occurrence is required as soon as reasonably possible. Upon providing written Notice of Force Majeure to the other party, the affected party will be relieved of its obligation, from the onset of the Force Majeure event, to make or accept delivery of Gas, as applicable, to the extent and for the duration of Force Majeure, and neither party shall be deemed to have failed in such obligations to the other during such occurrence or event.

11.6. Notwithstanding Sections 11.2 and 11.3, the parties may agree to alternative Force Majeure provisions in a Transaction Confirmation executed in writing by both parties.

SECTION 12. TERM

This Contract may be terminated on 30 Day's written Notice, but shall remain in effect until the expiration of the latest Delivery Period of any transaction(s). The rights of either party pursuant to Section 7.6 and Section 10, the obligations to make payment hereunder, and the obligation of either party to indemnify the other, pursuant hereto shall survive the termination of the Base Contract or any transaction.

SECTION 13. LIMITATIONS

FOR BREACH OF ANY PROVISION FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED, SUCH EXPRESS REMEDY OR MEASURE OF DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY. A PARTY'S LIABILITY HEREUNDER SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. IF NO REMEDY OR MEASURE OF DAMAGES IS EXPRESSLY PROVIDED HEREIN OR IN A TRANSACTION, A PARTY'S LIABILITY SHALL BE LIMITED TO DIRECT ACTUAL DAMAGES ONLY. SUCH DIRECT ACTUAL DAMAGES SHALL BE THE SOLE AND EXCLUSIVE REMEDY, AND ALL OTHER REMEDIES OR DAMAGES AT LAW OR IN EQUITY ARE WAIVED. UNLESS EXPRESSLY HEREIN PROVIDED, NEITHER PARTY SHALL BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, PUNITIVE, EXEMPLARY OR INDIRECT DAMAGES, LOST PROFITS OR OTHER BUSINESS INTERRUPTION DAMAGES, BY STATUTE, IN TORT OR CONTRACT, UNDER ANY INDEMNITY PROVISION OR OTHERWISE. IT IS THE INTENT OF THE PARTIES THAT THE LIMITATIONS HEREIN IMPOSED ON REMEDIES AND THE MEASURE OF DAMAGES BE WITHOUT REGARD TO THE CAUSE OR CAUSES RELATED THERETO, INCLUDING THE NEGLIGENCE OF ANY PARTY, WHETHER SUCH NEGLIGENCE BE SOLE, JOINT OR CONCURRENT, OR ACTIVE OR PASSIVE.

TO THE EXTENT ANY DAMAGES REQUIRED TO BE PAID HEREUNDER ARE LIQUIDATED, THE PARTIES ACKNOWLEDGE THAT THE DAMAGES ARE DIFFICULT OR IMPOSSIBLE TO DETERMINE, OR OTHERWISE OBTAINING AN ADEQUATE REMEDY IS INCONVENIENT AND THE DAMAGES CALCULATED HEREUNDER CONSTITUTE A REASONABLE APPROXIMATION OF THE HARM OR LOSS.

SECTION 14. MISCELLANEOUS

14.1. This Contract shall be binding upon and inure to the benefit of the successors, assigns, personal representatives, and heirs of the respective parties hereto, and the covenants, conditions, rights and obligations of this Contract shall run for the full term of this Contract. No assignment of this Contract, in whole or in part, will be made without the prior written consent of the non-assigning party (and shall not relieve the assigning party from liability hereunder), which consent will not be unreasonably withheld or delayed; provided, either party may (i) transfer, sell, pledge, encumber, or assign this Contract or the accounts, revenues, or proceeds hereof in connection with any financing or other financial arrangements, or (ii) transfer its interest to any parent or affiliate by assignment, merger or otherwise without the prior approval of the other party. Upon any such assignment, transfer and assumption, the transferor shall remain principally liable for and shall not be relieved of or discharged from any obligations hereunder.

14.2. If any provision in this Contract is determined to be invalid, void or unenforceable by any court having jurisdiction, such determination shall not invalidate, void, or make unenforceable any other provision, agreement or covenant of this Contract.

14.3. No waiver of any breach of this Contract shall be held to be a waiver of any other or subsequent breach.

14.4. This Contract sets forth all understandings between the parties respecting each transaction subject hereto, and any prior contracts, understandings and representations, whether oral or written, relating to such transactions are merged into and superseded by this Contract and any effective transaction(s). This Contract may be amended only by a writing executed by both parties.

14.5. The interpretation and performance of this Contract shall be governed by the laws of the jurisdiction as indicated on the Base Contract, excluding, however, any conflict of laws rule which would apply the law of another jurisdiction.

14.6. This Contract and all provisions herein will be subject to all applicable and valid statutes, rules, orders and regulations of any governmental authority having jurisdiction over the parties, their facilities, or Gas supply, this Contract or transaction or any provisions thereof.

14.7. There is no third party beneficiary to this Contract.

14.8. Each party to this Contract represents and warrants that it has full and complete authority to enter into and perform this Contract. Each person who executes this Contract on behalf of either party represents and warrants that it has full and complete authority to do so and that such party will be bound thereby.

14.9. The headings and subheadings contained in this Contract are used solely for convenience and do not constitute a part of this Contract between the parties and shall not be used to construe or interpret the provisions of this Contract.

14.10. Unless the parties have elected on the Base Contract not to make this Section 14.10 applicable to this Contract, neither party shall disclose directly or indirectly without the prior written consent of the other party the terms of any transaction to a third party (other than the employees, lenders, royalty owners, counsel, accountants and other agents of the party, or prospective purchasers of all or substantially all of a party's assets or of any rights under this Contract, provided such persons shall have agreed to keep such terms confidential) except (i) in order to comply with any applicable law, order, regulation, or exchange rule, (ii) to the extent necessary for the enforcement of this Contract, (iii) to the extent necessary to implement any transaction, or (iv) to the extent such information is delivered to such third party for the sole purpose of calculating a published Index. Each party shall notify the other party of any proceeding of which it is aware which may result in disclosure of the terms of any transaction (other than as permitted hereunder) and use reasonable efforts to prevent or limit the disclosure. The existence of this Contract is not subject to this confidentiality obligation. Subject to Section 13, the parties shall be entitled to all remedies available at law or in equity to enforce, or seek relief in connection with this confidentiality obligation. The terms of any transaction hereunder shall be kept confidential by the parties hereto for one year from the expiration of the transaction.

In the event that disclosure is required by a governmental body or applicable law, the party subject to such requirement may disclose the material terms of this Contract to the extent so required, but shall promptly notify the other party, prior to disclosure, and shall cooperate (consistent with the disclosing party's legal obligations) with the other party's efforts to obtain protective orders or similar restraints with respect to such disclosure at the expense of the other party.

14.11 The parties may agree to dispute resolution procedures in Special Provisions attached to the Base Contract or in a Transaction Confirmation executed in writing by both parties.

DISCLAIMER: The purposes of this Contract are to facilitate trade, avoid misunderstandings and make more definite the terms of contracts of purchase and sale of natural gas. Further, NAESB does not mandate the use of this Contract by any party. NAESB DISCLAIMS AND EXCLUDES, AND ANY USER OF THIS CONTRACT ACKNOWLEDGES AND AGREES TO NAESB'S DISCLAIMER OF, ANY AND ALL WARRANTIES, CONDITIONS OR REPRESENTATIONS, EXPRESS OR IMPLIED, ORAL OR WRITTEN, WITH RESPECT TO THIS CONTRACT OR ANY PART THEREOF, INCLUDING ANY AND ALL IMPLIED WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS OR SUITABILITY FOR ANY PARTICULAR PURPOSE (WHETHER OR NOT NAESB KNOWS, HAS REASON TO KNOW, HAS BEEN ADVISED, OR IS OTHERWISE IN FACT AWARE OF ANY SUCH PURPOSE), WHETHER ALLEGED TO ARISE BY LAW, BY REASON OF CUSTOM OR USAGE IN THE TRADE, OR BY COURSE OF DEALING. EACH USER OF THIS CONTRACT ALSO AGREES THAT UNDER NO CIRCUMSTANCES WILL NAESB BE LIABLE FOR ANY DIRECT, SPECIAL, INCIDENTAL, EXEMPLARY, PUNITIVE OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THIS CONTRACT.



EXHIBIT A
TERM PURCHASE ORDER
100%

This Purchase Order, together with the Natural Gas Agreement between Seller and Buyer, dated May 25, 2017, constitutes a Contract between:

SELLER Snyder Brothers Inc.
BUYER Pittsburgh Water and Sewer Authority

Price Calculation: Buyer agrees to pay Seller for all volumes of natural gas consumed within the Contract Volume +/- 100% in a given contract month at the price specified below in section 4 below.

- 1 **Sales Period:** January-23 through December-24
(start date may be delayed if Local Utility enrollment deadline has passed)
- 2 **Monthly Contract Quantity (Dekatherms):**

Jan-23	10555	Jan-24	10555
Feb-23	9551	Feb-24	9551
Mar-23	8518	Mar-24	8518
Apr-23	9076	Apr-24	9076
May-23	5095	May-24	5095
Jun-23	3136	Jun-24	3136
Jul-23	1128	Jul-24	1128
Aug-23	1128	Aug-24	1128
Sep-23	1691	Sep-24	1691
Oct-23	3947	Oct-24	3947
Nov-23	9021	Nov-24	9021
Dec-23	10951	Dec-24	10951

3 **LDC Account Number Service Address**

200008360030	1000 Freeport Rd, Mtr 1, Ross Pump, Pittsburgh, PA 15215
200008360949	1000 Freeport Rd, Mtr 2, Ross Pump, Pittsburgh, PA 15215
200008324333	7701 Butler St. (Brilliant WHSE/Garage) , Pittsburgh, PA 15206
200008361178	1000 Freeport Rd, Mtr 3, Ross Pump, Pittsburgh, PA 15215
200008360279	7775 Lock Way, East Brilliant, Pittsburgh, PA 15206
200008361426	1000 Freeport Rd, Mtr 4, Ross Pump, Pittsburgh, PA 15206
200008324101	6389 Olivant St, Pittsburgh, PA 15206
200008324788	1600 N. Negley Ave., Pittsburgh, PA 15206
200008323640	1 Mission St, Pittsburgh, PA 15203
200008323855	1907 Howard St, Pittsburgh, PA 15212
200008360493	1909 Howard St, Pittsburgh, PA 15212
200008324549	Friday Rd- Reservoir, Pittsburgh, PA 15209
200008360741	202 26th St, Pittsburgh, PA 15222

- 4 **Sales Price:** FIXED PRICE of \$2.50/City-Gate DTH plus Pooling & Shrink (if applicable)
- 5 **Point of Delivery:** Peoples Natural Gas - Equitable division City Gate
- 6 **Point of Receipt:** Peoples Natural Gas - Equitable division Pool
- 7 **Payment Terms:** Net Fifteen (15) Days
- 8 **Special Conditions:** none

Tax Exemption Yes: No:

SELLER

Snyder Brothers Inc.
P.O. Box 1022
One Glade Park East
Kittanning, PA 16201

Ph: 724-548-8101
Fax: 724-919-4664
Email: retailpricing@snydercos.com

BUYER

Pittsburgh Water and Sewer Authority
1200 Penn Avenue

Pittsburgh, PA 15222
412-255-8800 x 8544

jstitt@pgh2o.com

BY: *[Signature]*

BY: *William J. Pickering*

TITLE: VP Gas Marketing

PRINT NAME & TITLE: William J. Pickering Chief Executive Ofcr

DATE: 1.6.21

DATE: 2/5/2021



EXHIBIT A
TERM PURCHASE ORDER
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This Purchase Order, together with the Natural Gas Agreement between Seller and Buyer, dated May 25, 2017, constitutes a Contract between:

SELLER Snyder Brothers Inc.
BUYER Pittsburgh Water and Sewer Authority

Price Calculation: Buyer agrees to pay Seller for all volumes of natural gas consumed within the Contract Volume +/- 100% in a given contract month at the price specified below in section 4 below.

- 1 **Sales Period:** January-23 through December-24
(start date may be delayed if Local Utility enrollment deadline has passed)
2 **Monthly Contract Quantity (Dekatherms):**

Jan-23	120	Jan-24	120
Feb-23	125	Feb-24	125
Mar-23	75	Mar-24	75
Apr-23	37	Apr-24	37
May-23	22	May-24	22
Jun-23	5	Jun-24	5
Jul-23	5	Jul-24	5
Aug-23	5	Aug-24	5
Sep-23	10	Sep-24	10
Oct-23	15	Oct-24	15
Nov-23	25	Nov-24	25
Dec-23	120	Dec-24	120

3 **LDC Account Number Service Address**

200004114746	800 Saline St., Pittsburgh, PA 15207
200004114811	4503 Centre Ave., Pittsburgh, PA 15213

- 4 **Sales Price:** FIXED PRICE of \$2.54/ City-Gate DTH plus Pooling & Shrink (if applicable)
5 **Point of Delivery:** Peoples Natural Gas Company, LLC City Gate
6 **Point of Receipt:** Peoples Natural Gas Company, LLC Pool
7 **Payment Terms:** Net Fifteen (15) Days
8 **Special Conditions:** none

Tax Exemption Yes: No:

SELLER

Snyder Brothers Inc.
P.O. Box 1022
One Glade Park East
Kittanning, PA 16201

Ph: 724-548-8101
Fax: 724-919-4664
Email: retailpricing@snydercos.com

BY: 

TITLE: VP Gas Marketing

DATE: 1.6.21

BUYER

Pittsburgh Water and Sewer Authority

Pittsburgh, PA 15222
412-255-8800 x 8544

jstitt@pgh2o.com
James Stitt

BY: William J. Pickering

William J. Pickering Chief Executive ofcr

PRINT NAME & TITLE: _____

DATE: 2/5/2021

PWSA Exhibit EB-14

**Pennsylvania Public Utility Commission v.
The Pittsburgh Water and Sewer Authority
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

**Responses of the Bureau of Investigation and Enforcement to the
Interrogatories of The Pittsburgh Water and Sewer Authority – Set I
Witness: Anthony Spadaccio**

PWSA-I&E-I-6 Refer to I&E Statement No. 1, page 6 at 12-15, did I&E consider what impact their revenue requirement recommendation would have on PWSA additional bonds test in FY 2024?

RESPONSE **Yes. I&E’s revenue requirement recommendation results in debt service coverage ratios of 1.70x for senior debt and 1.11x for total debt. Further, the I&E recommendation results in an ending unrestricted cash balance of approximately \$91 million and 293 days cash on hand. Mr. Spadaccio believes this is sufficient in meeting the additional bonds test.**

**Pennsylvania Public Utility Commission v.
The Pittsburgh Water and Sewer Authority
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

**Responses of the Bureau of Investigation and Enforcement to the
Interrogatories of The Pittsburgh Water and Sewer Authority – Set I
Witness: Anthony Spadaccio**

PWSA-I&E-I-9 Refer to I&E Statement No. 1, page 9 at 1-2, can you elaborate on what these economic impacts are?

RESPONSE **Some of the potential economic impacts may include supply-chain disruptions, inability to maintain and/or repair infrastructure due to understaffing, potential significant changes in debt cost, affordability to ratepayers, etc.**

**Pennsylvania Public Utility Commission v.
The Pittsburgh Water and Sewer Authority
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

**Responses of the Bureau of Investigation and Enforcement to the
Interrogatories of The Pittsburgh Water and Sewer Authority – Set I
Witness: Anthony Spadaccio**

PWSA-I&E-I-13 Refer to I&E Statement No. 1, page 20 at 11-15, is Mr. Spadaccio suggesting that unrestricted cash can be used to help meet PWSA's debt service coverage ratio?

RESPONSE **Yes, if necessary, PWSA's unrestricted cash can be used to meet debt service obligations. As a result of underspending on budgeted O&M and capital expenditures as revenues were largely intended, the Authority's ending unrestricted cash balance has steadily, yet significantly, grown to approximately \$91 million by the end of the FPFTY.**

**Pennsylvania Public Utility Commission v.
The Pittsburgh Water and Sewer Authority
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

**Responses of the Bureau of Investigation and Enforcement to the
Interrogatories of The Pittsburgh Water and Sewer Authority – Set I
Witness: Anthony Spadaccio**

PWSA-I&E-I-15 Refer to I&E Statement No. 1, page 23 at 2-5, does Mr. Spadaccio believe that municipal bonds and state and federal low-interest loans are cheaper than PAYGO? If not, then why should they be preferred over PAYGO?

RESPONSE **No. Mr. Spadaccio does not believe that municipal bonds and low-interest loans are cheaper than PAYGO funding, which is the reason Mr. Spadaccio supports the increase of DSIC funding from 5% to 7.5% of distribution revenues. However, DSIC funds must be used on projects identified in the Long-Term Infrastructure Improvement Plan which provides a level of accountability. Unrestricted PAYGO funding, considering the Authority’s historical variances between projected and actual expenditures for both O&M and capital projects expenditures, seems inappropriate at this time.**

VERIFICATION

I, Edward Barca, hereby state that: (1) I am the Director of Finance for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 09/06/2023 | 4:29 PM PDT

DocuSigned by:
Edward Barca
413E345AD9514E4...

Edward Barca
Director of Finance
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

WILLIAM J. MCFADDIN

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Unmetered City Properties, Unaccounted-for Water,
Pressures and Pressure Surveys, Isolation Valves, Meter
Replacement, Flushing Distribution System,
Fire Hydrants, Work Order Logs

September 8, 2023

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is William J. McFaddin and I am the Director of Operations for The Pittsburgh
4 Water and Sewer Authority (“PWSA”).

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I submitted Direct Testimony on May 9, 2023. (PWSA Statement No. 3).

7 **Q. WHAT TOPICS DID YOUR DIRECT TESTIMONY ADDRESS?**

8 A. I provided information regarding PWSA’s continued compliance with obligations in prior
9 settlements in the areas of valve maintenance, the replacement of meters and flushing of
10 the distribution system.

11 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

12 A. The purpose of my Rebuttal Testimony is to respond to the Direct Testimony of Ethan H.
13 Cline submitted on behalf of the Bureau of Investigation and Enforcement (“I&E”) (I&E
14 Statement No. 3); the Direct Testimony of Jerome D. Mierzwa submitted on behalf of the
15 Office of Consumer Advocate (“OCA”) (OCA Statement 3); and the Direct Testimony
16 submitted by Terry L. Fought on behalf of OCA. (OCA Statement 6).

17 **II. RESPONSES TO DIRECT TESTIMONY OF OTHER PARTIES**

18 **A. City of Pittsburgh’s Unmetered Properties**

19 **Q. PLEASE DESCRIBE THE TESTIMONY OF MR. MIERZWA CONCERNING**
20 **THE CITY OF PITTSBURGH’S UNMETERED PROPERTIES.**

21 A. Testifying for OCA, Mr. Mierzwa referred to two City of Pittsburgh properties that were
22 unmetered and recommended that PWSA be required to provide a timeline for metering
23 the two properties, along with an identification and description of services provided by
24 each property and an estimated revenue impact of metering these properties. (OCA
25 Statement 3 at 12).

1 **Q. WHAT IS YOUR RESPONSE?**

2 A. As PWSA indicated in a supplemental response to OCA-2-5 provided on August 21,
 3 2023, these last two unmetered properties owned by the City of Pittsburgh have now been
 4 metered. The first one was completed on June 13, 2023 and the second was completed
 5 on June 16, 2023. PWSA does not have an estimate for the annual water usage for these
 6 properties to determine the impact of metering them. Therefore, PWSA views this issue
 7 as having been resolved for this proceeding.

8 **B. Unaccounted-for Water**

9 **Q. PLEASE DESCRIBE MR. CLINE’S TESTIMONY ON UNACCOUNTED-FOR**
 10 **WATER.**

11 A. Testifying for I&E, Mr. Cline describes PWSA’s unaccounted-for water levels in 2021
 12 and 2022 as “extremely concerning.” (I&E Statement No. 3 at 23). Although Mr. Cline
 13 does not recommend an adjustment based on the unaccounted-for water levels, he
 14 indicated that adjustments to certain expenses, such as purchased power and chemicals,
 15 will likely be made in the next base rate case if progress is not shown in reducing these
 16 levels. (I&E Statement No. 3 at 23-24).

17 **Q. DO YOU HAVE A RESPONSE?**

18 A. Yes. PWSA expects to see a reduction in unaccounted-for water levels through various
 19 measures that are underway, including: (a) implementation of projects through the
 20 Distribution System Improvement Charge; (b) replacement of old infrastructure; (c)
 21 implementation of the leak detection program; (d) replacement of meters; and (e)
 22 installation of meters at previously unmetered properties. Also, this is not an issue that is
 23 unique to PWSA and, in fact, is currently a focus of the water industry due to other
 24 utilities facing high levels of unaccounted-for water. Audits are conducted because of

1 concerns about this issue. In fact, PWSA is subject to yearly audits to track the progress
2 we are making toward the reduction of non-revenue water.

3 **Q. PLEASE DESCRIBE MR. FOUGHT’S TESTIMONY REGARDING**
4 **UNACCOUNTED-FOR WATER.**

5 A. On behalf of OCA, Mr. Fought observes that PWSA estimated volumes of water used for
6 blow-offs, main flushing and firefighting were based on default values of the American
7 Water Works Association’s (“AWWA”) Water Audit. In Mr. Fought’s view, PWSA will
8 eventually need to reduce reliance on the AWWA Audit defaults and estimate volumes of
9 water used for blow-offs, main flushing and firefighting based on the operation of its
10 water system. Of note, OCA witness Fought also recognizes many of the factors I
11 identify above as leading to PWSA’s non-revenue water estimates becoming more
12 accurate and decreasing. (OCA Statement 6 at 6-7).

13 **Q. DO YOU HAVE A RESPONSE?**

14 A. PWSA is already capturing better information through the Spry Mobile application than it
15 has previously been able to gather regarding estimated volumes of water used for blow-
16 offs and main flushing, which will allow the Authority to eventually reduce reliance on
17 the AWWA Audit defaults. I would expect PWSA’s estimates to be lower than the
18 default estimates on which it is currently relying. It is also important to note that some
19 PWSA facilities, such as the Chlorine Booster Station, where water runs through the
20 analyzers continuously, factor into the unaccounted-for water levels. PWSA is actively
21 metering these facilities, which are classified as a PWSA account (metered but not
22 billed), to capture the water usage.

1 **C. Pressures and Pressure Surveys**

2 **Q. PLEASE DESCRIBE OCA WITNESS FOUGHT’S TESTIMONY REGARDING**
 3 **PRESSURES AND PRESSURE SURVEYS.**

4 A. Mr. Fought refers to the Commission’s regulations at 52 Pa. Code § 65.6, which require
 5 (with some exceptions) that utilities maintain normal operating pressure of not less than
 6 25 psi or more than 125 psi at the main. He acknowledges that less than 5% of PWSA’s
 7 customers, or fewer than 3,774 customers, have water pressures higher or lower than the
 8 range established by the Commission’s regulations. With respect to high pressures, OCA
 9 witness Fought recommends that PWSA should be required to reduce normal operating
 10 pressures exceeding 125 psi in its mains. He further proposes that PWSA be required to
 11 submit pressure surveys for each pressure zone until the Authority provides a complete
 12 complaint log that includes pressures. (OCA Statement 6 at 12-13).

13 **Q. DO YOU AGREE WITH MR. FOUGHT’S RECOMMENDATION?**

14 A. No. Initially, I note that Mr. Fought’s proposal is not consistent with PWSA’s tariff.
 15 With respect to pressure, the Authority’s tariff requires PWSA to maintain service at
 16 historic pressures at the main and permits PWSA to furnish service at other pressures
 17 where necessary to supply adequate service, which is clearly supported and permitted by
 18 52 Pa. Code § 65.6(a).¹ PWSA’s tariff provision further states as follows: “If a customer
 19 needs the system pressure reduced, the customer must install and maintain, at the
 20 customer’s expense, a pressure regulator or valve. The pressure regulator will be
 21 installed on the outlet side of the meter.”² In addition, under Section 860-177 of the

¹ This regulation provides that “[a] utility may undertake to furnish a service which does not comply with the foregoing specifications where compliance with such specifications would prevent it from furnishing adequate service to any customer or where called for by good engineering practices.”

² [Tariff Water](#) – Pa. P.U.C. No. 1, Original Page No. 33, Section B, Paragraph 8.

1 Allegheny County Code, Article XV (Water Supply and Distribution), when the water
2 service pressure to a building exceeds 80 psi, an approved water pressure regulator with
3 strainer shall be installed to reduce the pressure to the building.³

4 Further, Mr. Fought does not provide evidence of any so-called “problem” that he
5 is seeking to rectify. For instance, he does not identify the number of customers whose
6 pressure is over 125 psi or explain any issues that have arisen due to or harm that has
7 been caused by high pressures. In PWSA’s experience, consumers are more likely to
8 complain about low pressures. Additionally, reducing operating pressures that exceed
9 125 psi is particularly challenging given the topography of Pittsburgh. Due to the terrain
10 and hills throughout the City, this process would require PWSA to decrease pressure in
11 one area and then increase it again in the next area. That is not a reasonable expectation.
12 The proposal would require funds to construct new pump stations, tanks and piping
13 connections to support additional pressure districts, as well as additional staffing
14 resources to maintain these additional pump stations and tanks that PWSA does not have
15 available for this purpose.

16 Finally, PWSA is already capturing pressure inquiries in its work order logs.
17 Therefore, it is unnecessary for PWSA to submit pressure surveys for each pressure zone,
18 which would require resources and divert the Authority’s staff from the business of
19 operating the water, wastewater and stormwater systems. Especially when no particular
20 problem has been identified, adding a requirement for PWSA to submit pressure surveys
21 for each pressure zone is unreasonable and unnecessary.

³ <https://ecode360.com/8488949>

1 **Q. DO YOU HAVE ANYTHING FURTHER TO ADD?**

2 A. Yes. PWSA has been focused for over five years on monitoring the pressures for the
3 water distribution system and is taking measures to bring all pressures into compliance
4 with regulatory requirements. A Pennsylvania Department of Environmental Protection
5 Administrative Order dated October 15, 2017 required the initial installation of 24
6 Pressure Sensors, which were specifically located to sense and report out on critical low-
7 pressure points in water distribution system. The 24 Pressure Sensors were installed and
8 operational by July 8, 2018. This resulted in 24 pressure monitors being installed in 10 of
9 PWSA's total 17 System pressure zones. Subsequently and additionally, to comply with
10 the Commission's regulations at 52 Pa. Code §65.6(b), PWSA completed the installation
11 of an additional 37 pressure monitors (by January 21, 2021), ensuring at least one or
12 more continuous recording pressure monitors are operating in each separate pressure
13 zone throughout the PWSA Distribution System. As of January 21, 2021, PWSA has
14 maintained a total of 61 continuous recording pressure monitors throughout PWSA's
15 system. With respect to operation, the pressure sensors automatically send out alarms via
16 cellular transmitters that initiate emails and texts to key personnel in engineering,
17 operations, and dispatch. The routine pressure sensor settings for alarm activation are as
18 follows:

- 19 • Loss of pressure alarm (Any time the pressure is < or = to 0 for a single pressure
20 reading, an alarm is sent out.)
21
- 22 • Low pressure alarm (Any time the pressure drops below 20 psi for 6 consecutive
23 readings taken every 5 minutes, an alarm is sent out.)
24
- 25 • High Pressure Alarm (Any time the pressure is > 100 psi for a single pressure
26 reading, an alarm is sent out to ensure the safety of the sensing equipment to
27 identify the likelihood of freezing in locations where the vault might have a
28 potential for freezing.)

1
2 As this shows, PWSA is already going well above and beyond the requirements of the
3 regulations and actively reporting the results. Based upon all of the efforts already taken
4 by PWSA to measure and respond to deviations in water pressure, the Authority submits
5 that no further regulatory requirements need to be imposed.

6 **D. Isolation Valves**

7 **Q. PLEASE DESCRIBE MR. FOUGHT’S TESTIMONY REGARDING ISOLATION**
8 **VALVES.**

9 A. Mr. Fought recommends that PWSA: (1) exercise critical valves on a one- to three-year
10 schedule; (2) exercise non-critical valves on a seven- to ten-year schedule; and (3)
11 maintain useful records of when each valve was exercised. He also proposes that if
12 PWSA’s records indicate that any isolation valves have not been exercised within the
13 past ten years, the Authority should exercise them within the next five years until all have
14 ben exercised and are operable. (OCA Statement 6 at 17).

15 **Q. PLEASE RESPOND.**

16 A. In accordance with PWSA’s Implementation Plan filed in response to the PUC’s
17 Management and Operations Audit Report released on April 20, 2023,⁴ which is
18 referenced by Mr. Fought, the Authority has developed and implemented a valve
19 exercising program where all valves are inspected and exercised on a 5-year cycle. With
20 respect to critical valves, PWSA has identified such valves, which meet one of these two
21 criteria: (a) isolation valve with a diameter of 18 inches or larger; or (b) isolation valve
22 that would be closed to isolate a critical water service customer per PWSA’s critical

⁴ *Management and Operations Audit of the Pittsburgh Water and Sewer Authority*, Docket Nos. D-2021-3025584, D-2021-3025585 and D-2022-3030308 (Secretarial Letter, Report and Implementation Plan issued April 20, 2023). The Implementation Plan is available at this [link](#).

1 customer list. Further, in the response, PWSA noted its expectation to inspect and
2 exercise critical valves on a 3-year cycle by the fourth quarter of 2024. Additionally,
3 PWSA already maintains useful records of when each valve was exercised. Therefore, it
4 is unnecessary to impose any additional obligations on PWSA as part of this base rate
5 case.

6 **E. Meter Testing and Replacement**

7 **Q. PLEASE DESCRIBE MR. FOUGHT’S TESTIMONY REGARDING THE**
8 **TESTING AND REPLACEMENT OF CUSTOMER METERS.**

9 A. Mr. Fought discusses the Commission’s regulations and PWSA’s prior commitments
10 regarding the testing and replacement of customer meters. He also refers to my Direct
11 Testimony in this case noting that PWSA replaced 5,865 meters in 2022 and did not
12 achieve its target of 8,000 meters in a calendar year because of delays associated with the
13 Authority’s launch of the Enterprise Resource Planning (“ERP”) system, vendor turnover
14 and unexpected reductions in plumbing staff. (OCA Statement 6 at 18-20). Mr. Fought
15 recommends that PWSA test or replace 10,000 customer meters per calendar year until
16 all undocumented meters are either tested or replaced. He further proposes that since
17 PWSA has not been able to achieve its target of 8,000 meters, the Authority should
18 address its software, vendor and staffing issues. (OCA Statement 6 at 20-21).

19 **Q. PLEASE RESPOND.**

20 A. PWSA is doing everything within its power to achieve its target of 8,000 meters.
21 However, many factors are outside the Authority’s control and have prevented it from
22 fulfilling this objective. Mr. Fought’s recommendation to require PWSA to complete
23 10,000 meter replacements per calendar year is unreasonable. The single biggest factor
24 preventing PWSA from replacing 10,000 meters per calendar year is the continuing

1 struggle to get into customers' homes. The calendar year of 2019, which was prior to
2 COVID-19, is the last year PWSA replaced over 10,000 meters. Although customers in
3 2022 became generally less concerned about the need for social distancing due to the
4 pandemic than they were in 2020 and 2021, access to their homes remained a challenge.
5 In addition, PWSA encountered delays in restarting the non-access process following the
6 launch of its ERP system in August 2022. This is the automated process that sends
7 regulated notices to customers to facilitate meter upgrade appointments, and it could not
8 be fully tested until after the go-live date of the new system. Further, PWSA has
9 continued to have difficulties with vendors in the supply chain, making it especially
10 challenging to get Meter Transceiver Units ("MXUs"), which are automated meter
11 reading devices.

12 Finally, as I explained in my Direct Testimony, PWSA is actively recruiting
13 plumbers but has had to handle some unexpected reductions in staff in the Plumbing
14 section, with three plumbers on long-term leave due to personal issues. If PWSA would
15 hire plumbers to replace these individuals, we would be overstaffed when they return.
16 PWSA remains committed to trying to replace 8,000 meters each calendar year as an
17 internal target and should not be required to meet this objective or the more aggressive
18 one suggested by Mr. Fought.

19 **F. Flushing Distribution System**

20 **Q. PLEASE DESCRIBE MR. FOUGHT'S RECOMMENDATION REGARDING**
21 **FLUSHING THE DISTRIBUTION SYSTEM.**

22 A. Although Mr. Fought does not recommend any changes to PWSA's program for flushing
23 its distribution system, he expresses a concern about dead-end lines, testifying that it
24 appears PWSA may not know where many of its dead-end lines are located and if all of

1 its dead-end lines have a blow-off valve or hydrant for flushing. Therefore, he
2 recommends that PWSA should make an effort to identify, locate and track the dead-end
3 lines and make sure that they have a blow-off or hydrant so they can be flushed to
4 eliminate water quality problems. (OCA Statement 6 at 21-22).

5 **Q. PLEASE RESPOND.**

6 A. Mr. Fought is correct that PWSA is facing challenges in making sure that dead-end lines
7 have a blow-off or hydrant so they can be flushed. However, it is important to note that
8 PWSA is already making every effort to identify, locate and track the dead-end lines for
9 this purpose. Notwithstanding those efforts, due to the topography of Pittsburgh, many
10 dead-end lines cannot be fixed. Therefore, I do not believe it is feasible to direct PWSA
11 to do more than it is already doing with respect to dead-end lines.

12 **G. Fire Hydrants**

13 **Q. PLEASE DESCRIBE MR. FOUGHT'S TESTIMONY REGARDING FIRE**
14 **HYDRANTS.**

15 A. Although Mr. Fought has no criticisms about PWSA's fire hydrant flushing program, he
16 refers to about 374 public fire hydrants that cannot provide the minimum fire flow. He
17 recommends that PWSA mark these hydrants to indicate that they should only be used for
18 flushing and blow-offs. He further proposes that PWSA should provide confirmation to
19 the parties when this has been done. (OCA Statement 6 at 23).

20 **Q. PLEASE RESPOND.**

21 A. PWSA already marks these hydrants with a color-coded ring on the front nozzle that
22 identifies the flow. It is up to the Pittsburgh Fire Department to decide whether the color
23 of the ring means that it should not be used for a fire. This approach has been working,

1 and Mr. Fought does not suggest otherwise. Therefore, PWSA should not be required to
2 implement any new measures to address a problem that does not exist.

3 **H. Work Order Logs**

4 **Q. PLEASE DESCRIBE MR. FOUGHT’S TESTIMONY REGARDING WHAT HE**
5 **REFERS TO AS PWSA’S “CUSTOMER COMPLAINT LOGS.”**

6 A. In Mr. Fought’s view, what he refers to as PWSA’s “customer complaint logs” are
7 incomplete. Therefore, he recommends that the Authority should return to the template
8 used in the 2018 base rate case which provided more categories of customer complaints.
9 (OCA Statement 6 at 23-26, 28-30).

10 **Q. PLEASE RESPOND.**

11 A. At the outset, it is necessary to clarify the terminology so that all parties are on the same
12 page. The items identified in the documents that Mr. Fought is referring to as “customer
13 complaint logs” are not necessarily complaints. It appears from a review of his Direct
14 Testimony that Mr. Fought is actually seeking information related to work orders, which
15 result from many different sources including inquiries, requests and notifications. PWSA
16 already captures the data in the Spry Mobile application that Mr. Fought wishes to
17 receive, but since his request referred to “customer complaint logs,” this information was
18 not produced. An example is that PWSA may receive notification from a driver passing
19 by a certain area of a manhole lid being missing, which is nothing more than information
20 generating the opening of a work order. It is not a complaint. Countless other similar
21 situations are captured in the Spry Mobile application. The best way to move forward on
22 this issue would be to rename the logs as “Work Order Logs” and PWSA can provide
23 information to OCA and the other parties in the requested categories. PWSA is already

1 in the process of including the additional information identified by Mr. Fought in the logs
2 and will supplement prior discovery responses, as appropriate.

3 **III. CONCLUSION**

4 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

5 **A.** Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

VERIFICATION

I, William J. McFaddin, hereby state that: (1) I am the Director of Operations for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 09/06/2023 | 4:41 AM PDT

DocuSigned by:
William McFaddin
90912C6707E04D9

William J. McFaddin
Director of Operations
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

BARRY KING, PE

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Wet Weather Consent Decree

Capital Improvement Projects

Microfiltration Plant

September 8, 2023

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TABLE OF EXHIBITS

BK-5	March 4, 2020 Cost/Benefit Analysis of Operating the Highland Microfiltration Plant Versus Covering Highland No. 1 Reservoir
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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Barry King and I am the Director of Engineering and Construction for The
4 Pittsburgh Water and Sewer Authority (“PWSA”).

5 **Q. DID YOU PREVIOUSLY PROVIDE TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I submitted Direct Testimony on May 9, 2023. (PWSA St. No. 4).

7 **Q. PLEASE IDENTIFY THE ISSUES YOU ADDRESSED IN YOUR DIRECT**
8 **TESTIMONY.**

9 A. I described PWSA’s Capital Improvement Plan (“CIP”), with an emphasis on the total
10 capital requirements of over \$1.8 billion for fiscal years 2023-2027. In addition, I
11 provided updates regarding prior rate case settlement commitments.

12 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

13 A. The purpose of my Rebuttal Testimony is to respond to the Direct Testimony of: Vanessa
14 Okum on behalf of the Bureau of Investigation and Enforcement (“I&E”) (I&E Statement
15 No. 2); Ethan H. Cline on behalf of I&E (I&E Statement No. 3); and Terry L. Fought on
16 behalf of the Office of Consumer Advocate (“OCA”) (OCA Statement 6).

17 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

18 A. Yes. I am sponsoring PWSA Exhibit No. BK-5, which is a March 4, 2020 Cost/Benefit
19 Analysis of Operating the Highland Microfiltration Plant Versus Covering Highland No.
20 1 Reservoir.

21 **II. WET WEATHER CONSENT DECREE**

22 **Q. PLEASE DESCRIBE THE RECOMMENDATIONS OF MS. OKUM**
23 **REGARDING PWSA’S CLAIM FOR “OPERATING CONTRACTS OTHER.”**

24 A. Testifying for I&E, Ms. Okum recommends a reduction of \$7,500,000 in the Fully
25 Projected Future Test Year (“FPFTY”) of 2024 to Operating Contracts Other. If the

1 Commission approves PWSA’s multi-year rate plan, she recommends reductions of
2 \$9,750,000 in Fiscal Year (“FY”) 2025 and \$12,675,000 in FY 2026. Her
3 recommendations are based on a proposed disallowance of the entire amount of the
4 projected costs for the Wet Weather Consent Decree because the Decree is not expected
5 to be finalized until 2024. She further suggests that PWSA has not provided a breakdown
6 of claimed expenses, relevant calculations, or other supporting documentation. (I&E
7 Statement No. 2 at 16-18).

8 **Q. DO YOU AGREE WITH THIS RECOMMENDATION?**

9 A. No. As PWSA Witness Edward Barca testified in his Direct Testimony, it is estimated
10 that the Wet Weather Consent Decree will result in hundreds of millions of dollars in
11 required improvements, with a significant portion being paid for out of the operating
12 budget. (PWSA St. No. 2 at 17). The Wet Weather Consent Decree is the culmination of
13 a series of allegations made in November 2020 by the Environmental Protection Agency
14 (“EPA”), the Department of Justice (“DOJ”) and the Pennsylvania Department of
15 Environmental Protection (“PA DEP”) that PWSA is out of compliance with the federal
16 Clean Water Act and Pennsylvania’s Clean Streams Law. The options for resolving these
17 allegations are either the initiation of a lawsuit against PWSA, followed by the issuance
18 of a Consent Order, or the issuance of a Consent Decree, approving a negotiated
19 settlement among the parties. If PWSA is not successful in negotiating a settlement and
20 avoiding litigation initiated by federal and state government, ratepayers would be
21 required to shoulder the litigation costs, as well as the burden of civil penalties that result
22 from litigation of these issues, which could well exceed the level of penalties that are
23 included in the Consent Decree.

1 **Q. PLEASE DESCRIBE SOME OF THE COMMITMENTS THAT PWSA EXPECTS**
2 **TO MAKE UNDER THE CONSENT DECREE.**

3 A. During negotiations for a Consent Decree, PWSA has already committed to \$7.5 million
4 worth of planning aimed at significantly reducing sanitary sewer and combined sewer
5 overflows, as explained in the Rebuttal Testimony of Mr. Barca (PWSA Statement No. 2-
6 R at 45). In order to be able to timely honor these commitments upon issuance of a
7 Consent Decree, it is critical for PWSA to begin addressing them and incurring expenses
8 for action items in 2024. Frankly, it would be irresponsible on the part of the Authority
9 and place our ratepayers at the risk of absorbing the costs of non-compliance with the
10 Consent Decree, to not request the dollars now that will be needed for compliance.

11 **Q. PLEASE PROVIDE EXAMPLES OF ACTION ITEMS THAT NEED TO BE**
12 **DONE NOW.**

13 A. A specific commitment included in the Consent Decree would require PWSA to develop
14 an approvable Nine Minimum Control Plan Report and a Long-Term Control Plan. The
15 development of these plans requires a calibrated and verified hydrologic and hydraulic
16 model; water quality data collection and analysis; alternative evaluation and selection;
17 cost estimation and a robust stakeholder involvement process. PWSA must complete
18 these tasks; the only other alternative is to remain out of compliance from the standpoint
19 of DOJ, EPA and the PA DEP, risking litigation and the imposition of significant civil
20 penalties – all to the harm of our ratepayers. For the reasons I have explained, the
21 Commission should reject I&E’s recommendation to disallow the costs of the Wet
22 Weather Consent Decree.

1 **III. CAPITAL IMPROVEMENT PROJECTS**

2 **Q. PLEASE DESCRIBE MR. CLINE’S TESTIMONY REGARDING PWSA’S**
 3 **CAPITAL IMPROVEMENT PLAN (“CIP”).**

4 A. I&E witness Cline disagrees with the level of capital improvement projects that PWSA
 5 includes in the FPFTY because of what he describes as “a historic tendency to fall short
 6 of meeting the capital budget that it sets on an annual basis.” (I&E Statement No. 3 at 8-
 7 9, 19). In support of this assertion, Mr. Cline refers to I&E Exhibit No. 3, Schedule 3,
 8 which is PWSA’s response to IE-RS-1, containing budgeted dollars and actual dollars
 9 spent on capital improvement projects in FY 2019, FY 2020, FY 2021 and FY 2022.

10 **Q. DO YOU HAVE A RESPONSE TO THIS GENERAL ASSERTION?**

11 A. Yes. Mr. Cline’s general assertion is flawed. Four years’ worth of budgeted vs. actual
 12 dollars spent on capital improvement projects can hardly be viewed as a “historic”
 13 tendency on the part of PWSA. Rather, these comparisons span a minimal period
 14 because PWSA only came under the jurisdiction of the Commission on April 1, 2018 – a
 15 fact that I&E uses to recommend rejection of the multi-year rate plan due to the lack of
 16 historical information. (I&E Statement No. 1 at 8).

17 In addition, during this brief time, PWSA has faced many factors that have caused
 18 delays in the construction process, which were outside of the Authority’s control and
 19 could not have been anticipated. For example, planned capital projects in FY 2020 were
 20 significantly impacted by the COVID-19 pandemic. Those impacts continued into FY
 21 2021 with widely known supply chain issues that delayed construction and into FY 2022
 22 on focused areas, such as electrical equipment. In addition, PWSA has experienced a
 23 limited contracting pool, with the number of bidders significantly decreasing compared to
 24 the past. Other factors include delays in the permitting process of the Pennsylvania

1 Department of Environmental Protection (“DEP”), and the length of the technical review
2 (up to six months) conducted by the Pennsylvania Department of Transportation
3 (“PennDOT”), which are both beyond PWSA’s control. Likewise, PWSA has
4 encountered unexpected construction delays associated with requirements imposed by the
5 Pennsylvania State Historic Preservation Office (“SHPO”).

6 It is also worth mentioning that as a municipal authority, PWSA is required to
7 comply with a lengthy process established by the Municipal Authorities Act (“MAA”),
8 53 Pa. C.S. §§ 5601 et seq. For example, Section 5614 of the MAA mandates that all
9 construction projects exceeding a certain base amount (well below most of PWSA’s
10 projects) be done only under a contract with the lowest responsible bidder after public
11 notice seeking competitive bids. 53 Pa. C.S. § 5614. Additionally, it is my
12 understanding that investor-owned utilities do not have to rely on capital plans to obtain
13 Commission approval for construction expenses and that when divergences from the
14 budgets occur, they are reflected in their returns on assets, which is not applicable to
15 PWSA as a cash flow utility.

16 Despite these ongoing challenges, I note that in FY 2019 and FY 2022, the
17 differences between the budgeted amounts and actual expenditures were less than the
18 variations that occurred in FY 2020 and FY 2021. (I&E Exhibit No. 3, Schedule 2). For
19 example, in FY 2019, pre-COVID, PWSA spent nearly 80 percent of the budgeted
20 amount for capital improvements, and in FY 2022, PWSA spent approximately 70
21 percent of the budgeted amount. The larger divergences between budgeted and expended
22 amounts occurred in FY 2020 and FY 2021 with PWSA spending less than 60 percent of
23 the budgeted amounts. I would expect a trend toward greater accuracy to continue going

1 forward as PWSA has gathered important knowledge, such as the delays associated with
 2 the DEP, PennDOT and SHPO’s processes, which will be incorporated into future
 3 projections.

4 The bottom line is that the capital projects PWSA is planning need to be done. It
 5 is not a wish list. The level of capital improvements that PWSA is currently undertaking
 6 is necessary and unprecedented due to neglected infrastructure over many years.
 7 Spending less than projected over a few years, for unanticipated reasons that were outside
 8 of PWSA’s, is not a valid reason to drastically and arbitrarily reduce the level of spending
 9 on capital projects that has been approved by PWSA’s Board. Of note, any unspent
 10 monies earmarked for particular improvements do not go into the pockets of
 11 shareholders, of which PWSA has none, but rather go back into the water, wastewater
 12 and stormwater systems for the benefit of ratepayers, may expedite other capital projects,
 13 may pay down debt and may be reserves for a future year, delaying the need for future
 14 rate increases.

15 **Q. WHAT IS MR. CLINE’S RECOMMENDATION THAT IS BASED ON HIS**
 16 **FLAWED GENERAL ASSERTION?**

17 A. Based on his flawed general assertion, Mr. Cline recommends that PWSA’s proposal to
 18 increase its capital budget in the FPPTY by \$42,688,673 be reduced to \$10,063,371, or
 19 by \$32,625,303. He proposes to achieve this reduction by reducing the Water Treatment
 20 Plant increase by 25% and the Water Pumping and Storage increase by 50%, which are
 21 two categories of capital improvements in PWSA’s CIP. (I&E Statement No. 3 at 20).

22 **Q. PLEASE RESPOND.**

23 A. As noted in my Direct Testimony, the current CIP approved by the Board for 2023-2027
 24 includes the following capital requirements by category and fiscal year:

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total
Water Treatment Plant	\$ 16,030,211	26,885,665	24,038,988	54,790,691	78,451,718	\$ 200,197,272
Water Pumping and Storage	55,304,597	115,127,475	121,491,637	113,245,473	30,009,851	435,179,033
Water Distribution	143,302,527	125,439,446	155,468,790	143,283,004	184,525,120	752,018,887
Wastewater System	50,634,240	31,442,487	27,579,779	45,751,309	54,918,077	210,325,892
Stormwater	29,822,932	34,827,423	36,884,821	33,038,424	26,808,750	161,382,350
Miscellaneous	11,439,316	15,500,000	33,000,000	500,000	500,000	60,939,316
Total Capital Requirements	\$ 306,533,823	349,222,497	398,464,014	390,608,900	375,213,516	\$ 1,820,042,750

1
2 Mr. Cline’s proposed reductions are arbitrary and fail to consider the impact on PWSA’s
3 ability to complete projects that have been identified as being necessary for regulatory
4 compliance, safety, quality of service and operating efficiency. All of the projects
5 included in these two categories relate to uninterrupted high quality drinking water,
6 which his proposal ignores. His recommendations further overlook the fact that many
7 projects span several years and are already underway, such as through permitting, design,
8 being out for bid and in construction. Further, I&E’s focus on FY 2024 is short-sighted
9 given the active planning that is underway for expenses that will be incurred in that fiscal
10 year. If a project is already in construction, PWSA would incur additional costs to halt
11 that construction and restart it at a later time.

12 It is also noteworthy that Mr. Cline makes no attempt to identify specific projects
13 in the categories of Water Treatment Plan or Water Pumping and Storage that can or
14 should be delayed if the funds are not available. In addition, even though Mr. Cline
15 reviews a limited period in PWSA’s history to make his general assertion about PWSA’s
16 spending on capital projects being less than its budget for such projects, he gives no
17 consideration to the fact that in FY 2022, the actual spending vs. budgeted amount for
18 both Water Treatment Plan and Water Pumping and Storage was significantly less than in
19 FY 2021. (I&E Exhibit 3, Schedule 3). Therefore, PWSA’s efforts to accurately project
20 spending for capital projects are improving, and as I said above, even if earmarked
21 money is unspent in a particular year, it is put to good use for the benefit of ratepayers.

1 **Q. PLEASE HIGHLIGHT SPECIFIC EXAMPLES OF CAPITAL PROJECTS IN**
 2 **THE WATER TREATMENT PLANT CATEGORY TO ILLUSTRATE THE**
 3 **NATURE OF THE CONSTRUCTION WORK THAT COULD BE AFFECTED IF**
 4 **MR. CLINE’S RECOMMENDED ARBITRARY REDUCTION IS APPROVED.**

5 A. The Water Treatment Plant budget for FY 2024 is \$26,885,665, which Mr. Cline
 6 proposes to reduce by 25%, includes the following projects:

- 7 • *Aspinwall Water Treatment Plant Raw Water Intakes – West Intake.* The West Gate
 8 is 100 years old and is 90% closed and inoperable. This project is necessary for
 9 regulatory compliance and water quality. (PWSA Exhibit EB-4 at 15).
- 10
- 11 • *Chemical Feed Modernization Project/Rapid Mix and Clarifier Improvements.* The
 12 upgrade of chemical feed systems is necessary to meet current regulatory
 13 requirements and optimize the water treatment process. It is also critical for safety,
 14 operating efficiency and quality of service. (PWSA Exhibit EB-4 at 17).
- 15
- 16 • *Clearwell Emergency Response Project.* The clearwell was constructed in 1908 and
 17 has not undergone any major modifications or upgrades since. A failure of the
 18 clearwell would cause a disruption to the supply of water. This project is necessary
 19 for regulatory compliance, safety, operating efficiency and water quality. (PWSA
 20 Exhibit EB-4 at 18).
- 21
- 22 • *Lime Slurry System Improvements.* Adequate lime storage is mandated by PA DEP,
 23 and the extra storage for liquid lime is critical to the reliable operation of the Water
 24 Treatment Plant. This project is necessary for safety, operating efficiency and water
 25 quality, and is already in permitting. (PWSA Exhibit EB-4 at 24).
- 26
- 27 • *Water Treatment Plant Filter Building Roof.* The existing roof is aged and in need of
 28 replacement, such that continued deterioration of the roof could result in emergency
 29 replacement. This project is necessary for regulatory compliance, safety, operating
 30 efficiency and water quality. (PWSA Exhibit EB-4 at 33).
- 31

32 Although this is just a small sampling of the projects that are included in the FY 2024
 33 capital budget, these examples illustrate the importance of permitting PWSA to proceed
 34 with its construction plans at the level proposed, and as approved by the Board, to ensure
 35 that the necessary upgrades are completed to ensure regulatory compliance and enhance
 36 operating efficiency, safety and water quality. Adoption of I&E’s recommendation

1 would necessarily delay the progress that PWSA is making to modernize its Water
2 Treatment Plants.

3 **Q. PLEASE HIGHLIGHT SPECIFIC EXAMPLES OF CAPITAL PROJECTS IN**
4 **THE WATER PUMPING AND STORAGE CATEGORY TO ILLUSTRATE THE**
5 **NATURE OF THE CONSTRUCTION WORK THAT COULD BE AFFECTED IF**
6 **MR. CLINE’S RECOMMENDED ARBITRARY REDUCTION IS APPROVED.**

7 A. The Water Pumping and Storage budget for FY 2024 is \$115,127,475, which Mr. Cline
8 proposes to reduce by 50%, includes the following projects:

- 9 • *Chlorine Booster Station Improvements.* PWSA’s existing chlorine residual levels
10 expose the Authority’s customers to poor water quality, and recent changes to PA
11 DEP regulations require an increase in minimum levels in the distribution system.
12 This project is necessary for regulatory compliance, safety, operating efficiency and
13 water quality, and is in design. (PWSA Exhibit EB-4 at 45).
14
- 15 • *Disinfection By-Products Mitigation.* The replacement of existing trihalomethane
16 removal systems at certain tanks would improve the level of service provided to
17 customers and avoid possible regulatory violations. This project is necessary for
18 regulatory compliance, safety, operating efficiency and water quality, and will be
19 going out for bid any day. (PWSA Exhibit EB-4 at 46).
20
- 21 • *Highland No. 2 Reservoir Liner and Cover Replacements.* The Highland No. 2
22 Reservoir will be used as a temporary clearwell while the new clearwell is being
23 constructed. Therefore, the existing reservoir liner and cover must be replaced and
24 existing chlorine feed facilities must be upgraded to meet PA DEP regulatory
25 requirements. This project is necessary for regulatory compliance, safety, operating
26 efficiency and water quality. (PWSA Exhibit EB-4 at 53).
27
- 28 • *Highland Reservoir Pump Station and Rising Main.* This project involves the
29 construction of a new finished water pump station and transmission main to supply
30 water to the Highland No. 1 Service Area from Highland No. 2 Reservoir. A failure
31 of the existing pump stations and rising mains would result in significant service
32 disruption. The project is necessary for regulatory compliance, safety, operating
33 efficiency and water quality, and is currently out for bids. (PWSA Exhibit EB-4 at
34 54).
35
- 36 • *Lanpher Reservoir Improvements.* This project involves the replacement of the
37 chlorine injection system and is required per Consent Order with PA DEP. A failure
38 to do this project would expose the Authority’s customers to poor water quality and
39 inadequate booster disinfection. The project is necessary for regulatory compliance,
40 safety, operating efficiency and water quality, and is going out for bids next month.
41 (PWSA Exhibit EB-4 at 57).

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- *Lincoln Pump Station: Bypass Pump Station Project.* This planned pump station will allow for the existing pump station to be taken off line completely for rehabilitation. Delaying its construction will delay the renewal of existing pump stations that are in need of upgrades. This project is necessary for safety, operating efficiency and water quality. (PWSA Exhibit EB-4 at 59).

As I noted above about the projects planned for the Water Treatment Plant category, these are just a handful of the improvements and upgrades in the Water Pumping and Storage category that are designed to achieve regulatory compliance and enhance PWSA’s safety, water quality and operating efficiency. The Commission should reject I&E’s arbitrary proposed reduction to the capital budget for Water Pumping and Storage so that PWSA is able to stay the course on making the necessary improvements and enhancements to its system for the benefit of its customers.

MICROFILTRATION PLANT

Q. PLEASE DESCRIBE THE RECOMMENDATION OF OCA WITNESS FOUGHT REGARDING THE COST OF WATER TREATED AT THE MICROFILTRATION PLANT.

A. Mr. Fought, testifying on behalf of OCA, recommends that the City of Pittsburgh should pay for all water treated at the Microfiltration Treatment Plant (“MFP”) or that it should be considered as unaccounted for water or non-revenue water. He further testifies that if the City is not willing to pay for the amount of water treated by the MFP, PWSA should consider covering the Highland 1 Reservoir (“HR1”). (OCA Statement 6 at 36-37).

Q. HOW DO YOU RESPOND?

A. PWSA cannot require the City to pay for the water treated at the MFP. Prior to PWSA coming under the regulation of the Commission, the decision was made to keep HR1 uncovered. PWSA is not in a position to modify that decision. In the 2018 base rate case settlement, PWSA committed to providing a cost-benefit analysis of operating the MFP

1 instead of covering and placing a physical barrier around HR1.¹ This analysis was
2 performed and a March 4, 2020 memorandum explaining the results of that study is
3 attached as PWSA Exhibit No. BK-5. In my Direct Testimony offered in support of
4 PWSA's 2020 base rate request, I detailed the importance of the MFP to the delivery of
5 water supply and explained that a decision of whether to cover HRI is not one that can be
6 made based solely on costs.² That explanation remains true today. The feasibility of
7 covering the existing HR1 is not reasonable in terms of constructability, water quality and
8 cost. The result of that proceeding is that PWSA continued to operate the MFP and it
9 was not covered. Mr. Fought has provided no basis for reconsidering that decision now.
10 As to Mr. Fought's related recommendations concerning an amendment of the
11 Cooperation Agreement with the City, they are addressed in the Rebuttal Testimony of
12 William J. Pickering (PWSA Statement No. 1-R).

13 **V. CONCLUSION**

14 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

15 **A.** Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

¹ Joint Petition for Settlement, III.B.8, approved in *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2018-3002645 and R-2018-3002647 (Order entered February 17, 2019).

² *Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2020-3017951 and R-2020-3017970 (Rate Case filed March 6, 2020); (PWSA Statement No. 4 at 15-19; PWSA Exhibit BK-3).

Exhibit BK-5



MEMO

To: Barry King, P.E., Director of Engineering and Construction

From: Sarah Bolenbaugh, P.E., Bradley McShane, and Anthony Gallina

Date: March 4, 2020

Subject: Cost/Benefit Analysis of Operating the Highland Membrane Filtration Plant Versus Covering Highland No. 1 Reservoir (and Constructing a Physical Barrier)

Purpose

On January 31, 2017, the PADEP issued a Field Order prompting PWSA to take the Highland Microfiltration Plant (HMFP) out of service, until PWSA either provided specific repairs to the HMFP or installed a cover and provided adequate security with a physical barrier for Highland Reservoir No. 1. In the 2018 rate case settlement, PWSA committed to provide a cost/benefit analysis of operating the HMFP instead of covering and placing a physical barrier around Highland Reservoir No. 1.

Highland Microfiltration Plant

The capital cost of renovating and updating the HMFP over the past several years has been spread over several projects. The scope of work included in these projects includes installation of a new ultraviolet (UV) disinfection system subsequent to the existing microfiltration system, component replacements and updates to the microfiltration system, numerous electrical equipment updates, repairs and upgrades to pumps, valves, flowmeters, and monitoring equipment, updates to the SCADA and reporting systems, assessment and repair of storage tanks, repairs to the building heating system, installation of a security monitoring system at the plant and around the reservoir, and replacement of the parapet wall around the top of the reservoir. The total capital cost to date of all of these direct and related improvements in support of restoration of the MFP Facility is approximately \$14,500,000.00.

Annual operation and maintenance (O&M) costs of the microfiltration plant include the following considerations: energy, chemical, equipment and maintenance, and staffing. Historical usage and current design operating parameters are used as the



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cost estimates basis. The estimated annual O&M cost of the microfiltration plant is \$1,625,929.25 for the first year, and \$1,199,215.25 annually for years 2 through 10 of operation. The table below breaks down the cost of each category for year 1.

Operation and Maintenance		
Energy	\$	394,620.65
Chemicals	\$	102,345.60
Equipment and Maintenance	\$	447,249.00
Staffing ¹	\$	681,714.00
Annual Total¹	\$	\$1,625,929.25
Footnotes:		
1. The staffing cost of \$681,714 presented hereon is the cost for first (and only) year of contracted operational staffing of MFP (via contract with CWM). Subsequent annual staffing cost is estimated at \$255,000.00, and will reduce the total annual Operation and Maintenance cost to \$1,199,215.25. in years 2 through 10.		

Highland Reservoir No. 1 Floating Cover Option

Highland Reservoir No. 1 would require an estimated 975,718 square feet of both liner and cover. This estimated area was calculated using costs from a previous lining contract and record drawings of the Highland 1 Reservoir to provide dimensions.

The cost estimate for covering Highland Reservoir No. 1 was developed using the cost of lining and covering Lanpher Reservoir. The construction cost of the Lanpher cover and liner, including the rainwater management system (electrical contract), equated to \$12.44 per square foot. An additional \$277,000 would be required for construction of a fence around the Highland Reservoir, a necessitated security measure. Including construction costs plus contingency (30%), project management (1.5%), design (15%), construction management (5%), construction inspection (7%), and design services during construction (2%) the total estimated cost of covering and securing Highland Reservoir No. 1 would be approximately \$21,100,000. This estimate is solely based on the costs associated with the actual installation of a new liner and cover, and does not account for contingency costs associated with:

- uncertainties about the existing reservoir structural/physical concrete conditions, and

- modifications to the reservoir's deficient "dam-related" physical elements that have been identified in the course of completing the preparation of the PADEP-required Dam Safety Permit for the existing reservoir (Note, while completing the inspections, analyses, and documentation for a PADEP Dam Safety Permit submittal, PWSA's Consultant has verified that the existing facility does not meet the minimum requirements necessary for permitting an modifications and upgrades that would be necessary to enable the covering of this existing reservoir)

Floating Cover Implications

Aside from the cost implications and comparisons between continued operation and maintenance of the HMFP versus covering the reservoir, there are several engineering, water quality, and logistical issues that must be considered:

Hydraulics-

The reservoir offers limited usable storage capacity, as the elevation of the reservoir required to meet the minimum pressure requirement (35 psi) at peak hour is only a few feet from the high level of the reservoir. As a result, only the top few feet of the reservoir provide available storage requiring almost constant operation of pumps to maintain an adequate elevation in the reservoir. This affects the reservoir's ability to turnover which can lead to stagnation and water quality issues.

Water quality-

The capacity of the Highland Reservoir No. 1 is 130.5 MG, at an average day demand of 28 MGD the reservoir would have a retention time of 4.7 days (the criteria for the required storage is 1 day's average demand). This excessive storage capacity leads to increased water age, potentially causing water quality deterioration problems.

Structural Safety

A dam safety assessment, conducted by a PWSA consultant, identified issues that would need rectified in order to operate Highland Reservoir No. 1 as a water storage facility long-term:

Trees and unsuitable vegetation would need removed from the embankment around the reservoir. This requires a tree study by a professional arborist and dam safety professional, as well as an engineered design for tree removal.

The embankment would need regraded to a uniform slope. The effects of regrading the embankment slope would result in other cost implications associated with necessary modifications to the park surrounding the reservoir (roadway modifications, disturbance to the historical structures (steps) around the reservoir, etc.)

Public Acceptance

Along with engineering challenges, there is strong political and public opposition to covering the reservoir. The reservoir is in a popular city park, situated in a community that prizes the historical significance and beauty of the reservoir. City Council even forbid a floating cover at Highland Reservoir #1 in 1993. It is not likely that public sentiment has or would change.

Operation and Maintenance

PWSA maintains a total of three covered storage reservoirs. The replacement schedule for these covers is every 15-20 years and requires constant maintenance of the cover pumps to ensure that no standing water is on the cover. The high replacement cost and O&M considerations for these reservoirs, as well as the fact that the reservoirs are oversized based on current standards, is leading PWSA to lean towards replacing these reservoirs with structural tanks with a capacity that is more in line with present and future demand.

Alternative Solution: New Storage

Considering the issues involved with covering Highland Reservoir No. 1 and the expense of operating the HMFP, an ideal long-term solution would be a 30-40 MG storage tank. This tank would be placed at an elevation providing the necessary minimum pressures to the system. Although an area had been identified for this storage tank in the 1990s, when the topic of covering the reservoir first arose, the area required would require acquiring city property for the tank as well as some major piping modifications to the system's rising and supply mains. As such, the



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timeline for a new tank would exceed the three years required to bring the MFP back online.

Conclusions

Although it took three years to complete the modifications and repairs required for the HMFP, it was likely the most expeditious route considering the issues involved in covering the reservoir or building new storage. It is accepted that operating the HMFP is not an economic long term solution. However, covering the reservoir is not practically feasible due to the prior mentioned concerns. Until a new storage facility can be constructed, operating the HMFP remains the most practical means of continuously supplying safe and potable water to the users.

VERIFICATION

I, Barry King, hereby state that: (1) I am the Director of Engineering for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 09/05/2023 | 1:26 PM PDT

DocuSigned by:

Barry King
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Barry King
Director of Engineering
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

TONY IGWE

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPIC:

STORMWATER

September 8, 2023

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TI-4	School District Response to PWSA-I-9
TI-5	PWSA Presentation to School District on February 8, 2022
TI-6	Email Exchanges between PWSA and School District – July to September 2022
TI-7	Confidential Billing Statement of Calvary Catholic Cemetery

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Tony Igwe. I am the Senior Group Manager, Stormwater for The Pittsburgh
4 Water and Sewer Authority (“PWSA”), a position that I assumed in January 2021. I
5 previously held this position on an interim basis beginning in September 2020.

6 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?**

7 A. Yes. I submitted Direct Testimony on May 9, 2023. (PWSA St. No. 5).

8 **Q. WHAT ISSUES DID YOU ADDRESS IN YOUR DIRECT TESTIMONY?**

9 A. I supported PWSA’s proposed stormwater rate increase. Additionally, I described the
10 Authority’s stormwater conveyance facilities, the related regulatory requirements and
11 PWSA’s stormwater management program. I also discussed the status of PWSA’s
12 Stormwater Strategic Plan.

13 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

14 A. The purpose of my Rebuttal Testimony is to respond to certain Direct Testimony
15 submitted by Michael J. McNamara and Eric M. Callocchia on behalf of the Pittsburgh
16 School District (“School District”) (School District St. Nos. 1 and 2, respectively); and
17 the Direct Testimony submitted by Robert Strauss and Cheryl McAbee on behalf of River
18 Development Corporation (“River Development” or “RDC”) (RDC St. Nos. 1 and 2,
19 respectively). Other stormwater issues raised by these witnesses will be addressed in
20 Rebuttal Testimony submitted by William J. Pickering and Keith Readling. (PWSA St.
21 Nos. 1-R and 8-R, respectively).

22 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

23 A. Yes. I am sponsoring the following exhibits:
24

TI-3	School District Response to PWSA I-13
TI-4	School District Response to PWSA-I-9
TI-5	PWSA Presentation to School District on February 8, 2022
TI-6	Email Exchanges between PWSA and School District – July to September 2022
TI-7	Confidential Billing Statement of Calvary Catholic Cemetery

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II. RESPONSE TO SCHOOL DISTRICT

Q. PLEASE RESPOND TO THE CONCERN OF THE SCHOOL DISTRICT’S WITNESS REGARDING THE IMPACT OF THE PROPOSED STORMWATER RATE INCREASE.

A. Mr. McNamara states that the School District has many large buildings with significant impervious area so an increase to the stormwater charge will have a major impact on the School District’s PWSA bills. (School District St. No. 1 at 11-12). While PWSA understands and appreciates the effect that an increase to the stormwater charge may have on entities like the School District, the increase is necessary for PWSA to comply with increasing regulatory requirements. (PWSA St. No. 5 at 3). The stormwater charge is designed to ensure that all properties pay their fair share for stormwater services based on the impervious area on the properties and thus the demand placed on the stormwater system. Like all other properties, the School District must pay its fair share for stormwater management, in the same way as it must pay its other utility bills.

Q. PLEASE SUMMARIZE MR. MCNAMARA’S TESTIMONY REGARDING THE SCHOOL DISTRICT’S EFFORTS TO MANAGE STORMWATER RUNOFF.

A. Mr. McNamara states that the School District has a “water efficiency plan” which includes the installation of rain gardens at three properties, as well as a rainwater collection system at its Central Operations building which reuses rainwater collected from the rooftop in the building’s cooling tower mechanical system. (School District St. No. 1 at 12; School District Exh. MJM-3).

1 **Q. MR. MCNAMARA STATES THAT THE SCHOOL DISTRICT IS NOT**
2 **RECEIVING ANY CREDITS ON ITS STORMWATER BILL FOR ITS EFFORTS**
3 **TO REDUCE STORMWATER RUNOFF. (SCHOOL DISTRICT ST. NO. 1 AT**
4 **13). PLEASE RESPOND.**

5 A. Pursuant to PWSA’s stormwater tariff, a customer must submit a credit application in
6 order to receive a stormwater credit.¹ Non-residential customers are eligible for credits
7 ranging from 45% to 60%, depending on the stormwater management standards that are
8 met. In addition, for non-residential customers who undertake regional efforts or exceed
9 Pittsburgh’s 2019 standards by controlling at least 25% more runoff than required, a
10 higher level credit may be granted upon review – with the maximum credit under this
11 approach being 100%.² In response to discovery, the School District acknowledged that
12 it has never applied for a stormwater credit.³ If the School District believes it is eligible
13 for a credit, I would encourage the School District to submit an application. The credit
14 application and the supporting credit manual are available on PWSA’s website.⁴
15 Additionally, PWSA is willing to assist the School District in exploring ways to qualify
16 for a credit or otherwise reduce the impervious areas on its properties.

17 **Q. PLEASE RESPOND TO THE SCHOOL DISTRICT’S CLAIM THAT IT DID**
18 **NOT ASK TO RECEIVE STORMWATER SERVICE FROM PWSA. (SCHOOL**
19 **DISTRICT ST. NO. 1 AT 13; SCHOOL DISTRICT ST. NO. 2 AT 28-29).**

20 A. Under PWSA’s PUC-approved stormwater tariff, the Authority’s stormwater rates apply
21 to those who: (1) own property in PWSA’s service territory, and (2) whose property has
22 at least 400 square feet of impervious area. Certain parcels owned by the School District

¹ PWSA Tariff Storm Water – Pa. P.U.C. No. 1 at 10 (“Customers must submit a completed BMP credit application. The current application will be available on the Authority’s website.”).

² PWSA Tariff Storm Water – Pa. P.U.C. No. 1 at 10.

³ PWSA Exhibit TI-3 (School District Response to PWSA I-13).

⁴ <https://www.pgh2o.com/your-water/stormwater/stormwater-fee/stormwater-credit-program>.

1 meet these qualifications, making the School District a PWSA stormwater customer.
2 PWSA's stormwater system benefits the School District by managing and/or conveying
3 stormwater runoff from its properties. The School District is charged for stormwater
4 service based on the demand placed on PWSA's stormwater system due to impervious
5 area on its properties.

6 Further, this is not unique to stormwater service. Under the Allegheny County
7 Health Department's Plumbing Code, properties are *required* to connect to connect to the
8 public water and sewer systems when they are available.⁵ In fact, the Plumbing Code
9 also requires that properties drain either to a separate storm sewer system or combined
10 sewer system where available.⁶ Properties are required to use the public water,
11 wastewater and stormwater systems where they are available. PWSA provides these
12 services, and under PWSA's PUC-approved tariff, customers are required to pay for these
13 services, including stormwater management service.

14 **Q. PLEASE RESPOND TO MR. MCNAMARA'S CLAIM THAT THE**
15 **STORMWATER CHARGE "IS OR MAY BE AN UNLAWFULLY IMPOSED**
16 **TAX." (SCHOOL DISTRICT ST. NO. 1 AT 4, 13-14).**

17 A. We disagree. I am advised by counsel that this is a legal issue that will be addressed in
18 briefs as necessary. This claim is also generally addressed in the Rebuttal Testimony of
19 PWSA witness William J. Pickering (PWSA St. No. 1-R).

⁵ Allegheny County Code § 860-36.

⁶ Allegheny County Code § 860-161.

1 **Q. SCHOOL DISTRICT WITNESS ERIC M. CALLOCCHIA STATES THAT**
2 **STORMWATER MANAGEMENT PROVIDES A “COMMUNITY-WIDE**
3 **BENEFIT.” (SCHOOL DISTRICT ST. NO. 2 AT 6-8). PLEASE DISCUSS.**

4 A. I agree that PWSA’s stormwater management provides benefits to the community as a
5 whole. However, individual customers also receive discrete, tangible benefits from these
6 stormwater services. Any property with impervious area creates stormwater runoff that
7 PWSA’s system must be available to collect and convey. Customers directly benefit
8 from PWSA’s stormwater services, since PWSA manages and/or conveys stormwater
9 runoff from such properties that may otherwise cause flooding, property damage, and/or
10 water quality issues.

11 **Q. DOES SCHOOL DISTRICT WITNESS CALLOCCHIA RECOMMEND STEPS**
12 **THAT PWSA SHOULD TAKE TO REDUCE ITS STORMWATER REVENUE**
13 **REQUIREMENT?**

14 A. Yes. Mr. Callocchia says that PWSA has not done “everything possible” to reduce its
15 stormwater revenue requirement, and that the Authority has a “duty” to investigate and
16 potentially implement Community-Based Public-Private Partnerships (“CBP3”) to reduce
17 stormwater-related capital improvement costs. (School District St. No. 2 at 9-12).

18 **Q. HAS PWSA EXPLORED A CBP3 OR OTHER SIMILAR ARRANGEMENT?**

19 A. Not at this time. Further, I am not aware of (and Mr. Callocchia does not point to) any
20 specific requirement that PWSA consider and/or implement this type of public-private
21 partnership. However, the Authority is willing to explore a CBP3 or similar arrangement
22 at the appropriate time. In my experience, these processes work best following the
23 development of specific stormwater alternatives. PWSA’s draft Stormwater Strategic
24 Plan currently includes a provision to consider these partnerships, and PWSA expects to
25 explore these options as the process is finalized in the future. In addition, Mr. Pickering’s

1 Rebuttal Testimony discusses funding that PWSA has received from private entities in
2 support of stormwater management. (PWSA St. No. 1-R).

3 **Q. DOES MR. CALLOCCHIA ARGUE THAT THE SCHOOL DISTRICT SHOULD**
4 **BE EXEMPT FROM STORMWATER CHARGES?**

5 A. Yes. Mr. Callocchia states that some entities exempt school districts from stormwater
6 fees, and claims that this is merely a “policy decision.” He also claims (without support)
7 that it would not be unduly discriminatory to exempt the School District from stormwater
8 charges. (School District St. No. 2 at 24-26).

9 **Q. DO YOU AGREE THAT THE SCHOOL DISTRICT SHOULD BE EXEMPT**
10 **FROM STORMWATER CHARGES?**

11 A. No, I do not agree. All entities that own property in PWSA’s service territory with
12 greater than 400 square feet of impervious area must pay their fair share for stormwater
13 services, pursuant to PWSA’s PUC-approved tariff. Stormwater service is a utility
14 service like any other. To my knowledge the School District is not exempt from paying
15 its bills for water, wastewater, electric, and/or natural gas services, and likewise it should
16 not be exempt from paying for stormwater services.

17 As examples, Mr. Callocchia points to the cities of Baltimore and Tacoma Park in
18 Maryland and Jacksonville, Florida as examples of entities that exempt certain customers
19 or groups of customers from paying stormwater charges. These examples are not
20 relevant here. First and foremost, none of these cities is regulated as a public utility. As
21 a regulated entity, PWSA is subject to a variety of statutory and regulatory requirements
22 that would not apply to the example cities. Additionally, as Mr. Callocchia recognizes,
23 under Maryland law there is a specific provision that authorizes certain entities to be
24 exempt from stormwater charges. (School District St. No. 2 at 24-25). There is no such

1 provision under Pennsylvania law that authorizes PWSA to exempt customers from
2 stormwater charges.

3 **Q. DOES PWSA EXEMPT ANY SPECIFIC CUSTOMER OR GROUP OF**
4 **CUSTOMERS FROM PAYING STORMWATER CHARGES?**

5 A. No, it does not. PWSA's tariff does not include an exemption for any specific customer
6 or group of customers, and PWSA has not proposed any such exemption in this rate case.
7 Under PWSA's PUC-approved tariff, customers may reduce the stormwater charge by
8 applying for and receiving a credit, by removing sufficient impervious area from the
9 property to reduce the number of ERUs, or for low-income residential customers to
10 qualify for the Bill Discount Program.

11 Mr. Callocchia points to a comment in particular cell in PWSA's cost of service
12 model as a basis for his claim that PWSA is exempting cemeteries from stormwater
13 charges. (School District St. No. 2 at 25-26). This comment was inadvertently left in the
14 model from a previous version in which PWSA had explored the impact of revenue from
15 cemeteries being removed, in response to concerns raised by certain cemeteries. This
16 was simply an informational exercise. Later, PWSA decided to include only the cost of
17 assigning credits, should they apply. The estimated cost of those credits, along with an
18 estimate of credits for other nonresidential customers, was included in the as-filed cost of
19 service model. PWSA has not proposed or implemented any exemption from
20 stormwater charges for cemeteries or any other customer or group of customers, and the
21 Authority did not include the costs of exempting cemeteries in the as-filed cost of service
22 model.

1 **Q. MR. CALLOCCHIA CLAIMS THAT IT WOULD NOT BE UNDULY**
 2 **DISCRIMINATORY TO EXEMPT THE SCHOOL DISTRICT FROM**
 3 **STORMWATER CHARGES. DO YOU AGREE?**

4 A. No, I do not agree. I am advised by counsel that Section 1304 of the Public Utility Code
 5 prohibits unreasonable discrimination in rates. A blanket exemption for the School
 6 District would provide an unreasonable preference to one entity, and importantly, all
 7 other PWSA customers would have to absorb the costs for managing stormwater runoff
 8 from the School District’s properties. This would be patently unfair. Additionally,
 9 PWSA should not be in the business of determining which entities provide a sufficient
 10 societal good (like the School District’s “public education mission” which Mr. Callocchia
 11 claims as a basis for an exemption) to justify their exemption from stormwater charges,
 12 while others still have to pay. Further, I have been advised by counsel that the
 13 Commonwealth Court affirmed the Commission’s decision in *Philadelphia Gas Works v.*
 14 *Pa. P.U.C.*, 898 A.2d 671 (2006), which had rejected the utility’s proposed senior
 15 discount program on the basis that it did not produce just and reasonable rates. The
 16 School District has pointed to no basis under the Public Utility Code or the Commission’s
 17 regulations that would support, or even allow, PWSA to exempt the School District or
 18 any other entity from stormwater rates. As such, Mr. Callocchia’s position must be
 19 rejected.

20 **Q. DOES PWSA CHARGE FOR IMPERVIOUS AREA WITHIN THE PUBLIC**
 21 **RIGHT OF WAY, AND IF NOT, WHY NOT?**

22 A. No, PWSA does not charge for impervious area in the public right of way, such as streets,
 23 roads and sidewalks. This is primarily because these facilities are an integral part of the
 24 drainage infrastructure. Most stormwater utilities in the United States do not bill for

1 impervious area in public rights of way, and to my knowledge no stormwater utility in
2 Pennsylvania bills for runoff from roadways.

3 **Q. DOES THE FACT THAT PWSA DOES NOT BILL FOR IMPERVIOUS AREA IN**
4 **THE PUBLIC RIGHT OF WAY SUPPORT MR. CALLOCCHIA’S CLAIM THAT**
5 **THE SCHOOL DISTRICT SHOULD BE EXEMPT FROM STORMWATER**
6 **CHARGES? (SCHOOL DISTRICT ST. NO. 2 AT 26).**

7 A. No, the fact that PWSA does not bill for impervious area in the public right of way
8 provides no support whatsoever for the School District’s argument that it should be
9 exempt from stormwater charges. Public streets and sidewalks are an integral part of the
10 stormwater management system conveying stormwater to the public sewers via curbs,
11 gutters, and catch basins, and as such are excluded from the charge. I would note that
12 even though PWSA does not charge for impervious area in the right of way, all other
13 parcels within the City-wide service area with at least 400 square feet of impervious area,
14 including those owned by government entities such as the City of Pittsburgh, Allegheny
15 County and the Pennsylvania Department of Transportation, are charged for stormwater
16 service.

17 **Q. DO YOU HAVE ANY OTHER TOPICS YOU WISH TO DISCUSS IN RESPONSE**
18 **TO THE SCHOOL DISTRICT?**

19 A. Yes. Prior to implementing its stormwater rates, PWSA conducted extensive outreach
20 and education throughout its service territory and involving a variety of stakeholders. For
21 example, PWSA convened its Stormwater Advisory Group made of up of a variety of
22 stakeholders that met over a number of years to provide input on PWSA’s stormwater
23 program. The Authority held dozens of community meetings throughout its service
24 territory in the years prior to implementing stormwater rates. Further, stormwater rates
25 were reviewed and approved in PWSA’s 2021 base rate case, which included six public
26 input hearings. To my knowledge, the School District did not participate in any of these

1 activities, even though it had the opportunity to do so. In response to discovery, the
 2 School District confirmed its lack of participation.⁷

3 **Q. HAS PWSA COMMUNICATED WITH THE SCHOOL DISTRICT SINCE**
 4 **IMPLEMENTING THE STORMWATER CHARGE?**

5 A. Yes. On February 8, 2022, PWSA made a presentation to the School District, which is
 6 attached as PWSA Exhibit TI-5. This presentation described the impacts to individual
 7 property types, development of the stormwater rate, resources available to ratepayers
 8 including stormwater credits, other stormwater planning initiatives and next steps.
 9 Another meeting was held on March 28, 2022 between representatives of PWSA and the
 10 School District to discuss specific concerns about the stormwater charges for certain
 11 accounts. In addition, between July and September 2022, a representative of the School
 12 District, Kelly Wacker, exchanged emails with Beth Dutton and James Stitt, who are part
 13 of PWSA’s Stormwater Team. This exchange, which is attached as PWSA Exhibit TI-6,
 14 resulted in adjustments to the ERUs and credits for some accounts of the School District.

15 **Q. HAS PWSA ALREADY RECEIVED COMMISSION APPROVAL FOR ITS**
 16 **CURRENT STORMWATER RATES AND RATE STRUCTURE?**

17 A. Yes. In our last base rate proceeding PWSA submitted a full stormwater tariff with
 18 proposed rates that was approved by the Commission and became effective in January
 19 2022. Since 2022, we have been charging customers a stormwater rate. Previously,
 20 PWSA used the funds generated from customer charges for sewer conveyance to fund
 21 stormwater management. A sewer conveyance charge (based on a PWSA customer’s
 22 water usage) was not an equitable way to charge customers for stormwater management.⁸

⁷ PWSA Exhibit TI-4 (School District Response to PWSA I-9).

⁸ *See Pa. PUC v. Pittsburgh Water and Sewer Authority*, Docket No. R-2021-3024773 *et al.*, Recommended Decision (entered Oct. 6, 2021), at 64 (adopted without modification by Final Order entered Nov. 18, 2021)

1 This is because the volume of stormwater that a property generates is a function of hard
 2 surface (impervious area) on that property, not water usage. The most common measure
 3 used by governments across the United States to charge for costs related to stormwater
 4 services is based on impervious surface area. Therefore, PWSA developed a stormwater
 5 rate to charge for stormwater management services more equitably to meet water quality
 6 and regulatory requirements. While we continue to recover some of our stormwater costs
 7 through the wastewater conveyance rates, we are doing so based on the principle of
 8 gradualism and are continuing, as part of this case, to increase the allocation we are
 9 recovering through stormwater rates.

10 **Q. WHAT WOULD HAPPEN IF PWSA’S STORMWATER RATES WERE TO GO**
 11 **AWAY?**

12 A. If PWSA’s stormwater rates were to go away or as a matter of policy be determined by
 13 the Commission to not be reasonable, PWSA would still have to recover the costs of its
 14 stormwater-related conveyance as a cash-flow basis utility. This would mean that those
 15 costs would have to be re-included in PWSA’s wastewater conveyance charges as they
 16 were recovered prior to PWSA’s stormwater rates being approved by the Commission.
 17 This would increase wastewater conveyance rates for all customers, but
 18 disproportionately to residential customers who typically have lower impervious surface
 19 areas. And, again, the Commission has found that PWSA’s use of impervious surface

(“I agree with the Joint Petitioners that the provisions of the proposed Settlement concerning the stormwater tariff and the new stormwater fee are in the public interest. PWSA currently uses the revenues generated from customer charges for wastewater conveyance to fund stormwater management. A wastewater conveyance charge – which is based on a PWSA customer’s water usage – is not an equitable way to charge customers for stormwater management. This is because the volume of stormwater that a property generates is a function of hard surface (impervious area) on that property, not water usage. PWSA’s stormwater fee will create a more equitable way to charge for stormwater management services in order to meet water quality and regulatory requirements, and address stormwater issues in Pittsburgh.”)

1 area is an equitable way to determine stormwater rates and has on at least one separate
 2 occasion affirmed PWSA’s stormwater rates based on impervious surface area.⁹

3 **III. RESPONSE TO RIVER DEVELOPMENT CORPORATION**

4 **Q. PLEASE DISCUSS YOUR UNDERSTANDING OF THE ISSUES THAT RDC IS**
 5 **PURSUING IN THIS PROCEEDING AND THOSE THAT RDC IS RESERVING**
 6 **FOR THE ACTIVE COMPLAINT PROCEEDING AT DOCKET NO. C-2023-**
 7 **3039163.**

8 A. As a brief background, and as discussed in RDC’s July 26, 2023 Petition to Intervene,
 9 RDC has filed a Formal Complaint with the Commission which, as of the submission of
 10 this testimony, has not yet had an evidentiary hearing before Deputy Chief Law Judge
 11 Mark A. Hoyer. Portions of the testimony in this proceeding overlap significantly with
 12 testimony that will be offered in the Complaint proceeding. The parties are actively
 13 working on a joint stipulation of facts in the Complaint proceeding, but there is a general
 14 agreement on which issues should be addressed in each proceeding.

15 In short, issues RDC has explicitly indicated are reserved for the Complaint
 16 proceeding include: 1) whether RDC was properly notified of the stormwater rates
 17 proposed at Docket No. R-2021-3024779; 2) whether existing rates, including the
 18 increase from 2022 to 2023, are reasonable; and 3) whether PWSA is properly authorized
 19 to apply stormwater charges. My testimony does not address these issues.

20 It is my understanding that RDC believes the following topics are issues to be
 21 considered in this proceeding: 1) whether PWSA is billing Catholic Cemeteries
 22 Association; 2) whether PWSA should establish a “sliding scale” of rates for small,
 23 disadvantaged businesses; 3) whether it is discriminatory for PWSA to have a tiered rate

⁹ See *Schad v. PWSA*, Docket No. C-2022-3036934, Initial Decision (entered July 25, 2023), at 8 (Final Order entered Aug. 25, 2023).

1 structure for residential customers but not for small business customers; 4) whether the
2 general policy for stormwater rates should be reconsidered by the Commission related to
3 pollution impacts and impervious surface area; and 5) the impact of an alleged 2026
4 deadline on PWSA. I address each of these issues below, except for the issue concerning
5 a tiered rate structure for small businesses, which is addressed in the Rebuttal Testimony
6 of Keith Readling (PWSA St. No. 8-R). Failure to address any issue raised by RDC in its
7 direct testimony, in light of the simultaneous litigation of this proceeding and the
8 Complaint proceeding including overlapping testimony and exhibits from RDC, does not
9 constitute a waiver of those issues in this matter and I reserve the right to address any
10 additional or refined issues raised by RDC in further testimony.

11 **Q. DR. MCABEE CLAIMS THAT PWSA IS NOT ISSUING A STORMWATER**
12 **BILL TO THE CATHOLIC CEMETERIES ASSOCIATION. (RDC ST. NO. 1 AT**
13 **14). IS THIS ACCURATE?**

14 A. No. The only cemetery that is part of the Catholic Cemeteries Association in PWSA's
15 service territory is Calvary Catholic Cemetery. The most recent billing statement shows
16 that PWSA is billing this customer for stormwater services. A copy of this bill is
17 attached as Confidential PWSA Exhibit TI-7.

18 **Q. PLEASE RESPOND TO THE TESTIMONY OF DR. MCABEE CLAIMING**
19 **THAT PWSA IS MAKING SMALL, DISADVANTAGED BUSINESS PAY FOR**
20 **“LARGE, INDUSTRIAL POLLUTERS.” (RDC ST. NO. 2 AT 8-10).**

21 A. Dr. McAbee has not demonstrated a link between PWSA stormwater charges and the
22 general pollution that is created by large industrial users. Stormwater is rain or snowmelt
23 that does not infiltrate into the ground. When precipitation falls on an impervious area, it
24 runs off the property rather than being absorbed. Developed areas that are impervious,
25 such as rooftops and paved areas, prevent water from being absorbed and create a faster
26 rate of runoff. This development often causes localized flooding or other water quantity

1 or quality issues. In addition, stormwater can carry harmful pollutants (such as such as
 2 oil, dirt, chemicals, and lawn fertilizers) that adversely affect water quality. Stormwater
 3 can further cause flooding, erode topsoil, and stream banks, and destroy habitats.
 4 PWSA’s service territory has densely developed areas with a lot of impervious surfaces.
 5 PWSA manages the volume of runoff by directly assigning the costs of stormwater
 6 management in proportion to the amount of impervious surface are on the property. This
 7 approach reflects stormwater management as a service for costs should be funded by
 8 residents and businesses in a fair and equitable manner.

9 **Q. DID PWSA REQUEST AN EXPLANATION IN DISCOVERY FOR RDC’S**
 10 **PERCEPTION OF A LINK BETWEEN STORMWATER CHARGES AND THE**
 11 **GENERAL POLLUTION THAT IS CREATED BY LARGE INDUSTRIAL**
 12 **USERS?**

13 A. Yes, PWSA pursued this inquiry in a number of different ways through discovery.
 14 However, the discovery response provided by River Development to PWSA-I-10 on
 15 September 7, 2023, which RDC relied upon in responding to each request in this area,
 16 was merely a compilation of links to applications for pollution discharge permits, permit
 17 fact sheets, and stormwater management manuals. As River Development has not
 18 demonstrated any relevance of pollution discharge permits to PWSA’s costs of managing
 19 stormwater runoff on properties in the Authority’s service area, this factor should not be
 20 considered by the Commission in this proceeding.

21 **Q. WHAT IS RIVER DEVELOPMENT’S SUGGESTION FOR THE**
 22 **STORMWATER RATE THAT SHOULD BE CHARGED TO**
 23 **NONRESIDENTIAL CUSTOMERS?**

24 A. Dr. McAbee suggests that the Commission should establish River Development’s
 25 stormwater charge at an amount that does not exceed five percent of its net revenues.
 26 (RDC St. No. 2 at 8).

1 **Q. PLEASE RESPOND.**

2 A. The costs incurred by PWSA to manage stormwater for nonresidential properties in
3 Pittsburgh are not related to the amount of a business' net revenues. If a business has a
4 large amount of impervious area, which causes stormwater runoff that must be managed,
5 it is immaterial what the level of the net revenues are for the business. In addition, such
6 an approach would require PWSA to calculate a stormwater charge on the basis of
7 information that is not readily available to the Authority. This would be a highly
8 burdensome process that would require PWSA to go well beyond its current accounting
9 and customer service procedures to collect each and every business' financial viability
10 information – whether that be through review of tax returns or other matters.
11 Importantly, a business's net revenue has no relevance to the business' responsibility to
12 pay for the service PWSA is providing, let alone the amount of impervious area the
13 business owns that contributes to PWSA's costs. PWSA's approach of assessing
14 stormwater charges on the basis of impervious surface area is consistent with the industry
15 standard, and no consideration should be given to the irrelevant net revenues of
16 businesses in PWSA's service territory.

17 **Q. DR. MCABEE ALSO SUGGESTS THAT AS OTHER PUBLIC UTILITIES**
18 **IMPOSE DIFFERENT RATES ON SMALL AND LARGE BUSINESSES, PWSA**
19 **SHOULD BE REQUIRED TO DO THE SAME. (RDC ST. NO. 2 AT 12). HOW**
20 **DO YOU RESPOND?**

21 A. The manner in which other public utilities may charge for utility service is not germane
22 to the method used by PWSA to assess stormwater charges. For purposes of calculating
23 stormwater charges, the critical factor is the amount of impervious area on the property.
24 In determining responsibility to pay PWSA's stormwater managements costs, it is
25 irrelevant how large or small a business is. A business could be very large but not have a

1 significant amount of impervious area, and vice versa. Therefore, PWSA has
2 appropriately calculated these charges on the basis of impervious area, which results in
3 businesses with higher amounts of stormwater runoff as being responsible for higher
4 stormwater charges.

5 **Q. DR. MCABEE REFERS TO DISCUSSIONS SHE HAD WITH PWSA**
6 **REPRESENTATIVES PRIOR TO THE RATE CASE BEING FILED ABOUT**
7 **USING A DIFFERENT APPROACH FOR SMALL BUSINESSES AND SMALL**
8 **CHURCHES. (RDC ST. NO. 2 AT 8). PLEASE RESPOND.**

9 A. Dr. McAbee is correct that discussions were held about the possibility of creating a
10 different stormwater rate structure for certain small businesses and small churches.
11 Ultimately, however, PWSA did not take that approach in making its proposals in this
12 rate case. Therefore, those prior discussions are irrelevant.

13 **Q. PLEASE RESPOND TO DR. MCABEE’S TESTIMONY COMPARING RIVER**
14 **DEVELOPMENT TO “FICTITIOUS LARGE STEEL INDUSTRIAL**
15 **POLLUTERS.” (RDC ST. NO. 2 AT 9-10).**

16 A. In this portion of Dr. McAbee’s testimony, she provides a comparison between the
17 practices of River Development to that of what she refers to as a “Steel Industrial
18 Polluter.” (RDC St. No. 2 at 10, Table 1). This testimony, as acknowledged by Dr.
19 McAbee, is based on “fictitious” information, and therefore provides no basis upon which
20 the Commission can make a decision about PWSA’s stormwater charges. The table that
21 she provides “for illustration purposes only” should be disregarded by the Commission in
22 reviewing PWSA’s proposed stormwater rates.

23 **Q. DOES DR. MCABEE ALSO ADDRESS PWSA’S STORMWATER RATES FROM**
24 **THE PERSPECTIVE OF AFFORDABILITY SPECIFICALLY FOR RIVER**
25 **DEVELOPMENT?**

26 A. Yes. Dr. McAbee expresses concern about the affordability of PWSA’s stormwater
27 charges to River Development. (RDC St. No. 2 at 10-11, Table 2). PWSA understands

1 that stormwater rates may be difficult for customers to afford, particularly when they
 2 were previously not a customer of PWSA and therefore not paying stormwater
 3 management costs through wastewater conveyance charges. However, it is more
 4 equitable to recover the costs of stormwater management through a separate rate that is
 5 specifically designed to calculate the charge based upon the amount of stormwater runoff
 6 that is caused by a particular property due to its amount of impervious surface area.
 7 PWSA has repeatedly expressed a willingness and remains willing to work with River
 8 Development to explore ways in which stormwater charges can be mitigated. In addition
 9 to a simple and robust credit program offered by PWSA, many steps can be taken by
 10 River Development to reduce the amount of impervious area on its property.

11 **Q. IN FACT, HAS PWSA ALREADY REDUCED RDC'S IMPERVIOUS AREA**
 12 **BASED ON AN EARLIER DISPUTE?**

13 A. Yes. Originally, RDC's property was measured as having 224,860 square feet of
 14 impervious area, or 137 ERUs. After discussions with Dr. McAbee on January 18, 2022,
 15 PWSA agreed to shift the parcel boundary, which had been gathered from Allegheny
 16 Count Real Estate records, and the impervious area was reduced to 202,589 square feet,
 17 or 123 ERUs. That is the calculation upon which River Development's current
 18 stormwater charges are being based.

19 **Q. DR. MCABEE ALSO TESTIFIES AND PROVIDES PHOTOGRAPHS OF WHAT**
 20 **SHE BELIEVES SHOULD BE CONSIDERED PERVIOUS SURFACES,**
 21 **INCLUDING VEGETATION FILLED CRACKS IN PAYMENT AND HER FLAT**
 22 **ROOF (RDC ST. NO. 2 AT 15; RDC EXHS. 6 AND 7.) PLEASE RESPOND.**

23 A. Dr. McAbee testifies that because PWSA walked her property before the growing season,
 24 certain areas of her property which now have vegetation in cracks in the asphalt were
 25 mischaracterized as an impervious surface. I have reviewed the photographs and
 26 testimony, and PWSA's position remains unchanged – these surfaces fall squarely under

1 PWSA’ definition of impervious surface under its tariff. Simply because there are cracks
 2 and vegetation in a large, asphalt covered or compacted parking lot does not mean the
 3 surface is now “pervious” and capable of controlling runoff from reaching PWSA’s
 4 collection system. The pictures clearly show that despite the small cracks, the surface will
 5 still contribute significant runoff during a storm event.

6 Similarly, Dr. McAbee argues that her roof is a “60 mils ethylene propylene diene
 7 terpolymer (“EPDM”) roof” that rainwater will evaporate from because it is a flat roof. I
 8 do not agree that a flat roof, which may evaporate some residual moisture after a storm
 9 event, is capable of controlling and mitigating stormwater runoff from reaching PWSA’s
 10 collection system to warrant any stormwater credit. PWSA’s position remains that RDC’s
 11 property does not contain controlling or mitigating enhancements to warrant a stormwater
 12 credit, and RDC is being properly charged for the impervious surface area of the property
 13 like all other PWSA customers.

14 **Q. DR. MCABEE DISCUSSES A 2026 DEADLINE BEING FACED BY PWSA**
 15 **REGARDING STORMWATER MANAGEMENT. PLEASE RESPOND.**

16 A. PWSA is not facing a 2026 deadline to implement billing for stormwater management.
 17 Dr. McAbee may be thinking of deadlines that are facing other municipalities pursuant to
 18 orders that are not applicable to PWSA. Importantly, PWSA has been incurring
 19 stormwater management costs and will continue to do. The change resulting from the
 20 2021 base rate case that PWSA proposes to continue as part of this case is the collection
 21 of these costs through a separate stormwater rate.

22 **VI. CONCLUSION**

23 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

24 A. Yes. However, I reserve the right to supplement this testimony as necessary.

PWSA Exhibit TI-3

Respondent:
Michael J. McNamara, Chief Operations Officer, Pittsburgh School District

Date: August 31, 2023

13. Refer to School District St. No. 1 at 13, lines 2-5. Has the School District applied for a stormwater credit using the application form available on PWSA's website?

RESPONSE:

No, but the School District is currently evaluating projects to determine their eligibility for potential credits.

PWSA Exhibit TI-4

Respondent:
Michael J. McNamara, Chief Operations Officer, Pittsburgh School District


Date: August 31, 2023

9. Did the School District participate in any of the following community meetings regarding PWSA's proposed stormwater charge prior to its implementation?
- (a) Mount Washington Community Development Corporation, April 15, 2021
 - (b) Building Owners & Managers Association of Pittsburgh, April 22, 2021
 - (c) NAIOP Commercial Real Estate Development Association – Pittsburgh Chapter, May 11, 2021
 - (d) Brighton Heights Citizen Federation, May 13, 2021
 - (e) Bellefield Area Citizens Association, June 8, 2021
 - (f) Allegheny City Central Association, June 14, 2021
 - (g) Parking Operators, June 16, 2021
 - (h) Pittsburgh Council on Higher Education, June 23, 2021
 - (i) Bloomfield-Garfield Corporation, June 29, 2021
 - (j) All Pittsburgh Watersheds Task Force, June 30, 2021
 - (k) North Point Breeze Development Corporation, July 12, 2021
 - (l) 31st Ward Community Action Group, July 13, 2021
 - (m) Hazelwood Initiative, August 10, 2021
 - (n) Highland Park Community Council, August 19, 2021
 - (o) Oakland Planning and Development Corporation, August 31, 2021
 - (p) Spring Hill Civic League, September 13, 2021

RESPONSE:

To the best of my knowledge, the School District was not aware of and therefore did not participate in the referenced community meetings.

PWSA Exhibit TI-5




Stormwater Management
Program and Fee


Pittsburgh Public Schools

February 8, 2022

1



**Welcome &
Introductions**



2

Agenda

- Impacts to Individual Property Types
- Development of Stormwater Rate
- Resources for Ratepayers
- Other Stormwater Planning Initiatives
- Discussion & Next Steps

3

Review Stormwater Findings

- Finding 1: Impacts of more rain
- Finding 2: Additional responsibility of managing stormwater
- Finding 3: Basis of fee
- Finding 4: Establish stormwater fee for stormwater projects
- Finding 5: Incentives and Credits
- Finding 6: Communication
- Finding 7: It will take time



4

Stormwater Program Overview

Stormwater Management

- Flooding and level of service
- Stormwater strategic plan
- MS4 NPDES and regulatory issues

Control of combined sewer overflows and sanitary sewer overflows

- Consent Decree negotiations with regulatory agencies

Current rate does not cover these items

- Ongoing planning
- Ongoing negotiations with EPA

5

Property 1: Small 1460 Page St. (8 ERUs)

Parcel Relationships Accounts Credits Events Letters Documents Quality

8 Related Parcels

Total impervious area: 8,027 sf
 Total ERUs: 8
 Total Monthly Base Fee: \$47.00
 Final Monthly Fee: \$47.00

There are 7 parcels.

PIN	Relationship	Parcel Address	Parcel Impervious Area	Base ERU	Exempt	Monthly Base Fee
50070000000000000000	Parent/Owned	1460 PAGE ST	802	1	No	\$5.00
50070000000000000000	Child	1460 PAGE ST	732	1	No	\$5.00
50070000000000000000	Child	1460 PAGE ST	1,200	1	No	\$5.00
50070000000000000000	Child	1460 PAGE ST	712	1	No	\$5.00
50070000000000000000	Child	1460 PAGE ST	1,364	2	No	\$10.00
50070000000000000000	Child	1460 PAGE ST	165	1	No	\$5.00
50070000000000000000	Child	1460 PAGE ST	162	1	No	\$5.00

6

Property 2: Median 519 N. Highland Ave. (96 ERUs)

Parcel Information:

- File: 00000018100001
- Parent PIN: 00000018100001
- Bill Class: HSR
- Tax: 015
- Owner Name: BOARD OF EDUCATION OF THE SCHOOL DIST OF PITT
- Owner Alias: SCHOOL DISTRICT OF PITTSBURGH
- Parcel Address: 519 519 N HIGHLAND AVE
- Gross Area: 327,275 sf
- Parcel ID: 147,204 sf
- Parcel ERIID: 06
- Parcel Base: 8272.16
- Fee: \$572.10
- Parcel Final Fee: \$572.10
- Active Credits: No
- Exemption: None
- Open Events: No
- Flagged Events: No
- Quality Control: Passed

Account Number	Status	Water Rate	Wastewater Rate	Bill Proportion	Monthly Fee	Customer Name	Service Address	Mailing Address	Associated Parcel
302011	Active	R_RATE_2	SANAGE_DISP	33.88%	\$224.81	PITTSBURGH SCHOOL DISTRICT	519 N HIGHLAND AVE PITTSBURGH	PO BOX 606 ELLWOOD CITY PA 15	00000018100001
302012	Active	R_RATE_2	PWSA_WTRD	33.59%	\$226.50	SCHOOL DISTRICT OF PITTSBURGH	519 N HIGHLAND AVE PITTS	PO BOX 606 ELLWOOD CITY PA 15	00000018100001
302013	Active	R_RATE_2	PWSA_WTRD	31.59%	\$202.91	SCHOOL DISTRICT OF PITTSBURGH	519 N HIGHLAND AVE PITTS	PO BOX 606 ELLWOOD CITY PA 15	00000018100001
302014	Active	R_RATE_1 1 0 0	S_FRR_1 1 0 0	0.55%	\$0.50	PITTSBURGH SCHOOL DISTRICT	519 N HIGHLAND AVE PITTSBURGH	PO BOX 606 ELLWOOD CITY PA 15	00000018100001
302015	Active	R_RATE_1 1 0 0	S_FRR_1 1 0 0	0.60%	\$0.56	SCHOOL DISTRICT OF PITTSBURGH	519 N HIGHLAND AVE PITTSBURGH	PO BOX 606 ELLWOOD CITY PA 15	00000018100001

7

Property 3: Largest 590 Crane Ave. (298 ERUs)

Parcel Information:

- File: 0019400100000003
- Parent PIN: 0019400100000003
- Bill Class: HSR
- Tax: 014
- Owner Name: SCHOOL DISTRICT OF PITTSBURGH
- Owner Alias: SCHOOL DISTRICT OF PITTSBURGH
- Parcel Address: 590 590 CRANE AVE
- Gross Area: 1,431,713 sf
- Parcel ID: 990,948 sf
- Parcel ERIID: 006
- Parcel Base: \$1,710.00
- Fee: \$1,710.00
- Parcel Final Fee: \$1,710.00
- Active Credits: No
- Exemption: None
- Open Events: No
- Flagged Events: No
- Quality Control: Passed

Account Number	Status	Water Rate	Wastewater Rate	Bill Proportion	Monthly Fee	Customer Name	Service Address	Mailing Address	Associated Parcel
312000	Active	W-4	PWSC_RATE_2	50.00%	\$1,710.00	PITTSBURGH PUB SCHOOL 100	590 CRANE AVE PITTSBURGH PA 1	PO BOX 606 ELLWOOD CITY PA 15	0019400100000003

8

Stormwater Fee

$$\text{Stormwater Fee (1 ERU)} = \frac{\text{Stormwater Revenue Requirements}}{\text{Stormwater Units of Service}}$$



Stormwater Monthly Fees	ERUs	2022	2023
Residential - Tier 1	0.5	\$2.98	\$3.98
Residential - Tier 2	1.0	\$5.96	\$7.95
Residential - Tier 3	2.0	\$11.92	\$15.90
Non-Residential	per ERU	\$5.96	\$7.95

ERU = Equivalent Residential Unit

9

Stormwater Parcel Classifications



Single Family Residential

- Townhouses
- Rowhouses
- Single Families
- 2, 3 & 4 Family
- Mobile Homes



Non-Single Family Residential

- Apartments
- Commercial
- Industrial
- Health and Education
- City

10

Stormwater Parcel Classifications: Residential

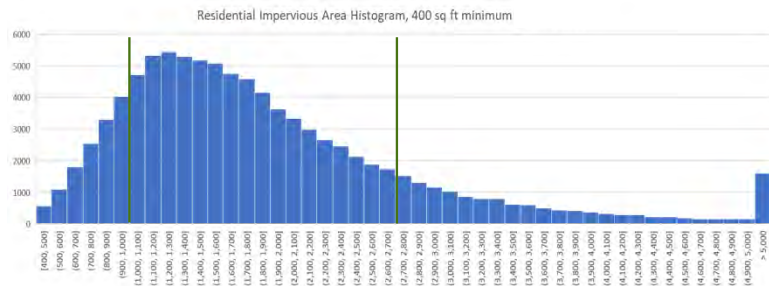


Single Family Residential

- Townhouses
- Rowhouses
- Single Families
- 2, 3, 4- family
- Mobile Homes

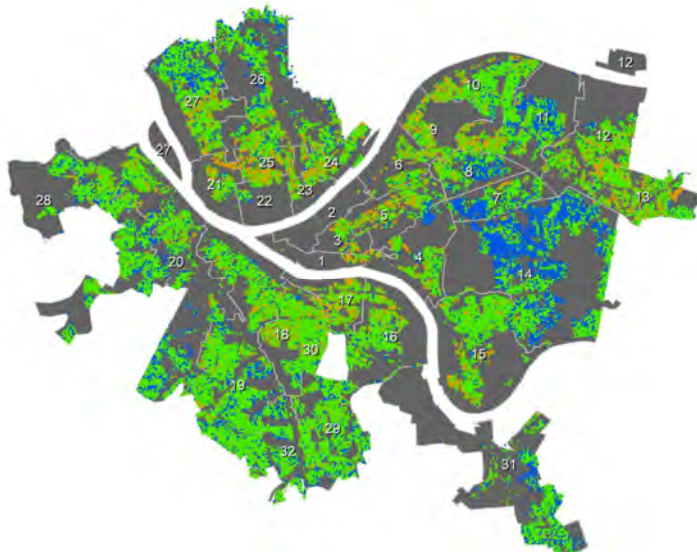
Key Takeaways

- Minimum Impervious Area = 400 square feet
- Tier 1 = minimum bill = 0.5 Equivalent Residential Unit (ERU)
- Tier 2 = typical bill = 1.0 ERU
 - **70% of residential customers are Tier 2**
- Tier 3 = maximum bill = 2.0 ERU



11

Residential Stormwater Parcels in Service Area



Legend

- Tier 1: >400 and <= 1,015 square feet
- Tier 2: >1,015 and <= 2,710 square feet
- Tier 3: >2,710 square feet

12

Stormwater Parcel Classifications: Non-Residential Classes



Non-Single Family Residential

Apartments

Commercial

Industrial

Health and Education

City

- 1 Equivalent Residential Unit = 1,650 square feet
- Minimum Impervious Area = 400 square feet
- Minimum bill = 1 ERU

13



Understanding Stormwater & Impervious Area

- Impervious surfaces are hard surfaces that rain cannot pass through
- Examples:
 - Roofs
 - Driveways and parking lots
 - Sidewalks
- Impervious area mapping of Geographic Information System (GIS) data is generated to determine unique impervious area for each customer
- PWSA will have a process for property owners to appeal or correct impervious surface area calculations

14



Understanding Stormwater & Impervious Area

The amount of impervious surface is related to the quantity and quality of runoff to the stormwater system

- *Impervious surfaces cause increased stormwater volumes and higher peak flows*

Stormwater that flows over paved and hard surfaces, collects trash, sediment, and chemicals (like motor oil and fertilizer) and so is also more polluted

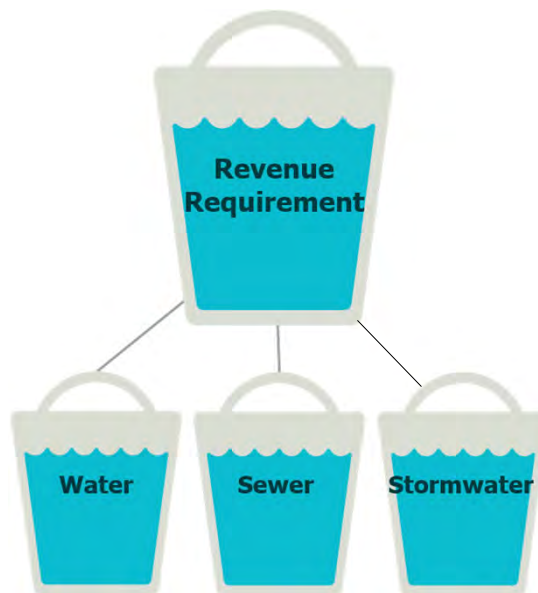
Impervious area based rate structures are the industry standard

- *92% of stormwater utilities*

15

Cost of Service Allocation

- Costs must now be allocated between 3 utilities (instead of two)
- Some are straightforward
 - Water Only / Sewer Only / Stormwater Only
- Others are more challenging and must be allocated among the utilities
 - Shared services (i.e. customer service, engineering, etc.)



16

Rate Revenue Increase

- Estimated increase required to meet revenue requirement
- Assumes 5% DSIC on water and sewage only
- Includes City phase-in for water and sewage
- Includes SW only and 100% City SW

Category	Increase (\$M)	Increase (%)
Water	\$23.3M	19.7%
Sewage	(\$14.8M)	-21.3%
Stormwater*	\$23.7M	n/a
Subtotal: Base Rates	\$32.2M	17.1%

*Reflects gradualism for stormwater revenue requirements

17

Gradualism

- Why Gradualism:
 - New Fee, change in cost recovery
 - Previous Experience
 - Customers Impacts for certain customers
 - Reasonableness
- Based on 1/3 of costs

Category of Cost	Stormwater Revenue Requirement
Revenue Requirement	\$37.4M
Gradualism Adjustment	\$(12.4M)
BDE, BDP, and SW Credit Savings	\$(1.3M)
Total	\$23.7M

18

Phase-In over Two Years

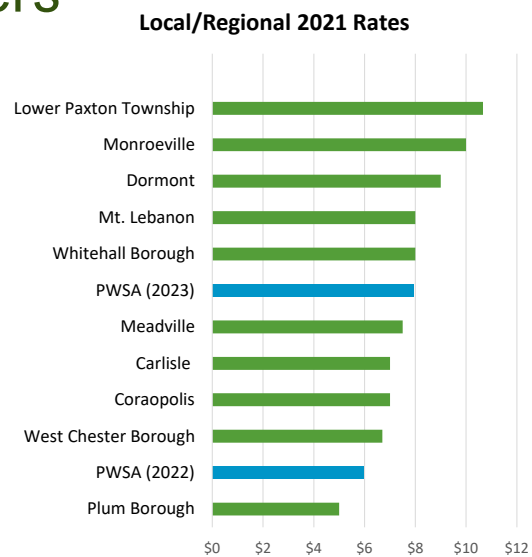
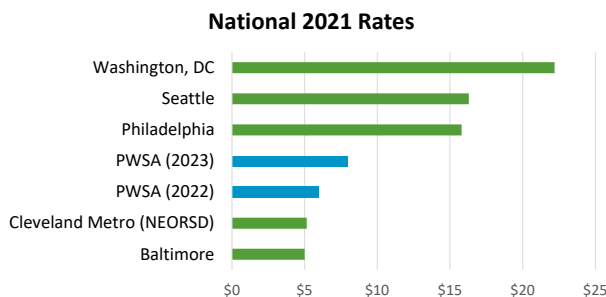
Category	Total Increase (\$M)	Year 1 Increase (\$M)	Year 2 Increase (\$M)
Water	\$23.3M	\$11.7M	\$11.7M
Sewage	(\$14.8M)	(\$7.4M)	(\$7.4M)
Stormwater	\$23.7M	\$17.8M	\$5.9M
Total Base Rates	\$32.2M	\$22.0M	\$10.2M

19

Understanding Our Peers

Monthly Stormwater Fees (per ERU)

- All stormwater programs are different
- Unique operational, infrastructure, climate, and funding challenges
- Locally and nationally, fees vary significantly



20



Activities the stormwater fee will fund

- **Capital Costs:** design and construction of stormwater projects identified in PWSA's Capital Program
- **Direct Costs:** Day-to-day maintenance
 - Cleaning catch basins
 - Weeding and maintenance of PWSA raingardens and stormwater infrastructure
 - Meeting state water quality requirements
- **Indirect Costs:** Shared functions that support stormwater, water, and wastewater services

21

Stormwater Fee Credits



- Credits available for both residential and non-residential customers
- Incentivizes property owners to help reduce the impact of stormwater runoff from a property on PWSA's stormwater management system and our rivers and streams
- **Non-residential customers** – must meet the City of Pittsburgh's 2019 or 2016 stormwater standards
- **Residential customers** –
 - Control at least ¾-inch of runoff from impervious surfaces using solutions such as raingardens
- **Credit Manual and Application** www.pgh2o.com/stormwater-fee

22

Customer Assistance for Stormwater

Bill Discount Program

- Eligible customers, at or below 150% of federal poverty level and enrolled in the Bill Discount Program, will receive an 85% discount on their applicable stormwater rate each month

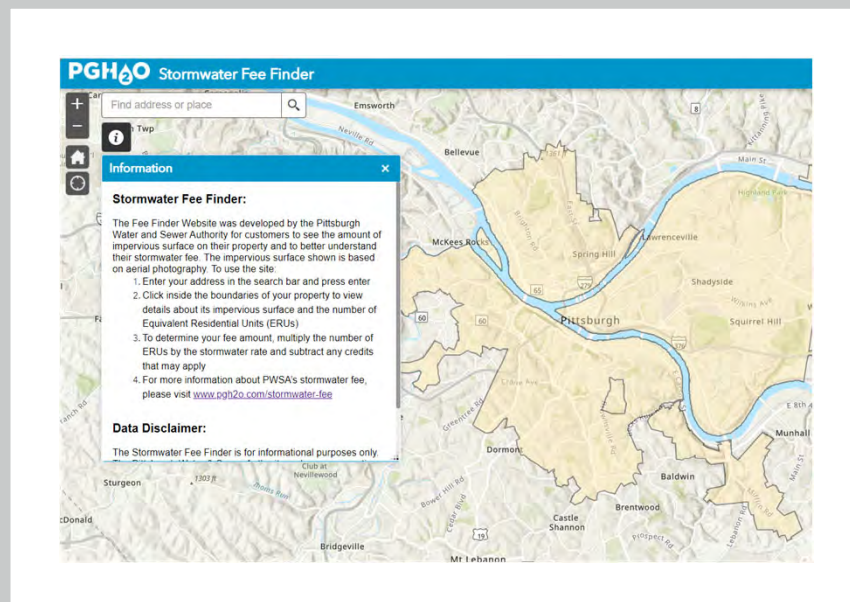
Customers eligible for a stormwater rate discount are eligible for other benefits in the Bill Discount Program

- 100% discount on the water minimum charge
- 100% discount on the wastewater minimum charge
- Annual hardship grant up to \$300

Visit www.pgh2o.com/CAP for more information about our Customer Assistance Programs

23

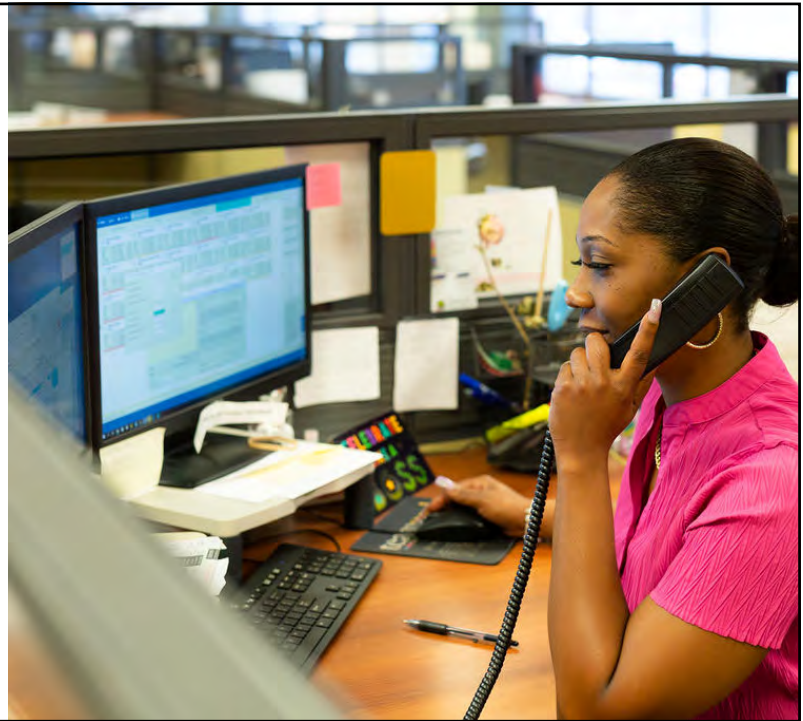
Fee Finder Website



24

Dispute Process

- Customers contact Customer Service with questions about stormwater fee
- Provide
 - Name, Telephone Number, and Email Address
 - Property Address
 - Parcel Number
- Engineering Reviews the Dispute
- Once determination is made, customer is notified



25

Reporting Basement Backups and Flooding

-
- *Call PWSA's 24/7 Emergency Dispatch (412) 255-2423*
 - *Dispatch uses intake form to collect information from caller*
 - *Send crews to investigate*
 - *Use data to inform future projects*



26

Stormwater Strategic Planning

- **Purpose:** Help to address climate change and prioritize future projects over the next five years and into the future.
- **Schedule:** Planning process anticipated to conclude in June 2022
- **Milestones:**
 - Held peer review workshop
 - Conducted Focus Groups with stakeholders
 - Forming Ambassador Program: establish local network to inform and educate
- **Next Steps:** Identify priority area where design work will take place
 - Will help to illustrate 4P's: People, Planet, Place, & Performance

For more information review our FAQ www.pgh2o.com/stormwater-strategic-plan

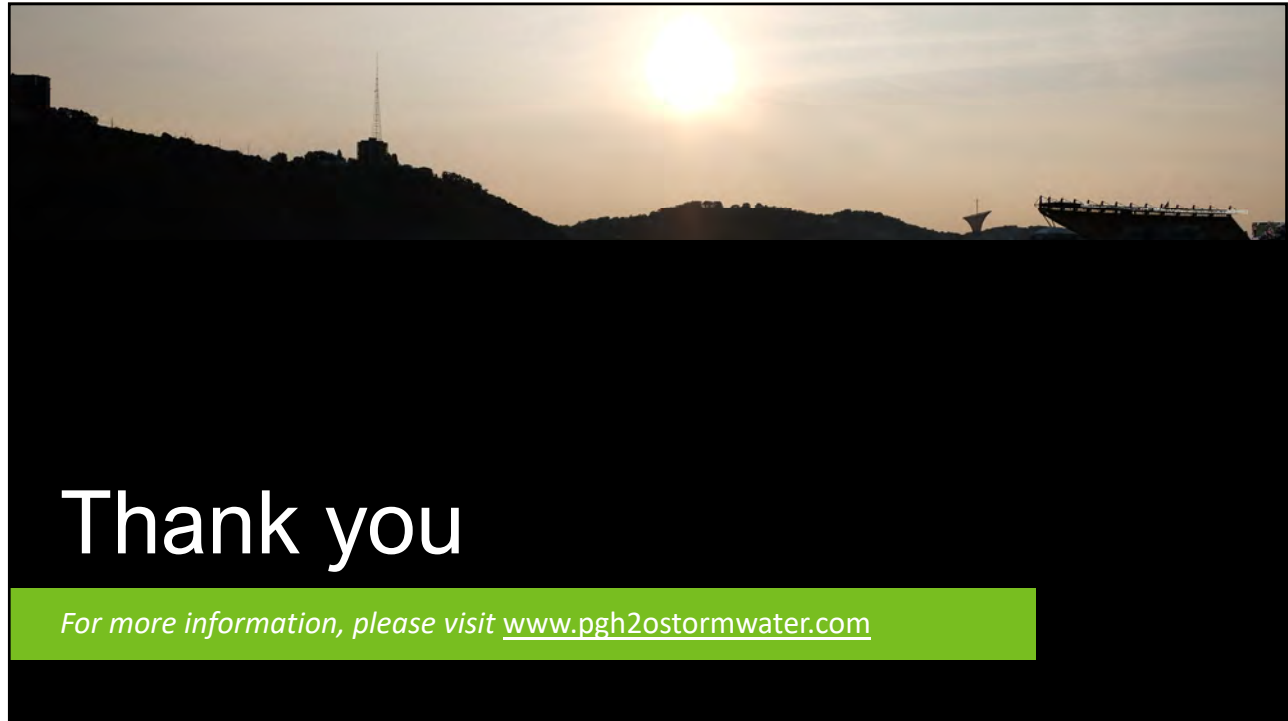
27

Ongoing Communication

- Expanding Community Partnerships
- Utilizing EngagePGH online public engagement platform
- Organizing community meetings with Council Offices
- Developing Business Roundtable Series
- Continuing conversation with Faith-based organizations
- Organizing watershed walks
- Producing video series and expanding digital marketing opportunities



28



Thank you

For more information, please visit www.pgh2ostormwater.com

PWSA Exhibit TI-6

From: Wacker, Kelly M <kwacker1@pghschools.org>
Sent: Wednesday, September 21, 2022 1:28 PM
To: James Stitt <JStitt@pgh2o.com>
Subject: Re: Pittsburgh Public Schools Stormwater Discrepancies

CAUTION: This email originated from outside the authority. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi James

Thank you so much for getting back to me on these account discrepancies. I appreciate all of the leg work you all at PWSA have done to get some of the kinks worked out on our accounts.

I appreciate you confirming the need to adjust the ERU's on our field accounts at Perry, Oliver, and Langley/Greenway as that is where the bulk of our concern lies. So moving forward, can we expect a credit on these field accounts where we had been paying for the excess ERUs until some further determinations could be made? I know you mention that PWSA's billing department will make the adjustments on future bills, I just want to ensure we will be credited back for paying for those extra units in the interim several months it took to get everyone on the same page.

Again I want to thank you all for your time and consideration on these matters. Please don't hesitate to reach out if you have any questions or concerns at all, or you are in need of more information that I could potentially provide.

Thanks again!

Kelly

<p>KELLY WACKER ENERGY MANAGEMENT</p> <p>PITTSBURGH PUBLIC SCHOOLS PLANT OPERATIONS</p> <p>#8 SOUTH 12TH STREET PITTSBURGH PA 15203</p> <p>412-529-5129 (W) | 412-589-0205 (C) kwacker1@pghschools.org</p>

From: James Stitt <JStitt@pgh2o.com>
Sent: Friday, September 16, 2022 1:19 PM
To: Beth Dutton <BDutton@pgh2o.com>; Wacker, Kelly M <kwacker1@pghschools.org>
Subject: RE: Pittsburgh Public Schools Stormwater Discrepancies

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Hi Kelly,

I've been working with Beth to sort through the list of concerns you have expressed. I have been able to confirm the changes in impervious area at Field Houses and have asked our GIS team to update the IA layer to reflect the removal of the bleachers as well as the correction to the ball field area. Our billing operations team has been notified and will be making the updates. The attached spreadsheet indicates the revised ERU calcs.

Date	PIN	Initial Impervious	Initial Tier	Initial ERU	End Impervious	End Tier	End ERU
9/12/2022	0115F00048000000	130638	N/A	80	108468.8957		14
9/12/2022	0020E00099000000	402181	N/A	244	9133.56676		239
9/12/2022	0045P00225000000	263303	N/A	160	9015.951322		155

Also, I reviewed the billing/calculation concerns you listed on the "Needs Addressed" sheet. My analysis and recommendations are attached and highlighted in blue on your sheet. If you have any questions after you have reviewed the list, Beth and I would be happy to meet and expand upon our responses.

The request for additional Child parcels are currently still under review before we can finalize any changes to the aggregations.

Best,
James



James Stitt
Sustainability Manager
Office: [412.255.8800](tel:412.255.8800)
Ext: 8544

Pittsburgh Water and Sewer Authority
1200 Penn Ave, Pittsburgh, PA 15222

<https://pgh2o.com>



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From: Beth Dutton <BDutton@pgh2o.com>
Sent: Wednesday, September 7, 2022 2:20 PM
To: James Stitt <JStitt@pgh2o.com>
Subject: FW: Pittsburgh Public Schools Stormwater Discrepancies



Beth Dutton
Sr. Project Manager, Stormwater
Office: [412.255.8800](tel:412.255.8800)
Ext: 5539
Cell: [412.491.4414](tel:412.491.4414)

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1200 Penn Ave, Pittsburgh, PA 15222

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From: Wacker, Kelly M <kwacker1@pghschools.org>
Sent: Friday, July 15, 2022 9:20 AM
To: Beth Dutton <BDutton@pgh2o.com>
Subject: Pittsburgh Public Schools Stormwater Discrepancies

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[Info for PWSA Regarding Stormwater Fees.xlsx](#)

Good Morning Beth

I apologize for my delay in getting back to you after you left the message earlier in the week, it has been a crazy busy week for me!

Please see the attached link for a spreadsheet (I hope you are able to view it?) outlining the few remaining loose ends we have on our accounts regarding stormwater charges. Primarily, my only real concerns now are (details in the spreadsheet):

- Updating the Field House ERU numbers for Oliver, Langley and Perry. At all three locations, some or all bleachers present in the photos on the Stormwater website have since been removed, and additionally at Perry, the entire grass surface of the field is erroneously categorized as impermeable surface.
- I'd like to get some clarity on the 6 excess ERUs on the collective Cupples Stadium accounts that I cannot account for when trying to reconcile what shows on the website vs what we are being billed for.
-
- I'd like to get some clarity on the 12 excess ERUs on the collective Pioneer/South Brook/West Liberty campus accounts that I cannot account for when trying to reconcile what shows on the website vs what we are being billed for.
- I'd like to get some clarity on the 0.5 excess ERUs on the collective Milliones/UPrep and associated field accounts that I cannot account for when trying to reconcile what shows on the website vs what we are being billed for.
- I believe because the way the parcels are distributed and rounded up on at our collective Student Achievement Center account is unfair, as the total Impermeable Surface at that location according to PWSAs website is 56,552 sq ft or an equivalent of approx. 35 ERUS. But because of the way each individual parcel is rounded, we are being charged for 44 ERUs.

I understand that this is a process, so no rush from my end on this. I just want to make sure we keep in communication on getting this worked out.

As always, I am very grateful to you all for your patience and understanding with this sizable change to our billing structure, and for the excellent level of communication we have received from PWSA on these matters. If you need anything else from me at all or have any questions or concerns you would like to discuss, please feel free to reach out via phone or email.

Thanks again and have a great weekend!

Kelly

KELLY WACKER ENERGY MANAGEMENT

[PITTSBURGH PUBLIC SCHOOLS](#) PLANT OPERATIONS

#8 SOUTH 12TH STREET PITTSBURGH PA 15203

412-529-5129 (W) | 412-589-0205 (C) kwacker1@pghschools.org

From: Beth Dutton
Sent: Monday, March 28, 2022 3:51 PM
To: Megan Hicks <MHicks@pgh2o.com>
Subject: FW: Worthington St Property for Impervious Area Review

Hi Megan,

Can you please see if the parcel boundaries are correct and if this dirt road can be removed from the PPS's impervious area?

Thanks,

Beth

From: Wacker, Kelly M <kwacker1@pghschools.org>
Sent: Monday, March 28, 2022 2:05 PM
To: Beth Dutton <BDutton@pgh2o.com>
Subject: Re: Worthington St Property for Impervious Area Review

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Confirmed! That is definitely the property in question that you have identified in the picture.

<p>KELLY WACKER ENERGY MANAGEMENT PITTSBURGH PUBLIC SCHOOLS PLANT OPERATIONS #8 SOUTH 12TH STREET PITTSBURGH PA 15203 412-529-4271 (W) | 412-445-5591 (C) kwacker1@pghschools.org</p>

From: Beth Dutton <BDutton@pgh2o.com>
Sent: Monday, March 28, 2022 1:35 PM
To: Wacker, Kelly M <kwacker1@pghschools.org>
Cc: Rebecca Zito <RZito@pgh2o.com>; Tony Igwe <Tlgwe@pgh2o.com>
Subject: RE: Worthington St Property for Impervious Area Review

[External] This email originated from outside of the Pittsburgh Public Schools. Even if you are familiar with the sender, do not click links or open attachments unless you expected to receive them.

Thanks Kelly, I will send to our GIS Dept to see if the county's parcel boundary inadvertently included the paper street. If so, we can trim the dirt road from your impervious surface. Just confirming this is the property, as 0 Worthington isn't an official address.

Thanks,

Beth

Parcel Information

Allegheny County Real Estate
ArcGIS Map Google Maps

Summary Data

PIN	0173G00067000000
Parent PIN	0173G00067000000
Bill Class	NSFR
Tier	N/A
Owner Name	SCHOOL DISTRICT OF PITTSBURGH
Owner Alias	SCHOOL DISTRICT OF PITTSBURGH
Parcel Address	0 WORTHINGTON ST
Gross Area	5,034 sf
Parcel IA	805 sf
Parcel ERUs	1
Parcel Base Fee	\$5.96
Parcel Final Fee	\$5.96
Active Credits	No
Exemption	None
Open Events	No
Flagged Events	No

Beth



Beth Dutton
 Sr. Project Manager, Stormwater
 Office: [412.255.8800](tel:412.255.8800)
 Ext: 5539
 Cell: [412.491.4414](tel:412.491.4414)

Pittsburgh Water and Sewer Authority
 1200 Penn Ave, Pittsburgh, PA 15222
<https://pgh2o.com>



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From: Wacker, Kelly M <kwacker1@pghschools.org>
Sent: Monday, March 28, 2022 12:19 PM
To: Beth Dutton <BDutton@pgh2o.com>
Cc: Rebecca Zito <RZito@pgh2o.com>; Tony Igwe <Tlgwe@pgh2o.com>
Subject: Worthington St Property for Impervious Area Review

CAUTION: This email originated from outside the authority. Do not click links or open attachments unless you recognize the sender and know the content is safe. Please see attached bill for review of Impervious Surface. Our contention is that there is no paved surface on this property.

Thanks

Kelly

KELLY WACKER ENERGY MANAGEMENT COORDINATOR
 PITTSBURGH PUBLIC SCHOOLS PLANT OPERATIONS
 #8 SOUTH 12TH STREET PITTSBURGH PA 15203
 412-529-5129 (W) | 412-589-0205 (C) kwacker1@pghschools.org
 PLEASE NOTE MY CONTACT NUMBERS HAVE CHANGED

CONFIDENTIAL

PWSA Exhibit TI-7

To be served under
separate cover

VERIFICATION

I, Tony Igwe, hereby state that: (1) I am the Senior Group Manager, Stormwater for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 09/05/2023 | 3:50 PM EDT

DocuSigned by:
Tony Igwe
404A1979E8BC410...

Tony Igwe
Senior Group Manager, Stormwater
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

JULIE A. MECHLING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Customer Service Performance

Payment Responsibility for Convenience Fees

Returned Mail

Use of Collection Agencies

Low Income Customer Assistance Programs

Public Input Hearing and Filed Public Comments

September 8, 2023

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TABLE OF EXHIBITS

JAM-17	OCA Responses to PWSA Discovery
	<i>OCA Response to PWSA-I-44</i> <i>OCA Response to PWSA-I-37</i> <i>OCA Response to PWSA-I-55</i>
JAM-18	United Responses to PWSA Discovery
	<i>United Response to PWSA-I-9</i> <i>United Response to PWSA-I-13</i> <i>United Response to PWSA-I-14</i> <i>United Response to PWSA-I-15</i> <i>United Response to PWSA-I-24</i> <i>United Response to PWSA-I-25</i>
JAM-19	PWSA Customer Experience Fact Sheet
JAM-20	Transcript After Call Survey Voicemail
JAM-21	PWSA RFP Debt Collection Services Issued Aug 6, 2023 with Attachment 6 Scope of Services
JAM-22	BDP and Hardship Grant Cross-Enrollment 2022
JAM-23	BDP and Hardship Grant Cross-Enrollment Jan-July 2023
JAM-24	Utility Report – Kim Williams dated Apr 19, 2021

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND CURRENT POSITION WITH PWSA.**

3 A. My name is Julie A. Mechling. My position with The Pittsburgh Water and Sewer
4 Authority (“PWSA” or “Authority”) is Director of Customer Service.

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I submitted Direct Testimony on May 9, 2023 pre-marked PWSA St. No. 6, which
7 accompanied the rate filing package.

8 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

9 A. The purpose of my testimony is to respond to the testimony of Office of Consumer
10 Advocate (“OCA”) Witnesses Barbara Alexander, Roger Colton, and Terry Fought. I
11 will also respond to the testimony of Pittsburgh United’s our Water Table (“United”)
12 Witnesses Harry Geller. The topics I will be addressing include these witnesses’
13 recommendations related to:

- 14 • PWSA Customer Service Performance;
- 15 • Payment Responsibility for Convenience Fees;
- 16 • Returned Mail
- 17 • Use of Collection Agencies;
- 18 • Low-Income Customer Assistance Programs including proposals to address
19 enrollment, proposed modifications to the Bill Discount, Hardship Grant, and
20 Stormwater Credit Programs; and,
- 21 • Public Input Hearing and filed public comment customer service follow-up.

22
23 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

24 A. Yes, I am sponsoring PWSA Exhibits JAM-17 through JAM-24, which are described in
25 the Table of Exhibits included with the Table of Contents.

1 **Q. BASED UPON YOUR REVIEW OF THE DIRECT TESTIMONY THAT YOU**
2 **WILL BE ADDRESSING HERE, DO YOU HAVE ANY HIGH-LEVEL**
3 **OBSERVATIONS THAT YOU WOULD LIKE TO SHARE?**

4 A. Yes. I would like to point out that PWSA recently wrapped up an extensive proceeding
5 related to its compliance with the Commission’s regulations and expectations regarding
6 Customer Service.¹ That proceeding considered and evaluated every aspect of PWSA’s
7 customer service operations to include operational processes, internal training materials,
8 and customer facing materials. In addition, issues specific to PWSA as a municipal
9 authority with the power to pursue liens for non-payment of utility services were
10 addressed alongside the development of various PWSA customer service processes and
11 materials. I am personally proud of what we were able to accomplish, largely on a
12 collaborative basis, with the input of Commission staff and the parties during the
13 Compliance Plan – Stage 2 proceeding. I would also note that this is PWSA’s fourth
14 base rate case since coming under the jurisdiction of the Commission in 2018. Again,
15 mostly through collaborative efforts as part of those proceedings, PWSA has continued to
16 enhance its low-income customer assistance programs and other customer service related
17 issues. I would also like to be clear that appropriately addressing the issues facing low-
18 income customers continues to remain a priority for PWSA. PWSA’s Board of Directors
19 and the Low-Income Assistance Advisory Committee (“LIAAC”), as described in my

¹ *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority – Stage 2 Docket Nos. M-2018-2640802 (water) and M-2018-2640803 (wastewater), Order entered July 14, 2022, adopting as own action the Recommended Decision dated May 18, 2022 which recommended approval of the Joint Petition for Settlement dated March 14, 2022. The specific issues addressed in the Stage 2 customer service proceeding included: (1) The language, format and method of providing suspension and termination notice pursuant to Chapter 14 of the Public Utility Code and Chapter 56 of the Commission’s regulations; (2) PWSA’s compliance with the Discontinuance of Service to Leased Premises Act (“DSLPA”), 66 Pa.C.S. §§ 1521-1533; and, (3) PWSA’s plan for collections (to include strategies to reduce overall uncollectible charges to ensure collections practices for residential customers are consistent with legal requirements).*

1 direct testimony, are regularly reshaping and retooling our customer assistance programs
2 to make certain that the most vulnerable and recently unemployed customers receive
3 appropriate financial support with respect to managing their PWSA charges. (PWSA St.
4 No. 6 at 35-36).

5 **Q. DO THE PARTIES RECOGNIZE ALL THIS EFFORT IN THEIR DIRECT**
6 **TESTIMONY?**

7 A. Yes, they do. There is a lack of recognition, however, that in implementing all these
8 customer service and low income assistance programs, PWSA has always been careful
9 not to levy excess costs on other ratepayers or put at risk the ability to adequately fund its
10 significant capital budget – the backbone of our ability to provide safe and reliable
11 service. As I have testified in prior cases, recommendations to enhance our low income
12 customer assistance programs (whether through more significant revenue loss or
13 increased programming and implementation costs) must be balanced with the ability of
14 PWSA to receive the revenues needed to continue to provide adequate, efficient, safe and
15 reasonable service and the need to avoid excessive rate burdens on customers who are not
16 participating in our assistance programs and who ultimately pay for these programs. I am
17 concerned that the recommendations of the other parties, and particularly I&E, would
18 seriously threaten PWSA’s ability to maintain its service at current levels.

19 **Q. DO YOU BELIEVE THAT OCA AND UNITED HAVE ADEQUATELY**
20 **CONSIDERED THE COST IMPACTS TO PWSA AND ITS RATEPAYERS IF**
21 **THEIR RECOMMENDATIONS WERE ADOPTED?**

22 A. No, I do not. In discovery, Mr. Colton confirms that he did not prepare any cost estimate
23 for programming or other staffing costs.² Mr. Geller similarly confirmed that he did not

² See PWSA Exh. JAM-17 OCA Response to PWSA-I-44.

1 “perform an independent analysis of the cost to PWSA related to the provision of utility
2 services” but, rather, focused his analysis on the “affordability of rates for low income
3 residential ratepayers.”³ While I recognize that Mr. Colton attempted to calculate costs
4 associated with his proposals which OCA has factored into its revenue requirements, Mr.
5 Colton’s cost proposal is inadequate for the reasons I will discuss later. I cannot stress
6 enough that the cost impacts of program modifications of PWSA’s customer service
7 operations will be borne by all of PWSA’s ratepayers since PWSA does not have any
8 shareholders and is regulated on the cash flow methodology of ratemaking. An inability
9 of PWSA to collect revenue for services rendered due to the implementation of
10 significant costly programs would divert resources from other projects.

11 **Q. CAN YOU FURTHER EXPLAIN HOW THE LACK OF SHAREHOLDERS**
12 **REQUIRES ALL COSTS TO BE BORNE BY PWSA’S RATEPAYERS IF PWSA**
13 **IS UNABLE TO COLLECT REVENUE?**

14 A. Yes. There are costs to PWSA to provide service. As a public authority, PWSA has no
15 investors and must rely on revenues collected from its ratepayers to fund its operations.
16 While the cost of supporting the ability of low-income customers to receive utility
17 services may be appropriately shared among all other ratepayers, there is a risk of
18 nonpayment from these other ratepayers if such costs become unreasonable. If PWSA is
19 unable to recover the costs to provide service, then PWSA will lack the funding
20 necessary to continue to address aging (and previously neglected) infrastructure issues,
21 and to upgrade systems to satisfy compliance with regulatory requirements and
22 expectations of the Commission and other regulators.

³ See PWSA Exh. JAM-18 United Response to PWSA-I-9.

1 **Q. HAS PWSA OFFERED A REASONABLE BALANCING OF THESE ISSUES**
 2 **THAT THE COMMISSION SHOULD APPROVE?**

3 A. Yes. Even though I am advised by counsel that there are no Commission regulations or
 4 statutory requirements requiring PWSA to offer *any* low-income customer assistance
 5 programs, PWSA has implemented robust low income customer assistance programs,
 6 which we continue to refine and enhance as we are able. The proposals in this
 7 proceeding are examples of our efforts to continue to enhance these programs based on
 8 the needs of our customers from our experience with operating the programs over the past
 9 five years. PWSA, however, also has an obligation to be mindful of the cost impacts of
 10 both: (1) programmatic changes; and, (2) reducing the amounts consumers are required to
 11 pay for services rendered, because unreasonably increasing the rates that customers who
 12 are not qualified for these programs must pay could jeopardize PWSA’s revenue stream.
 13 In my opinion, the recommendations PWSA has offered in this proceeding to enhance
 14 our low-income customer assistance programs are reasonably tailored in consideration of
 15 expected costs and the continuing impacts on collections resulting from our inability to
 16 terminate service for non-payment during the pandemic and during the conversion to a
 17 new Customer Information System in 2022.

18 **II. PWSA CUSTOMER SERVICE PERFORMANCE**

19 **A. Continuing To Meet Reasonable Customer Service and Service Quality**
 20 **Performance as Condition of Approving Multiyear Rate Increase**

21 **Q. PLEASE DESCRIBE MS. ALEXANDER’S CONCERNS RELATED TO PWSA’S**
 22 **COMMITMENT TO MEETING REASONABLE CUSTOMER SERVICE AND**
 23 **QUALITY PERFORMANCE METRICS IF A MULTIYEAR RATE INCREASE**
 24 **WERE APPROVED.**

25 A. Ms. Alexander expresses concern that not identifying specific customer service and
 26 service quality performance metrics which PWSA would be required to achieve as a

1 condition of receiving approval for its rate request is an “unreasonable bargain for
 2 consumers.” (OCA St. No. 5 at 7-8). Ms. Alexander further misrepresents the direct
 3 testimony of William Pickering, PWSA’s Chief Executive Officer, which notes that
 4 approval of its multiyear rate request would place PWSA “in a solid position to continue
 5 making progress toward enhancing the quality and effectiveness of customer service,” as
 6 support for her view that the multiyear rate increase must be tied to specific performance
 7 standards. (OCA St. No. 5 at 6).

8 **Q. ARE YOU AWARE OF ANY REQUIREMENT THAT PWSA’S RATE REQUEST**
 9 **CAN ONLY BE APPROVED UPON THE CONDITIONING OF ACHIEVING A**
 10 **SPECIFIC PERFORMANCE STANDARD?**

11 A. No. In fact, I am advised by counsel that, following a litigated rate case proceeding, the
 12 Commission has not directed performance standard measures as a condition of approving
 13 a rate case.⁴ Counsel further informs me that the statutory authority permitting multiyear
 14 rate plans has no specific requirements regarding performance standard measures.

15 **Q. DO YOU AGREE WITH OCA WITNESS BARBARA ALEXANDER THAT,**
 16 **“...PWSA HAS NOT PROVIDED ANY MEANINGFUL ASSURANCE OR**
 17 **MECHANISM TO MEET REASONABLE CUSTOMER SERVICE AND**
 18 **SERVICE QUALITY PERFORMANCE.” (OCA ST. NO. 5 AT 6)?**

19 A. I firmly disagree with the above statement. While Ms. Alexander points to Chief
 20 Executive Officer, Will Pickering’s testimony to make her argument, she fails to
 21 acknowledge his clear determination that, actually, “the six drivers for the rate increase
 22 are capital costs, inflationary operating budget costs; Wet Weather Consent Decree costs;

⁴ While I recognize that other utilities may have voluntarily agreed to such terms as part of a settlement of their base rate cases, I understand from counsel that a settlement approved by the Commission is different from a Commission directive after a litigated proceeding. I also understand from counsel that cases where utilities voluntarily agreed to performance standards as a condition of settlement and most on a forward looking basis agreeing to various reporting requirements. It is my understanding that if a party wanted to challenge any of these utilities’ performance, they would have to file a separate proceeding seeking to enforce the terms of settlement.

1 environmental compliance; decreased consumption; and funds to meet financial
2 obligations/metrics that affect the bond rating.” (PWSA St. No. 1 at 13). To be clear,
3 PWSA is not suggesting that this rate increase is a necessary condition of continuing to
4 enhance and improve our customer service and service quality performance. On the
5 contrary, PWSA is fully committed to continuing to meet and/or exceed its established
6 Headwaters Metrics, PUC Compliance Plan commitments, and is on track to deliver the
7 two PUC Audit Implementation Plan items assigned to Customer Service by the due date
8 of September 30, 2023. I believe PWSA has demonstrated its sincere commitment in this
9 regard, throughout all the Commission proceedings⁵ I discussed above, by steadfastly
10 working on refining and enhancing our customer service processes since coming under
11 the Commission’s jurisdiction in 2018. Not only has PWSA demonstrated its ability to
12 continually meet its established metrics, PWSA Customer Service leadership has created
13 a fact sheet to highlight strategic enhancements to elevate its customer experience. See
14 PWSA Exhibit JAM-19. There is no basis on which to conclude that PWSA would halt
15 its progress toward becoming a highly responsive and trusted public utility if a multiyear
16 rate plan were approved. Likewise, there is no support for Ms. Alexander’s view that the
17 Commission needs to impose some type of “consequences” on PWSA if it does not meet
18 its internal standards to incentivize a commitment to providing superior customer
19 service.⁶ (OCA St. No. 5 at 7). To the contrary, the stability of a known revenue stream

⁵ In my direct testimony, I included a three-page listing of all the Customer Service accomplishments for just one year, 2022. See PWSA St. No. 6 at 16-18.

⁶ While Ms. Alexander appears to take the view that a condition of approving a rate increase request for PWSA should include the requirement to meet certain performance standards, she does not offer any suggestions for the “consequences” she is recommending to PWSA if, after approval of the rate request with such conditions, PWSA does not meet its targets. Any such consequence which jeopardizes the ability of PWSA to pursue collection of revenue for Commission approved rates would be totally unreasonable because it would create doubt about the revenue that might be received to support PWSA’s capital projects and operating budgets. It would also create confusion for customers and increase PWSA’s costs related to

1 which would be available as a result of the certainty of rates for a three year period
 2 (without the need to utilize staff time and costs to engage in rate case litigation) would
 3 stabilize customer services interactions with PWSA’s customers regarding various
 4 initiatives by building customer confidence in planned improvements to their services.

5 **Q. ON WHAT BASIS DOES MS. ALEXANDER SUPPORT HER VIEW THAT**
 6 **PWSA’S CUSTOMER SERVICE PERFORMANCE IS UNSATISFACTORY?**

7 A. Ms. Alexander considers PWSA’s call center internal targets related to average speed of
 8 answer and abandonment rate through March 2023 and concludes that there is “a
 9 relatively high abandonment rate of 3% or more for calls that reflect the most common
 10 call purposes, including billing and metering and stormwater issues.” As a result, Ms.
 11 Alexander proposes that “as a condition of any rate increase adopted by the Commission,
 12 that PWSA be required to confirm to its own internal quarterly call center performance
 13 standards of a call answering rate of 1 minute (60 seconds) or less and an abandonment
 14 rate of 3% or less for each of its call center queues.” (OCA St. No. 5 at 9-12).

15 **Q. IS MORE UP-TO-DATE INFORMATION AVAILABLE THAN MS.**
 16 **ALEXANDER USED IN HER ANALYSIS?**

17 A. Yes. PWSA reports these statistics on a quarterly basis in its Compliance Plan Progress
 18 Reports filed at docket number M-2018-2640802.⁷ In its July 28, 2023 quarterly status
 19 report, PWSA reported the information through June 30, 2023 which provides an

noticing rate changes. Finally, I am advised by counsel, that there is no Commission precedent requiring future customer service performance targets to be met as a condition of a utility being permitted to pursue collection of rates previously approved by the Commission.

⁷ These reports are publicly available on the Commission’s website and served to the parties of PWSA’s Compliance Plan proceeding including counsel for OCA.

1 additional data beyond that analyzed by Ms. Alexander for her testimony. Ms. Alexander
 2 does not include this updated information in her testimony.⁸

3 **Q. DOES THE DATA THROUGH AUGUST 21, 2023 INDICATE THE CONTINUED**
 4 **STABILITY OF THE CONTACT CENTER METRICS?**

5 A. Yes. Please see the below graphs and data that support the stabilization of average speed
 6 of answer of one minute and four seconds and an average abandonment rate of less than
 7 3% for January 1 – August 31, 2023.

Queue Group Performance by Queue																
1 - All Queues																
1/1/2023 - 8/31/2023 - 00:00 - 24:00																
Created on 9/6/2023 9:01:44 AM by JulieQuigley																
ACD queue	ACD queue name	ACD calls offered	ACD calls handled	Calls abandoned (short)	Calls abandoned (long)	Calls interflowed	Calls requeued	Answered by ACD group 1	Average speed of answer (hh:mm:ss)	Average delay to abandon (hh:mm:ss)	Average delay to interflow (hh:mm:ss)	ACD handling time (hh:mm:ss)	Average ACD handling time (hh:mm:ss)	Abandon %	Service level %	Answer %
P001	GENERAL	59721	57079	150	1686	956	8737	57079	00:01:21	00:01:40	00:03:19	5733:25:58	00:06:02	2.8%	77.4%	95.6%
P004	DISPATCH	22864	22199	419	665	0	310	22199	00:00:29	00:01:33	00:00:00	750:30:58	00:02:02	2.9%	95.2%	97.1%
P002	COLLECTIONS	7899	7233	25	377	289	1142	7233	00:01:33	00:02:24	00:03:34	785:51:12	00:06:31	4.8%	74.0%	91.6%
P003	BILLING AND METERING	7005	6698	28	196	111	1031	6698	00:01:18	00:02:46	00:03:38	623:08:03	00:05:35	2.8%	78.0%	95.6%
P006	AMI 8920	11917	6666	152	72	5179	0	6666	00:00:08	00:00:13	00:00:13	470:15:28	00:04:14	0.6%	100.0%	55.9%
P005	AMI	3522	3470	13	52	0	659	3470	00:00:41	00:01:39	00:00:00	233:51:03	00:04:03	1.5%	89.5%	98.5%
P008	PERMITS	1549	1339	14	51	159	245	1339	00:00:15	00:00:19	00:00:56	54:52:45	00:02:28	3.3%	100.0%	86.4%
P009	STORMWATER	1023	957	7	40	26	171	957	00:01:23	00:02:26	00:03:55	123:14:51	00:07:44	3.9%	76.9%	93.5%
Totals		115500	105641	808	3139	6720	12295	105641	00:01:04	00:01:45	00:00:54	8775:10:18	00:04:59	2.7%	83.7%	91.5%

8
 9 **Q. WHAT FACTORS TEMPORARILY AFFECTED PWSA’S DELIVERY OF**
 10 **THESE METRICS BEGINNING IN AUGUST 2022?**

11 A. On August 8, 2022, PWSA launched a new billing system, SAP, and a customer self-
 12 service portal, Customer Advantage. The Contact Center handled 30,104 more calls in
 13 2022 than in 2021 as a result of these system changes. While the Customer Advantage
 14 portal allows customers to view and pay bills, monitor usage and receive leak alerts, and
 15 start and stop service all under one username and password, it was the transition to a new
 16 account number and to the new portal that primarily drove call volumes. These data
 17 make clear that there is no basis on which to conclude that PWSA is providing

⁸ These reports are publicly available on the Commission’s website and served to the parties of PWSA’s Compliance Plan proceeding including counsel for OCA.

1 inadequate or unreasonable service in violation of the Public Utility Code or Commission
2 regulations.

3 **Q. DO YOU AGREE WITH MS. ALEXANDER’S PROPOSED REQUIREMENT**
4 **THAT PWSA SHOULD APPLY ITS CALL HANDLING INTERNAL**
5 **STANDARDS OF AVERAGE SPEED OF ANSWER OF 1 MINUTE OR LESS**
6 **AND AVERAGE ABANDONMENT RATE TO EACH CALL QUEUE,**
7 **INDIVIDUALLY (OCA ST. NO. 5 AT 12)?**

8 A. I do not. Ms. Alexander’s proposed requirement assumes that smaller amounts of data in
9 certain queues should be given the same consideration as queues with larger amounts of
10 data and that PWSA’s average of all calls received and handled versus customers who
11 choose to hang up before their call is answered is somehow flawed or insufficient.

12 **Q. HOW DOES PWSA MEASURE CUSTOMER SATISFACTION?**

13 A. As explained more fully in my direct testimony, PWSA developed a program of routine
14 customer service satisfaction surveys and provided an analysis of the results from 2022 in
15 PWSA Exh. JAM-3. (PWSA St. No. 6 at 18-19).

16 **Q. BASED ON THESE AFTER CALL SURVEYS WITH THE CONSUMERS WHO**
17 **ARE ACTUALLY INTERFACING WITH PWSA, HAVE YOU RECEIVED ANY**
18 **FEEDBACK ABOUT CALL WAIT TIMES?**

19 A. Yes I can testify that not one of PWSA’s customers who recorded an after call survey
20 voicemail in 2023 has complained of a long hold or wait time in the queue. In fact,
21 customers are most normally exuding praise of PWSA’s customer experience. A
22 transcript of an after survey call is provided as PWSA Exhibit JAM-20 as one example.⁹
23 This supports my conclusion that neither Ms. Alexander nor any other witness in this
24 proceeding has demonstrated that PWSA is currently providing inadequate or
25 unreasonable service.

⁹ A link to the audio file of this after call survey is also being served with this testimony.

1 **B. Root Cause Analysis**

2 **Q. PLEASE DESCRIBE MS. ALEXANDER’S CRITICISMS OF PWSA’S “ROOT**
 3 **CAUSE ANALYSIS” AND HER RESULTING RECOMMENDATION.**

4 A. Ms. Alexander unreasonably concludes that PWSA “failed to implement” the root cause
 5 analysis consistent with the settlement of the last rate case. Her sole basis for this
 6 conclusion is her view that the root cause analysis “failed to include or evaluate the root
 7 cause of complaints filed with BCS and resulting infractions.” (OCA St. No. 5 at 16,
 8 emphasis added). Based on this, Ms. Alexander recommends that “PWSA be required to
 9 conduct the required root cause analysis of all customer complaints, including those
 10 informally or formally appealed to the Commission and BCS findings about potential
 11 infractions within 6 months at no additional costs to customers.” Ms. Alexander
 12 recommends that this “revised and corrected root cause analysis should be reviewed with
 13 stakeholders and possible reforms implemented promptly.” (OCA St. No. 5 at 17
 14 emphasis added).

15 **Q. DO YOU AGREE WITH MS. ALEXANDER’S PREMISE THAT PWSA’S ROOT**
 16 **CAUSE ANALYSIS “FAILED” TO SATISFY PWSA’S PRIOR SETTLEMENT**
 17 **COMMITMENT?**

18 A. Absolutely not. I described, at great length, the root cause analysis that was conducted,
 19 the nine recommendations received and PWSA’s follow-up work to date to address the
 20 recommendations in my direct testimony. (PWSA St. No. 6 at 39-45). Ms. Alexander
 21 does not acknowledge or consider any of this in her testimony. Rather, she focuses on
 22 her analysis of BCS reports associated with informal complaints and PWSA’s
 23 information regarding the infractions cited by BCS. (OCA St. No. 5 at 13-14, 16). From
 24 her analysis, Ms. Alexander makes the conclusion that PWSA’s root cause analysis did

1 not also evaluate this data and, therefore, failed to satisfy prior settlement commitments.
 2 (OCA St. No 5 at 17).

3 **Q. DO YOU AGREE WITH MS. ALEXANDER’S PREMISE THAT PWSA’S ROOT**
 4 **CAUSE ANALYSIS DID NOT CONSIDER THE SAME DATA RELIED UPON**
 5 **BY BCS REGARDING INFORMAL COMPLAINTS AND INFRACTIONS?**

6 A. No, I do not. PWSA’s root cause analysis was conducted at the dispute level. Per 52 Pa.
 7 Code §56.162(6), if the complainant has not contacted the utility, the Commission shall
 8 direct the complainant to the utility. Because informal and formal complaints cannot be
 9 filed prior to a complainant first contacting PWSA to report their issue, the analysis at the
 10 dispute level encompasses all customer disputes, which may or may not be escalated to
 11 the informal or formal complaint level. PWSA’s internal records indicate that the volume
 12 of disputes received are more substantial than the number of informal and/or formal
 13 complaints received. Ms. Alexander acknowledges this point in her testimony explaining
 14 that “Customer complaints typically form a hierarchy or pyramid from a large volume of
 15 disputes to a smaller group of informal complaints to the BCS and a relatively small
 16 number of formal complaints filed with the Commission.” (OCA St. No. 5 at 15). By
 17 evaluating all disputes received by PWSA, the analysis allowed for a larger pool of data
 18 to be reviewed. All recommendations provided within the analysis would be applicable
 19 to disputes, informal complaints, and formal complaints.

20 **Q. DO YOU AGREE WITH MS. ALEXANDER’S RECOMMENDATIONS TO**
 21 **CONDUCT A FURTHER ROOT CAUSE ANALYSIS?**

22 A. No, I do not. For the reasons I just highlighted, I disagree that the root cause analysis
 23 was “deficient” and needs to be “redone.” Ms. Alexander’s proposal would not be a
 24 productive or valuable use of PWSA Customer Service management personnel’s time;
 25 rather, it would actually be a misuse and waste of ratepayer money. Moreover, while Ms.

1 Alexander’s recommendation is that the analysis be performed “at no additional cost to
 2 ratepayers,” such recommendation is not possible for a cash flow regulated utility. Any
 3 costs to be expended by PWSA to redo the analysis – whether through use of a consultant
 4 or a diversion of staff resources – would have to be recovered through ratepayers as
 5 PWSA has no shareholders or other funding sources.

6 **Q. DOES PWSA SEEK TO MINIMIZE COMPLAINTS, AND, IF SO, HOW DOES**
 7 **PWSA MEASURE ITS PROGRESS IN THIS REGARD?**

8 A. Yes, PWSA seeks to minimize complaints by ensuring that the consumers with whom it
 9 interacts are satisfied with the level of service that they receive. PWSA does not measure
 10 this level of satisfaction in terms of the complaints received (as Ms. Alexander does) but
 11 rather by the customer satisfaction rate (which is included on a monthly basis in the
 12 Quarterly Compliance Plan Report) and the results of our After Call Surveys. Moreover,
 13 as I discussed in my direct testimony, PWSA engaged Probolsky Research to gauge
 14 overall customer satisfaction and perceptions of PWSA, measure awareness of programs
 15 and services, and to understand customers’ preferred methods of communication. The
 16 key findings of this survey are summarized in my direct testimony. (PWSA St. No. 6 at
 17 19-22).

18 **Q. WHY DO YOU BELIEVE MENTIONING THIS AGAIN IS IMPORTANT IN**
 19 **THE CONTEXT OF MS. ALEXANDER’S RECOMMENDATIONS REGARDING**
 20 **THE ROOT CAUSE ANALYSIS?**

21 A. I mention this again for several reasons. First, PWSA’s efforts in this regard demonstrate
 22 its strong desire to understand the actual needs of its customers and to determine how to
 23 best serve them. Second, investing in outreach to our actual customers to learn about
 24 their experiences provides significant useful data that can inform our processes going
 25 forward. While I do not disagree with Ms. Alexander’s premise that analyzing our past

1 interactions with customers who raised disputes is also important, I do not believe she is
 2 giving significant weight to all our customer service satisfaction processes or the work
 3 that we have already done regarding the disputes analyzed in the root cause analysis in
 4 making her recommendations for us to expend more staff resources and ratepayer money
 5 to unnecessarily “redo” work that has already been done. For all these reasons, I do not
 6 support her recommendation that PWSA “redo” the root cause analysis.

7III. PAYMENT RESPONSIBILITY FOR CONVENIENCE FEES

8 **Q. ON WHAT BASIS DOES MS. ALEXANDER OPPOSE PWSA’S PROPOSAL TO**
 9 **REQUIRE RESIDENTIAL CUSTOMERS ELECTING A BILL PAYMENT**
 10 **OPTION THAT INCLUDES A CONVENIENCE FEE TO PAY SUCH FEE?**

11 A. Ms. Alexander opposes PWSA’s proposal on several basis. First, she states that “there is
 12 no indication that the costs associated with eliminated credit/debit card fees has
 13 increased.” (OCA St. No. 5 at 18). Second, she is concerned that “imposing a fee on
 14 these vulnerable customers after agreeing to eliminate these fees only one year ago is
 15 unreasonable.” (OCA St. No. 5 at 19). Finally, she expresses concern about the “likely
 16 adverse impact” to “lower income and fixed income customers who will see the higher
 17 bills and payment difficulties if this significant rate increase is approved.” (OCA St. No.
 18 5 at 19).

19 **Q. DOES MR. GELLER, ON BEHALF OF UNITED, EXPRESS SIMILAR**
 20 **CONCERNS REGARDING PAYMENT RESPONSIBILITY FOR**
 21 **CONVENIENCE FEES?**

22 A. Yes. Mr. Geller states that he is “concerned that eliminating pass-through treatment of
 23 convenience fees will increase the overall amount that customers must devote to their
 24 monthly PWSA bills.” (United St. No. 1 at 47). He also claims that PWSA “currently
 25 still charges a \$1.49 fee for cash payment at a third party location, such as a 7-11, CVS,

1 Dollar General, Walgreens, or Walmart Super Center” which are locations more likely to
 2 be relied upon by lower income customer out of “necessity.” (United St. No. 1 at 48).

3 Accordingly, Mr. Geller recommends “that PWSA pass through all third-party bill
 4 payment fees for residential customers – including fees for cash payments at a third party
 5 location.” (United St. No. 1 at 48).

6 **Q. IS PWSA WILLING TO REVERSE ITS PROPOSAL IN THIS PROCEEDING**
 7 **RELATED TO PAYMENT RESPONSIBILITY FOR CONVENIENCE FEES?**

8 A. No. Mr. Barca also addresses this topic more fully in his rebuttal testimony, PWSA St.
 9 No. 2-R. I would like to point out that whether PWSA’s convenience fees¹⁰ are paid by
 10 individual customers using these payment options with a fee or all ratepayers, it is an
 11 incurred cost that needs to be recovered. While I understand the concern that these fees
 12 may be more likely incurred by “vulnerable” customers, the result of removing the cost
 13 recovery for these fees from all ratepayers’ rates is to lessen the amount of rate increase
 14 that is necessary. Finally, I am advised by counsel that the presence of a related prior
 15 settlement commitment does not somehow bar PWSA from making a new proposal
 16 related to the same issue for the Commission’s consideration in a future case.

17 **Q. IS PWSA PROPOSING ANY CHANGE REGARDING THE PAYMENT OF FEES**
 18 **CHARGED BY THIRD PARTY RETAILERS?**

19 A. No. These third party fees are not assessed by PWSA nor are they paid by PWSA for any
 20 customer. They have never been recovered in rates because they are not costs to PWSA.
 21 Rather, they are charges assessed and collected by the third party retailers at the time of
 22 payment within their establishments. These fees are never submitted to PWSA, and we
 23 have never recovered the costs of them from all ratepayers through rates. I am advised

¹⁰ To be clear, the fees assessed at third party locations are not paid by PWSA ratepayers in rates.

1 by counsel that there are no legal requirements for public utilities to pay these third party
2 fees for customers. Moreover, implementation of such a process would be extremely
3 difficult, costly and time consuming given the various locations where such payments
4 may be made and the coordination with the third party retailers that would need to be
5 established. I do not view this as a reasonable use of ratepayer money. For all these
6 reasons, PWSA does not support reversing its original proposal to shift payment
7 responsibility for PWSA's convenience fees to the customer electing the payment option
8 rather than to all ratepayers.

9 **IV. RECOMMENDATION REGARDING RETURNED MAIL**

10 **Q. WHAT CONCERNS ARE RAISED BY OCA WITNESS COLTON REGARDING**
11 **RETURNED MAIL?**

12 A. Mr. Colton expresses concern about the "extent of hardships imposed by mail that is
13 returned as undeliverable as addressed ("UAA")." (OCA St. No. 4 at 76-77). Mr. Colton
14 references the U.S. Postal service ("USPS") procedures manual and identifies the reasons
15 examined therein why mail may be UAA. (OCA St. No. 4 at 77-78). Mr. Colton notes
16 that the reasons for UAA "may have nothing to do with factors within the control of a
17 PWSA customer" while stating that "the only party to the transaction who would know
18 that something is awry would be PWSA, who receives the returned UAA mail returned to
19 it." (OCA St. No. 4 at 80). Accordingly, Mr. Colton recommends that: (1) "PWSA be
20 directed to place a collection hold on all accounts for which bills and/or disconnection
21 notices are returned UAA;" and, (2) "PWSA be directed to adopt a procedure which
22 would create an exception if multiple pieces of mail are returned as undeliverable within
23 a certain period for a customer service representative to follow up with the customer."
24 (OCA St. No. 4 at 82-83).

1 **Q. DO YOU FIND THE NUMBER OF RETURNED MAIL PIECES THAT PWSA**
 2 **PROCESSES TO BE “SUBSTANTIAL” AS MR. COLTON PURPORTS?**

3 A. PWSA receives as undeliverable less than 2% of the monthly bills that it issues to its
 4 116,200 customers. Each of these returned bills is researched for a more accurate address
 5 that is then populated on the customer’s account in the Customer Information System
 6 (CIS) to be utilized for all future mailings.

7 **Q. HOW DOES PWSA ENSURE THAT EACH MAILING IS PROPERLY**
 8 **ADDRESSED?**

9 A. PWSA partners with Kubra for its electronic billing, payment, and presentment services.
 10 Kubra utilizes a National Change of Address (NCOA) software that reads every potential
 11 mailing address in a PWSA bill, letter and notice file. When a more accurate address is
 12 discovered, Kubra utilizes it to ensure that the mail piece reaches the PWSA customer.

13 **Q. DO YOU BELIEVE THAT ANY ADDITIONAL REVISIONS TO PWSA’S**
 14 **CURRENT PROCESSES FOR HANDLING UNDELIVERABLE AS ADDRESSED**
 15 **(UAA) ARE NECESSARY IN LIGHT OF MR. COLTON’S TESTIMONY?**

16 A. No. As stated, the issue of UAA is not significant for PWSA and, when it does occur, we
 17 already have processes in place to identify a more current address. I strongly disagree
 18 with Mr. Colton’s proposal to create an “exception” in our normal collection processes to
 19 place a hold when mail is UAA. I would note that there is a significant process in place
 20 before service is terminated for non-payment which includes personal notice of pending
 21 termination. All of these procedures are consistent with Commission requirements. I am
 22 also advised by counsel that Commission processes and regulations generally recognize
 23 the act of mailing as sufficient for providing consumer notice and there are no additional
 24 regulatory requirements addressing UAA. For all these reasons, I believe Mr. Colton’s
 25 recommendations to halt terminations based on this issue are unnecessary and
 26 unreasonable.

1 **V. USE OF COLLECTION AGENCIES**

2 **Q. DOES PWSA VIEW ITS COLLECTIONS PROCESS AS AN IMPORTANT**
3 **TOOL IN ITS ABILITY TO OFFER ADEQUATE, EFFICIENT, SAFE AND**
4 **REASONABLE SERVICE?**

5 A. Yes, absolutely. PWSA cannot offer adequate, efficient, safe, and reasonable service if it
6 lacks the funds needed to operate and to maintain its systems. While PWSA fully
7 understands and agrees with OCA and United that the availability of water and
8 wastewater conveyance services for all people in its service territory is important, and
9 PWSA is committed to taking the appropriate steps to assist those with an inability to
10 pay, we cannot ignore our concomitant obligation to ensure that we are receiving
11 sufficient revenue to offer adequate, efficient, safe, and reasonable service for the benefit
12 of all our customers. To do this, customers must pay their bills.¹¹ Our collections
13 activities play a critical role here because they hold customers accountable for paying for
14 services rendered, and, if they do not do so, then we can stop providing the service which,
15 in turn, reduces our costs. If customers have an inability to pay for services, then they
16 can receive financial assistance through participation in our low income customer
17 assistance programs. Ensuring that all possible efforts are taken to collect unpaid debt is
18 crucial to a successful collections effort.

¹¹ Both Mr. Colton and Mr. Geller acknowledge this point. In response to discovery, Mr. Colton agreed that participants in PWSA's low income customer assistance programs should share in the costs of any Commission approved rate increase. See PWSA Exh. JAM-17 OCA Response to PWSA-I-37. Similarly, Ms. Alexander agreed that "the optimal path for PWSA to provide service is by receiving as much payment for services rendered as possible." See PWSA Exh. JAM-17 OCA Response to PWSA-I-55. Mr. Geller agreed in discovery that all customers, including those who do not qualify or are not participating in PWSA's low income customer assistance program, benefit when BDP participants pay for services rendered. See PWSA Exh. JAM-18 United Responses to PWSA-I-13.

1 **Q. PLEASE PROVIDE AN UPDATE REGARDING PWSA’S EFFORTS TO**
 2 **ENGAGE THE SERVICES OF A COLLECTION AGENCY.**

3 A. As discussed in my direct testimony, PWSA was targeting July 2023 to issue a Request
 4 for Proposals (RFP) for Debt Collection Services in order to solicit the services of,
 5 potentially, more than one collection agency. (PWSA St. No. 6 at 15). The concept of
 6 engaging a collection agency was discussed with stakeholders and Commission staff in
 7 prior proceedings to maximize the ability of PWSA to receive payment for services
 8 rendered.¹² The RFP was issued on August 6, 2023, and September 7, 2023 is the
 9 deadline for submissions.¹³

10 **WHY WAS ISSUANCE OF THE RFP DELAYED?**

11 **Q.** PWSA delayed issuance of the RFP, in part, to give parties in our Compliance Plan Stage
 12 **A.** 2 proceeding an opportunity to review the draft language and provide feedback. I am
 13 pleased to report that we received some very insightful feedback during this process from
 14 the Parties and were able to incorporate it into the RFP and Scope of Services that was
 15 finally issued.

16 **WHAT FEEDBACK FROM PARTIES TO THE COMPLIANCE PLAN STAGE 2**

17 **Q. PROCESS WAS INCORPORATED INTO THE FINAL RFP THAT PWSA**
 18 **ISSUED ON AUGUST 6, 2023?**

19 **A.** Most significantly, through the collaborative process, PWSA narrowed the scope of
 20 potential placements to a collection agency such that only *inactive* customer accounts
 21 where services are no longer being provided to former customers will be placed with the
 22 collection agency. Additionally, again recognizing the concern of the parties, PWSA

¹² PWSA’s plans to issue an RFP to facilitate collection are set forth on pages 6-7 of its Final Collections Plan dated September 12, 2022 which was filed on September 12, 2022 in accordance with the final Order entered July 14, 2022 at Docket Nos. M-2018-2640802 and M-2018-2640803. A copy of the filing is available at <https://www.puc.pa.gov/pcdocs/1758529.pdf>.

¹³ A copy of the RFP is provided in PWSA Exh. JAM-21

1 removed any placements of active customer accounts and instead decided to share these
2 accounts along with the following instructions to the bidders to perform skip tracing and
3 deliver leads to PWSA to directly contact those active customers:

4 “Additionally, PWSA will provide a separate file of 1) landlord accounts where
5 PWSA is accepting tenant payments of current charges only, and 2) accounts
6 scheduled for termination and all regulated notices were mailed/posted by PWSA;
7 however, a curb stop is unable to be located and/or operated, thereby eliminating
8 the option to shut the service at the curb, for responsive Vendors to perform skip
9 tracing and deliver viable leads to PWSA for collection.”

10 Furthermore, PWSA committed to producing and providing training to the
11 successful bidder(s) and any employee or individuals authorized to conduct collection
12 activities on their behalf in the off chance that they should interact with a customer who
13 is still receiving services from PWSA. The relevant section of the Scope of Services is as
14 follows:

15 “PWSA will provide training to the chosen Vendor, and any employee or
16 individuals authorized to conduct collection activities on behalf of the Vendor, in
17 the form of an interactive session where PowerPoint slides are shared and the
18 following are explained: 1) the protections that are afforded to customers with
19 unpaid charges as required under 52 Pa. Code Chapter 56, and 2) the procedures
20 that must be followed under DSLPA 66 Pa.C.S. Ch. 15 Subch. B for situations
21 during debt collection when a previously unidentified tenant is reached on a
22 terminated/inactive landlord account. Said training will be provided prior to the
23 launch of any debt collection services, will be updated to communicate any
24 changes in the regulations, and will be provided to the chosen Vendor for use in
25 retraining their staff and in training newly hired employees and/or independent
26 contractors. Additionally, responsive Vendors agree to add to their scripting
27 questions that PWSA will provide to be asked by the Vendor in every collection
28 call, mailing, or email interaction to determine if the individual resides in a
29 property that is serviced by PWSA, is eligible for a medical, has a PFA or other
30 court order that is indicative of domestic violence, or are confirmed low income.
31 Said scripting will include the directive that such individuals must be warm
32 transferred to PWSA Customer Service personnel by calling 412-255-2423 and
33 choosing Option #5.”

1 **Q. WHAT IS MS. ALEXANDER’S POSITION REGARDING THE RFP?**

2 A. Ms. Alexander does not appear to have reviewed the RFP that was formally issued and,
 3 therefore, raises general concerns “about the application and implementation of essential
 4 Chapter 56 rights that are not the typical qualifications for private debt collection
 5 agencies.” (OCA St. No. 5 at 20). She also raises concerns about how a debt collection
 6 agency could achieve a 10% increase in its monthly collection rate compared to the
 7 collection rate achievable by PWSA employees. (OCA St. No. 5 at 20-21). Ultimately,
 8 though, Ms. Alexander “reserves the right to file supplemental direct testimony when
 9 PWSA submits the finalized RFP and scope of services.” (OCA St. No. 5 at 21).

10 **Q. AS OF THE DATE OF THIS REBUTTAL TESTIMONY, HAS MS. ALEXANDER**
 11 **SUBMITTED SUPPLEMENTAL DIRECT TESTIMONY TO ADDRESS THIS**
 12 **ISSUE?**

13 A. No. However, I believe that the issued RFP addresses Ms. Alexander’s concerns. Ms.
 14 Alexander has been an active participant in this all-party process and may have lacked
 15 confidence that PWSA’s final approach would encompass the majority of parties’
 16 concerns with the exception of the concern that PWSA is engaging with any collection
 17 agency. Nonetheless, I wish to be absolutely clear that PWSA has an obligation to ensure
 18 that its consumer protection policies and practices are consistent with Commission
 19 requirements, and that does not change whether or not we handle debt collection
 20 activities with our staff or enter into a third party contract. PWSA also has an obligation
 21 to all its ratepayers to continue to evaluate its operations and the effectiveness of its
 22 collections activities and has determined that costs can be streamlined and collections
 23 improved by seeking assistance from expert debt collectors (who are required to comply
 24 with Commission requirements).

1 **Q. DOES PWSA’S LIEN AUTHORITY LESSEN THE NEED FOR A THIRD PARTY**
 2 **DEBT COLLECTION AGENCY AS MS. ALEXANDER APPEARS TO**
 3 **SUGGEST? (OCA ST. NO. 5 AT 21).**

4 A. No. Ms. Alexander highlights PWSA’s lien authority and seems to give credence to its
 5 usefulness as lessening the need to pursue additional collection paths. (OCA St. No. 5 at
 6 12). While I completely agree that PWSA’s ability to lien is a significant collections
 7 tool, I find it necessary to point out that success of collecting as a result of exercising our
 8 authority to pursue liens is limited to 1) an individual’s response to an Intent to Lien
 9 Notice to avoid a lien filing, and 2) the sale of a property with a clear title. Thus, while
 10 PWSA may pursue enforcement of a lien on a property for unpaid water, wastewater
 11 conveyance and/or stormwater management charges, such pursuit does not ensure that the
 12 owed money will actually be collected. If PWSA does not receive payment directly from
 13 the property owner, then it is forced to await the sale of the property, which may or may
 14 not occur or may occur many years in the future. Thus, exercise of PWSA’s lien
 15 authority by no means ensures that PWSA will be paid or paid timely, in all matters
 16 where its lien authority is pursued.

17 **Q. WHY DOES PWSA CONTINUE TO VIEW ENGAGING A THIRD PARTY**
 18 **COLLECTION AGENCY AS IMPORTANT?**

19 A. Since returning all collections back to PWSA, we have gained significant experience
 20 regarding collections, including the safeguarding of all Chapter 14 and Chapter 56
 21 customer rights and termination processes. Based on all this experience, we now see an
 22 appropriate role – within our current regulatory scheme – for a third party debt collection
 23 agency or agencies which will supplement our efforts while also ensuring that Chapter 14
 24 and Chapter 56 customer rights are safeguarded. A failure of PWSA to collect billed
 25 charges negatively impacts all ratepayers as the costs to provide service are increased.

1 Moreover, as a cash flow regulated public utility, the only way for PWSA to recover its
 2 costs is through ratepayers, potentially in the form of future rate increases. For all these
 3 reasons, PWSA continues to support its path forward regarding the use of a collection
 4 agency or agencies to supplement its current collection activities.

5 **VI. LOW INCOME CUSTOMER ASSISTANCE PROGRAMS**

6 **A. Proposals to Address Concerns Related to Enrollment**

7 **Q. ARE OCA WITNESS COLTON AND UNITED WITNESS GELLER**
 8 **CONCERNED ABOUT CUSTOMER ENROLLMENT IN PWSA’S LOW**
 9 **INCOME CUSTOMER ASSISTANCE PROGRAMS?**

10 A. Yes. According to Mr. Geller, “PWSA’s low income customer assistance programs
 11 remain woefully undersubscribed reaching just a fraction of PWSA’s 20,000 estimated
 12 low income customers.” (United St. No. 1 at 23). Similarly, Mr. Colton posits that
 13 nearly one third of PWSA’s customers live within the lowest income bracket and “those
 14 customers are not served proportionately by the Company’s BDP.” (OCA St. No. 4 at
 15 14, 21).

16 **Q. ARE YOU AWARE OF ANY SPECIFIC COMMISSION REQUIREMENTS**
 17 **RELATED TO LOW INCOME CUSTOMERS ASSISTANCE PROGRAMS FOR**
 18 **WATER, WASTEWATER CONVEYANCE OR STORMWATER UTILITIES?**

19 A. No; the Commission does not require water, wastewater conveyance or stormwater
 20 utilities to implement low income customer assistance programs such as it does for
 21 natural gas and electric distribution utilities. I am also advised by counsel that, even
 22 where required, the Commission has not conditioned the approval of a utility’s rate
 23 request on meeting specific low income customer assistance program enrollment targets.
 24 Moreover, I am advised by counsel that the Commission has not deemed rates to be

1 unjust and unreasonable based on the number of customers enrolled in a natural gas or
 2 electric utility’s low income customer assistance program.

3 **Q. DO YOU AGREE THAT ENROLLMENT LEVELS ARE AN APPROPRIATE**
 4 **MEASURE TO DETERMINE WHETHER OR NOT PWSA’S ASSISTANCE**
 5 **PROGRAMS ARE ACHIEVING THEIR PURPOSE?**

6 A. No. While I do not dispute that there are likely more low-income customers in PWSA’s
 7 service territory than are enrolling in our low-income customer assistance programs, I do
 8 not agree that the appropriate conclusion to reach from this is that PWSA’s programs are
 9 not serving their purpose. I understand that the number of eligible customers enrolling in
 10 utility customer assistance programs is a common hurdle faced by other utilities under the
 11 Commission’s jurisdiction. While PWSA is willing to consider all reasonable
 12 suggestions as to how to improve our enrollment levels, ultimately, the customer needs to
 13 take action to enroll in PWSA’s programs and this is not something over which PWSA
 14 has control.

15 **Q. ARE THE CRITICISMS OF PWSA’S ENROLLMENT RATES PERSUASIVE?**

16 A. No; the core premise of both Mr. Colton and Mr. Geller’s view is that there are many
 17 more eligible customers in PWSA’s service territory who are not enrolled in PWSA’s
 18 programs and that PWSA is somehow at fault for this. This obfuscates the fact that the
 19 enrollment levels in PWSA’s Bill Discount Program have continually trended upward.
 20 As detailed in my direct testimony, PWSA increased 2021 enrollment levels by 20% in
 21 2022. (PWSA St. No. 6 at 36). An additional 746 enrollees have been added year to date
 22 for 2023. I respectfully submit that both OCA and United are unreasonably failing to
 23 recognize that these numbers show PWSA’s impressive achievement, which resulted
 24 only due to the significant amount of work by our PGH2O Cares team. I believe this is

1 good evidence that PWSA’s currently structured programs, and commitment to them, are
 2 yielding positive results.

3 **Q. ARE YOU TESTIFYING THAT THESE ISSUES ARE NOT WORTHY OF**
 4 **CONSIDERATION?**

5 A. No, of course not. I do not disagree with Mr. Colton’s point that well-designed low
 6 income customer assistance programs “not only addresses the social problems faced by
 7 PWSA’s low-income customers” but can also address “the business programs faced by
 8 PWSA when it finds that it cannot collect in a complete, regular, and timely fashion the
 9 bills which it renders to customers who cannot afford to pay them.” (OCA St. No. 4 at
 10 13). Designing such programs, however, is complicated. There is much outside the
 11 control of PWSA, including how to ensure that customers with the ability to pay actually
 12 pay and how to incentivize customers to take action to enroll in our programs. PWSA, as
 13 a public authority with no shareholders, also has to balance the impacts to ratepayers who
 14 are not participating in the programs with increasing the cost of the programs whether
 15 through program design or “forgiving” more debt. All of these costs need to be
 16 recovered from other ratepayers as PWSA relies on its revenues to fund operations and
 17 care for its infrastructure. On balance, PWSA’s low income customer assistance
 18 programs are well-designed and, while we are always looking to further enhance our
 19 programs, we are unable to agree that the proposals offered here by OCA and United are
 20 necessary or cost-effective to implement at this time.

21 **Q. WHAT RECOMMENDATIONS ARE OFFERED BY MR. GELLER TO**
 22 **ADDRESS UNITED’S CONCERNS ABOUT ENROLLMENT IN PWSA’S**
 23 **CURRENT LOW INCOME CUSTOMER ASSISTANCE PROGRAMS?**

24 A. Mr. Geller takes the view that “more systematic approaches are needed to augment the
 25 efforts of the PGH2O Cares Team” and recommends that: (1) PWSA be directed “to

1 develop and submit a comprehensive Universal Service Plan for periodic Commission
 2 review and approval (United St. No. 1 at 25); (2) PWSA “develop a detailed consumer
 3 education and outreach plan (United St. No. 1 at 26); (3) PWSA “be required to update its
 4 estimated low income customer count and, in turn, its formal needs assessment within
 5 one year of the final order in this proceeding” (United St. No. 1 at 27); (4) PWSA
 6 implement screening measures for all new and moving customers as well as during any
 7 non-emergency contacts for low income status (United St. No. 1 at 27-28); (5) PWSA be
 8 required to “update its confirmed low income count to accurately reflect the various ways
 9 in which low income customers are identified” (United St. No. 1 at 28-29); and (6)
 10 PWSA should “begin to track cross-program referrals and enrollment.” (United St. No. 1
 11 at 29).

12 **Q. WHAT RECOMMENDATIONS ARE OFFERED BY MR. COLTON TO**
 13 **ADDRESS OCA’S CONCERNS ABOUT ENROLLMENT IN PWSA’S CURRENT**
 14 **LOW INCOME CUSTOMER ASSISTANCE PROGRAMS?**

15 A. Mr. Colton recommends that PWSA: (1) engage in “geo-targeted outreach” (OCA St. No.
 16 4 at 21); (2) “adopt a performance-based incentive program for community-based
 17 organizations” (OCA St. No. 4 at 22); (3) collaborate with other municipal offices
 18 serving the City of Pittsburgh to “cross-enroll customers” (OCA St. No. 4 at 22); and, (4)
 19 “submit to its LIAAC the question of how enhanced technology could increase the
 20 enrollment and retention of low-income customers in BDP.” (OCA St. No. 4 at 23).

21 **Q. WHAT IS YOUR OVERALL VIEW OF THESE RECOMMENDATIONS?**

22 A. I appreciate the feedback offered by both Mr. Colton and Mr. Geller in their testimony in
 23 this litigated proceeding and want to be clear that each recommendation has been
 24 thoughtfully considered. However, PWSA’s low income customer assistance program is
 25 *voluntarily offered*, and the Commission has not established any standards or

1 requirements for outreach (or anything else) regarding water, wastewater conveyance or
2 stormwater utilities. Therefore, it is axiomatic that PWSA has not violated any statute,
3 regulation or policy statement of the Commission in voluntarily offering this program and
4 therefore the Commission may not force PWSA to dramatically extend its program.
5 Seeking to impose arbitrary requirements is inappropriate and unreasonable. With this
6 said, however, I would strongly encourage that these ideas be brought forward during
7 PWSA's LIAAC meetings so that they can be further discussed and considered in a
8 collaborative manner. In each of these meetings, the PWSA team provides significant
9 data about its low income customer assistance programs, statistics and outreach efforts.
10 We also actively seek feedback and suggestions from the participants. PWSA has
11 implemented many suggestions brought to the table by LIAAC members such as
12 including program flyers in food bank boxes and developing new community
13 partnerships. I believe the LIAAC process is a far superior way for PWSA to hear
14 suggestions like those raised in the testimony of Mr. Geller and Mr. Colton so that they
15 can be thoughtfully considered in a process that does not have so many moving parts and
16 time sensitive priorities as found in a major rate case that involves a multitude of
17 interrelated issues relating to nearly every aspect of PWSA's operations. Also, given my
18 experience with LIAAC and the working relationships that have been developed, I do not
19 support mandating specific reporting requirements for future LIAAC meetings that
20 members may or may not find of interest and which would require additional staff time
21 and resources to prepare as part of this rate case. Lastly, I am providing PWSA Exhibit
22 JAM-22 and PWSA Exhibit JAM-23 as evidence that the PGH2O Cares team has tracked
23 since January 2022, and will continue to track, cross-enrollments of its Bill Discount and

1 Hardship Grant programs.¹⁴ This tracking data is limited to two assistance programs;
 2 however, it is important to note that the PGH2O Cares team consistently vets all
 3 potentially eligible customers for all of PWSA’s assistance programs at every interaction.

4 **Q. REGARDING LIAAC, IS IT NECESSARY – AS RECOMMENDED BY MR.**
 5 **COLTON – THAT THE COMMISSION DIRECT PWSA TO SUBMIT SPECIFIC**
 6 **QUESTIONS TO THE COMMITTEE FOR CONSIDERATION?**

7 A. Absolutely not. PWSA welcomes any and all questions and feedback from committee
 8 members and each member is invited to identify issues that they wish to be discussed
 9 #113901348v1any question for the committee’s consideration without the need for
 10 PWSA to be directed by the Commission to do so. I do think Mr. Colton’s suggestion to
 11 consider how enhanced technology could increase enrollment and retention of low-
 12 income customers in the BDP is an excellent issue for LIAAC to explore but, again, do
 13 not agree it is necessary or proper for the Commission to direct PWSA to include it as a
 14 topic of discussion with the committee members.

15 **1. Proposal To File for Commission Approval a Universal Service Plan**

16 **Q. DO YOU AGREE WITH PITTSBURGH UNITED’S OUR WATER TABLE**
 17 **WITNESS HARRY GELLER THAT PWSA SHOULD FILE A UNIVERSAL**
 18 **SERVICE PLAN?**

19 A. No, for two important reasons. First, I see Witness Geller’s recommendation that PWSA
 20 file a Universal Service Plan prior to receiving thoughtful Commission direction,
 21 particularly with regard to water, wastewater and stormwater utilities who currently have
 22 no statutory requirement to develop a universal service plan, to be premature. PWSA
 23 intends to be an active participant in the Commission’s Universal Service Plan Working
 24 Group, whose initial meeting will be held on September 21, 2023 in Harrisburg. It would

¹⁴ Customer identifying information has been redacted in these two exhibits.

1 be a waste of valuable resources to impose requirements on PWSA in this proceeding that
 2 may differ or be unrequired of other similarly situated utilities as a part of the working
 3 group process.

4 Second, I am advised by counsel that the current Commission review and approval
 5 process for natural gas and electric utilities is cumbersome and does not lend itself to a
 6 collaborative process as PWSA has developed through the LIAAC. As such, I question
 7 how requiring PWSA to expend staff resources and time to undertake a brand new
 8 regulatory obligation benefits ratepayers. Mr. Geller’s proposed solution for this to
 9 “expand its capacity”¹⁵ fails to consider both the cost impacts and the resource drain on
 10 existing staff members. I would note that this view is also based on my personal
 11 experience with the Commission’s Compliance Plan proceeding for PWSA, which took a
 12 significant amount of time to work through, and, in my opinion, slowed down the ability
 13 of PWSA to reach definitive closure on issues which could then be implemented. While I
 14 appreciated the input and collaboration in the Compliance Plan proceeding, it was not the
 15 best way to move forward in a timely manner, and I am concerned the requirement to file
 16 a Universal Service Plan would fall prey to the same difficulties.

17 **Q. DO YOU AGREE WITH MR. GELLER THAT THE REQUIREMENT TO FILE**
 18 **A UNIVERSAL SERVICE PLAN FOR COMMISSION APPROVAL WOULD**
 19 **HELP CONSUMERS BETTER “DETERMINE IMPORTANT PROGRAM**
 20 **RULES, POLICIES, AND PROCEDURES?” (UNITED ST. NO. 1 AT 25-26).**

21 **A.** No; I do not see where there is a deficiency in this regard. Mr. Geller laments that the
 22 requirement to file “periodic plans related to” low income customer assistance programs
 23 would obviate the need for “consumers and utility advocates” to rely on PWSA’s tariffs

¹⁵ See PWSA Ex. JAM-18 United Response to PWSA-I-14 (“as stated in Pittsburgh United St 1, Mr. Geller recommends that PWSA expand its capacity to submit a comprehensive Universal Service Plan, while conducting appropriate and necessary outreach related to PWSA’s low income programming.”).

1 and “the information that can be pieced together from PWSA’s website to determine
 2 important program rules, policies and procedures.” (United St. No. 1 at 26). Consumers,
 3 and particularly customers of PWSA who have only been introduced to the Commission
 4 since 2018, are not likely looking to filings at the Commission to understand PWSA’s
 5 low income customer assistance programs. Moreover, Mr. Geller does not point to any
 6 specific examples of information PWSA provides on its website or other customer facing
 7 materials which fail to adequately educate our customers about the available programs. If
 8 he has such examples in mind, then I would encourage that they be brought to LIAAC for
 9 review and consideration.¹⁶ While I share Mr. Geller’s goal of transparency regarding
 10 our available program options, I do not agree that burdening PWSA staff and resources
 11 with additional layers of Commission review is justified or reasonable to achieve the
 12 results desired.

13 **2. Recommendation to Update Estimate of Low Income Customers, Add Additional**
 14 **Income Screening, and Update Needs Assessment**

15 **Q. PLEASE DESCRIBE MR. GELLER’S RECOMMENDATIONS TO ADDRESS**
 16 **HIS CONCERNS REGARDING THE NUMBER OF ESTIMATED LOW**
 17 **INCOME CUSTOMERS.**

18 A. Mr. Geller posits that “recent economic pressures likely mean that increased numbers of
 19 customers may be classified as low income and are in need of assistance.” (United St.
 20 No. 1 at 27). Accordingly, Mr. Geller recommends that “PWSA be required to update its
 21 estimated low income customer count and, in turn, its formal needs assessment within
 22 one year of the final order in this proceeding.” (United St. No. 1 at 27). Mr. Geller also
 23 recommends that PWSA implement “more systematic approaches” to identify customers

¹⁶ Mr. Geller agreed in discovery that important information about PWSA’s rules, policies and procedures on PWSA’s low income assistance programs is made available during its LIAAC meetings. See PWSA Exh. JAM-18 United Response to PWSA-I-15.

1 who may be eligible, including screening for low income status for all: (1) new and
 2 moving customers; and, (2) any non-emergency calls. (United St. No. 1 at 27-28). To
 3 support his recommendations, Mr. Geller proposes that PWSA “develop call scripting
 4 and checklists for its Customers Service Representatives.” (United St. No. 1 at 28).

5 **Q. DOES PWSA SUPPORT IMPLEMENTATION OF THESE PROPOSALS?**

6 A. Not at this time, and primarily because I am concerned about the cost impacts and also
 7 potential confusion for customers of adding questions about their income in the flow of
 8 interactions with our customer service representatives. I am concerned that questioning
 9 every customer who calls about his or her income could be viewed as offensive and
 10 would not engender the spirit of trust with our customers that we are working to achieve.
 11 I would note, too, that if our proposals in this case are approved, we will need to
 12 undertake a process of considering how to relay to customers the changes coming from
 13 this proceeding including, *inter alia*, the rate increases, new customers assistance
 14 program features, and the rate structure change to remove the minimum charge.

15 **Q. DO YOU SUPPORT UPDATING THE 2019 HOUSEHOLD AFFORDABILITY**
 16 **STUDY UPON WHICH PWSA RELIES TO PLOT ITS LOW-INCOME**
 17 **CUSTOMER ENROLLMENT CANVASSING EFFORTS?**

18 A. Not at this time. I do not disagree with Mr. Geller that it may be appropriate to update
 19 the study in the future. However, I do not agree that now is the right time given the other
 20 initiatives being undertaken by PWSA and the attendant costs and staff resources that
 21 will be necessary to accomplish them. In my view, PWSA’s efforts and resources are
 22 better focused on current initiatives, including its internal working group of PGH2O
 23 Cares, IT, and GIS personnel who are developing interactive customer account mapping
 24 that the Cares team can utilize when canvassing in neighborhoods of need.

1 **3. Recommendations Regarding Outreach and Cross Enrollments**

2 **Q. PLEASE DESCRIBE MR. COLTON’S SPECIFIC OUTREACH AND CROSS**
 3 **ENROLLMENT RECOMMENDATIONS.**

4 A. Mr. Colton recommends that PWSA be directed to: (1) engage in “geo-targeted” outreach
 5 concentrating outreach efforts toward geographic areas with high concentrations of
 6 PWSA’s lowest income consumers (OCA St. No. 4 at 21); (2) “adopt a performance-
 7 based incentive program for community-based organizations to identify the lowest
 8 income customers and to facilitate enrollment of such customers in the BDP” (OCA St.
 9 No. 4 at 22); (3) work with the City of Pittsburgh to identify and utilizes those municipal
 10 programs that would assist PWSA in identifying its lowest income customers and
 11 enrolling those customers in its BDP: (OCA St. No. 4 at 22-23); and, (4) “submit to its
 12 LIAAC the question of how enhanced technology could increase the enrollment and
 13 retention of low-income customers in BDP.”¹⁷ (OCA St. No. 4 at 23-25).

14 **Q. DO YOU SUPPORT IMPLEMENTATION OF MR. COLTON’S OUTREACH**
 15 **AND CROSS-ENROLLMENT PROPOSALS?**

16 A. No, I do not, on the basis that they are unnecessary given PWSA’s current processes.
 17 PGH2O Cares Coordinator, Sarah Viszneki has reported extensively on the success of the
 18 Cares team’s outbound cold calling campaigns and neighborhood canvassing efforts in
 19 the quarterly LIAAC meetings. Ms. Viszneki is in a PWSA working group that is
 20 developing GIS mapping to identify neighborhoods of need to 1) focus canvassing
 21 efforts, and 2) access customer account information in real time to streamline the
 22 enrollment process. The PGH2O Cares team is positioned to perform the entire
 23 enrollment process with low-income customers in the most effective and least costly

¹⁷ PWSA’s views regarding the lack of necessity for this particular recommendation were discussed previously in this testimony.

1 manner possible. What Mr. Colton may not understand is that there are also numerous
 2 back-office functions that must be performed to ensure that our most vulnerable
 3 customers received the program benefits that they are eligible to receive. If PWSA were
 4 to allocate ratepayer money to pay third-party Community Based Organizations to enroll
 5 PWSA low-income customers directly, which I am not at all endorsing and vehemently
 6 oppose, PWSA personnel would still need to perform data entry into PWSA’s Customer
 7 Information System. This would include manually reviewing the enrollment application
 8 for accuracy, updating customer contact information, updating the Enrollment Date and
 9 FPIG fields, adding an interaction record to the account, adding the account and any
 10 missing information to the Daily Tracking spreadsheet, and forwarding the account to
 11 Billing to update the billing rate.

12 **Q. HOW IS MR. COLTON’S SUGGESTION REGARDING CBO’S FLAWED?**

13 A. Mr. Colton fails to realize, or completely ignores, the fact that the PGH2O Cares team
 14 has built partnerships with numerous community organizations and works closely with
 15 the following to regularly hold customer assistance program enrollment opportunities in
 16 the community:

- 17 1. Allegheny County Area Agency on Aging
- 18 2. Bike PGH
- 19 3. Borough of Homestead
- 20 4. Casa San Jose
- 21 5. City of Pittsburgh
- 22 6. County of Allegheny YMCA
- 23 7. Friends of Mellon Park
- 24 8. Friends of Riverview Park
- 25 9. Friends of Spring Hill
- 26 10. Greater Pittsburgh Community Food Bank
- 27 11. Hazelwood Initiative
- 28 12. Jewish Family and Community Services
- 29 13. Kingsley Association Community Center
- 30 14. Kiwanis Club of Sheraden
- 31 15. Latino Community Center

- 1 16. Pittsburgh United
- 2 17. Project Destiny
- 3 18. Promise Center of Homewood
- 4 19. Representative Dan Deasy’s Senior Wellness Expos
- 5 20. Woods Run Library
- 6
- 7

8 The suggestion to pay outside agencies with ratepayer money to do what the 5
 9 member PGH2O Cares team is already paid to do, resulting in 10,400 productive labor
 10 hours per year, is egregious in that it is counterproductive to assisting PWSA’s most
 11 vulnerable customers. Approaches to spending ratepayer money in this manner would
 drive PWSA’s rate request even higher.

12 **Q. PLEASE DESCRIBE MR. GELLER’S SPECIFIC OUTREACH AND CROSS**
 13 **ENROLLMENT RECOMMENDATIONS.**

14 A. While Mr. Geller commends PWSA’s “concerted effort to increase education about and
 15 enrollment in PWSA’s low income assistance program,” he recommends that “PWSA be
 16 directed to develop a detailed consumer education and outreach plan” with input from
 17 LIAAC and include “how PWSA will specifically promote and coordinate each of its low
 18 income programs” “tailored to the demographics of PWSA’s service territory.” (United
 19 St. No. 1 at 25-26). Mr. Geller also recommends that PWSA be directed to “track cross-
 20 program referrals and enrollments by month and identify what programs collaborated in
 21 these efforts” with the results to be shared with LIAAC “on, at least a semi-annual basis
 22 so that LIAAC members can provide important feedback about how to improve or
 23 augment current cross-program enrollment efforts.” (United St. No. 1 at 29). Finally,
 24 Mr. Geller recommends that PWSA “set additional target enrollment benchmarks for the
 25 BDP” including: (1) an enrollment target of 20% per year of estimated low income
 26 customers until 75% enrollment is reached; and, (2) quantitative goals related to

1 affirmative customer contacts with the purpose of enrolling them. (United S. No. 1 at
2 34).

3 **Q. DO YOU SUPPORT ADOPTION OF ANY OF THESE RECOMMENDATIONS**
4 **OF UNITED?**

5 A. No, for the same reasons that I do not support adoption of Mr. Colton's similar
6 recommendations. PWSA is already laser focused on its outreach efforts, reporting the
7 results to the LIAAC and soliciting feedback and suggestions from committee members
8 for future enhancements. PWSA also reports to its LIAAC members on its cross-
9 program efforts with other utilities and its work with numerous community organizations
10 to support its outreach and enrollment efforts. As discussed previously, I do not see what
11 value is gained for PWSA's customers by adding a requirement that PWSA "develop a
12 detailed consumer education and outreach plan" that is memorialized in a document to be
13 reviewed and approved by the Commission. I also do not support specific enrollment
14 targets or quantitative enrollment goals at this time especially in consideration of the
15 difficulty of reaching agreement on an accurate count of estimated low income customers
16 in our service territory. Moreover, successful enrollment relies on customer
17 responsiveness to PWSA's outreach attempts. While PWSA is still working to find even
18 more effective means of increasing enrollment, it is not feasible to set quantitative
19 enrollment goals at this time. While I understand Mr. Geller's effort to identify ways to
20 reach more eligible customers for PWSA's low income customer assistance programs, I
21 do not view his recommendations as offering any specific new, concrete, actionable items
22 that will assist in achieving his goals of enrolling these customers. The requirement to
23 prepare a Universal Service Plan for Commission review or to devise appropriate
24 enrollment and quantitative goals will only drive up costs for PWSA's ratepayers and

1 divert valuable resources away from engaging in the outreach to consumers that all
 2 support doing. Again, none of these recommendations are made in the context of
 3 correcting a PWSA violation of the law, a regulation or a policy statement of the
 4 Commission. They are simply demands that PWSA do far more than it has already
 5 voluntarily agreed to do, even though there are numerous water and wastewater
 6 companies that have no or only rudimentary low income customer assistance programs.

7 **B. Proposed Modifications for Bill Discount Program (Including Arrearage**
 8 **Forgiveness Program) Proposed Modifications**

9 **1. Proposed Revisions to Bill Discount Program (“BDP”) Structure**

10 **Q. PLEASE DESCRIBE HOW PWSA’S BDP IS CURRENT STRUCTURED.**

11 A. PWSA’s BDP provides residential customers with an annual income of equal to or less
 12 than 150% of the Federal Poverty Level (“FPL”) a 100% discount on the fixed monthly
 13 water and wastewater conveyance charges and an 85% discount on stormwater charges.
 14 BDP participants with an annual income of equal to or less than 50% of FPL also receive
 15 an additional 50% discount on their volumetric charges which are usage charges over the
 16 monthly minimum charges. Additionally, BDP participants may also be eligible to
 17 participate in PWSA’s Arrearage Forgiveness Program which provides a \$30 credit to
 18 reduce past due balances so long as the customer is on an active payment plan and makes
 19 on-time payments. (PWSA St. No. 6 at 34-35).

20 **Q. DID PWSA PROPOSE ANY CHANGES TO THE CURRENT BDP STRUCTURE?**

21 A. No; the same program structure for 2024 will remain, but we are proposing to reach more
 22 potentially eligible customers by expanding the eligibility from $\leq 150\%$ FPL to $\leq 200\%$
 23 FPL. Effective in 2025, to coincide with PWSA’s proposal to remove the minimum
 24 charge from its rate structure, the BDP will transition to a fixed bill discount, which will

1 provide a specific dollar amount credit to the bills based on FPL and type of utility
 2 charge. (PWSA St. No. 6 at 37-38). Also, effective in 2025, PWSA is proposing to offer
 3 a 50% reduction of the new Infrastructure Improvement Charge (“IIC”) and a 100%
 4 reduction of the new Customer Assistance Charge (“CAC”) for BDP participants.
 5 (PWSA St. No. 6 at 37).

6 **Q. DOES UNITED RECOMMEND ANY REVISIONS TO THE CURRENT BDP**
 7 **PROGRAM STRUCTURE?**

8 A. No. While United Witness Geller expresses his on-going support for a percentage of
 9 income program (“PIP”) structure, which would target benefits based on individual
 10 households’ income, he concludes that “in the context of the present rate increase
 11 proposal,” PWSA’s proposed revisions to the BDP’s structure and discount levels “merit
 12 approval.” (United St. No. 1 at 31-33).

13 **Q. WHAT DOES MR. COLTON RECOMMEND REGARDING THE BDP**
 14 **PROGRAM STRUCTURE?**

15 A. While Mr. Colton finds “it is reasonable and appropriate to expand the BDP maximum
 16 income eligibility to 200% FPL,” he recommends that PWSA offer a 30% discount to the
 17 volumetric charges for customers with incomes greater than 50% of FPL but at or below
 18 100% FPL. (OCA St. No. 4 at 32, 43-44). He also recommends that the current
 19 volumetric discount of 50% for customers at or below 50% of FPL be increased to 60%.
 20 (OCA St. No. 4 at 49-50). Regarding PWSA’s proposed fixed bill discount with the
 21 removal of the minimum charge effective 2025, Mr. Colton recommends “a modest
 22 increase in the monthly bills credit proposed by PWSA.” (OCA St. No. 4 at 39).

23 **Q. BEFORE CONSIDERING EACH OF THESE OCA RECOMMENDATIONS ON**
 24 **THEIR MERIT, DID MR. COLTON ATTEMPT TO QUANTIFY THE**

1 **ADDITIONAL COSTS OF HIS PROPOSALS WHICH WOULD NEED TO BE**
 2 **RECOVERED IN RATES?**

3 A. Yes. According to Mr. Colton, the total cost impact of these proposals for 2024 would be
 4 \$560,915, which Mr. Mugrace has included with his calculation of revenue requirements.
 5 (OCA St. No 4 at 73-75; OCA St. No. 1 at 13). No cost impact has been included by
 6 OCA for any other years, as OCA does not support implementation of PWSA’s multiyear
 7 rate proposal for 2025 and 2026 (OCA St. No. 1 at 5).

8 **Q. DOES PWSA AGREE WITH MR. COLTON’S PROJECTED COST IMPACTS**
 9 **OF HIS BDP PROPOSALS?**

10 A. No. As a threshold matter, recommending changes for the BDP for 2025 and 2026 while
 11 at the same time not factoring in the proposed impacts of those costs for those years due
 12 to lack of support for a multiyear rate plan, does not provide sufficient data upon which
 13 to determine true cost impacts for those years. In addition, measuring the potential cost
 14 impact of Mr. Colton’s proposals related to providing specific discounts for customers
 15 who have incomes at FPL breakpoints different than utilized by PWSA now is not
 16 possible, due to the lack of information regarding income prior to 2022. As explained in
 17 PWSA’s amended discovery response to United-1-II (served after the non-company
 18 direct testimony was due), PWSA did not initiate tracking of customers’ percentages of
 19 FPL until March 2022. Then, in the transition to PWSA’s current customer information
 20 system in August of 2022, the information related to enrollment date and percent of FPL
 21 for accounts with listed tenants was omitted, further negatively affecting the quality of
 22 those two data points after July 2022. As a result, the accurate data available to indicate
 23 FPL of BDP enrollees is limited and does not provide information about the over 6,700
 24 current BDP enrollees. As such, current available data is insufficient to determine the
 25 potential cost impacts of Mr. Colton’s BDP recommendations. PWSA cannot reasonably

1 support recommendations that will increase the costs to other ratepayers when the data
 2 does not offer a way to reasonably project accurate impacts. To be clear, these data
 3 tracking issues have been addressed in our billing system; however, it will take a period
 4 of time before PWSA has detailed FPL data for its BDP participants. I would also like to
 5 point out that, in our current structure, there was no reason to focus on FPL breakpoints
 6 beyond those necessary to qualify customers for the BDP.

7 **a. Proposals to Increase the Current Volumetric Discount and Expand Availability**
 8 **to Higher Income Brackets**

9 **Q. DOES PWSA SUPPORT MR. COLTON’S PROPOSALS TO INCREASE THE**
 10 **CURRENT VOLUMETRIC DISCOUNT FROM 50% TO 60% AND TO OFFER A**
 11 **NEW 30% VOLUMETRIC DISCOUNT FOR CUSTOMERS 50% - 100% OF**
 12 **FPL?**

13 A. No. Mr. Colton’s proposal results in PWSA asking these customers to pay less for
 14 services rendered while requiring all other ratepayers to make up that difference. By
 15 increasing the current volumetric discount by 10% and adding a new 30% volumetric
 16 discount to a wider array of customers, Mr. Colton’s proposal is increasing costs though,
 17 as I noted previously, projecting by how much is not reasonably possible given the FPL
 18 data currently available.

19 **Q. DO YOU HAVE OTHER CONCERNS ABOUT MR. COLTON’S PROPOSED**
 20 **INCREASE TO THE VOLUMETRIC DISCOUNTS?**

21 A. Yes. I am concerned about how incentivizing conservation can be achieved by providing
 22 greater discounts for more usage. Mr. Colton’s recommendation, based upon an average
 23 household consumption of 4,000 gallons amongst Bill Discount Program enrollees,
 24 illustrates that customers who are already receiving 1,000 gallons of free
 25 water/wastewater conveyance service(s) are less inclined to conserve what is arguably the
 26 most essential natural resource, water. Without the appropriate nexus between usage and

1 cost, high consumption bills will be meaningless because the consumer will not be
 2 required to fully pay for the charges. Without attention paid to high consumption bills,
 3 leaks will go undetected, and conservation will suffer. This is a further reason why
 4 PWSA cannot support OCA’s recommended increases to the volumetric discounts.

5 **b. Proposals Regarding BDP Fixed Bill Credit Effective 2025 With Removal of**
 6 **Minimum Charge**

7 **Q. WHAT PROPOSAL DOES OCA WITNESS COLTON MAKE REGARDING THE**
 8 **LEVEL OF THE CREDIT FOR BDP PARTICIPANTS EFFECTIVE 2025 WITH**
 9 **THE REMOVAL OF THE MINIMUM CHARGE?**

10 A. Mr. Colton proposes to increase the dollar amount of the credits as displayed below on
 11 the basis that increasing the credits is necessary “to achieve continuity in impacts and
 12 avoid large spikes in bills.” (OCA St. No. 4 at 39-40).

PWSA Proposal vs. OCA Recommended Modification							
Utility Service	FPL	PWSA Proposal	OCA Proposal	OCA Proposed Adjustment	PWSA Proposal	OCA Proposal	OCA Proposed Adjustment
		2025	2025	2025	2026	2026	2026
Water	> 50%-200%	\$17.00	\$22.00	↑\$5.00	\$20.00	\$25.00	↑\$5.00
Water	≤ 50%	\$10.00	\$15.00	↑\$5.00	\$12.00	\$17.00	↑\$5.00
Wastewater Conveyance	> 50%-200%	\$5.00	\$8.00	↑\$3.00	\$6.00	\$9.00	↑\$3.00
Wastewater Conveyance	≤ 50%	\$3.00	\$6.00	↑\$3.00	\$4.00	\$7.00	↑\$3.00

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 14 **Q. DOES PWSA AGREE THAT THESE PROPOSED INCREASES TO THE BDP**
 15 **CREDITS TO BE EFFECTIVE IN 2025 ARE REASONABLE?**

16 A. No. Mr. Colton mischaracterizes the goal of PWSA with its proposal, which was not to
 17 avoid any price increases but to avoid large spikes in bills in relation to residential rates.
 18 As demonstrated by Mr. Colton’s Table 8, that goal has been achieved. I understand that
 19 Mr. Colton’s view is that more significant discounts are preferable; however, he does
 20 recognize that participants in PWSA’s low income customer assistance programs should

1 share in the costs of Commission approved rate increases.¹⁸ In PWSA’s judgment, Mr.
2 Colton’s proposed discounting of the amounts they will be asked to pay in the future
3 results in too high a cost for the other ratepayers. I would also note that his Table 8 relies
4 on assessing future year rates based on 2023 rates rather than recognizing the rate
5 increase of the preceding year. This has the impact of overstating the number of
6 discounts that would be provided by his proposal.

7 **c. Proposed Restructuring of the Arrearage Forgiveness Program**

8 **Q. HOW DOES OCA WITNESS COLTON PROPOSE PWSA RESTRUCTURE ITS**
9 **ARREARAGE FORGIVENESS PROGRAM?**

10 A. Mr. Colton takes the view that the current structure “is not effectively operating to
11 address the pre-existing arrears of low-income customers.” (OCA St. No. 4 at 50). To
12 address this, Mr. Colton proposes that: (1) remove the requirement that a customer must
13 enter into a payment arrangement for pre-existing arrears and be current on such
14 payments to receive the credit (OCA St. No. 4 at 58); (2) PWSA apply retroactive
15 arrearage forgiveness for late payments (OCA St. No. 4 at 59); (3) revise the current
16 structure to completely forgive pre-existing arrears over a 24-month period at the rate of
17 1/24th of the pre-existing arrears for each full payment received (OCA St. No. 4 at 64-65).
18 Mr. Colton calculates that the costs of implementing his proposals would be \$275,815 for
19 water customers and \$373,646 for wastewater conveyance customers. (OCA St. No. 4 at
20 75-76). OCA Witness Mugrace includes \$631,461 as part of OCA’s proposed revenue
21 requirements to reflect Mr. Colton’s calculations of the costs of his proposals for the
22 Arrearage Forgiveness Program. (OCA St. No. 1 at 13).

¹⁸ See PWSA Exh. JAM-17 OCA Response to I-37.

1 **Q. HOW DOES UNITED WITNESS GELLER RECOMMEND THAT PWSA**
 2 **RESTRUCTURE ITS CURRENT ARREARAGE FORGIVENESS PROGRAM?**

3 A. Mr. Geller makes recommendations similar to Mr. Colton based on his view that the
 4 program “does not adequately address the high levels of arrears faced by many low
 5 income customers.” (United St. No. 1 at 35). Accordingly, Mr. Geller recommends that
 6 “for each in-full payment that a customer makes while enrolled in the BDP, 1/36th of a
 7 customer’s pre-program arrears are forgiven.” (United St. No. 1 at 39).

8 *i. Proposals for Complete Arrearage Forgiveness Over a Defined Period*
 9 *of Time*

10 **Q. DOES PWSA SUPPORT RESTRUCTURING THE ARREARAGE**
 11 **FORGIVENESS PROGRAM TO PROVIDE COMPLETE FORGIVENESS OVER**
 12 **A DEFINED PERIOD OF TIME SUCH AS 24 OR 36 MONTHS?**

13 A. No. As explained in my direct testimony and the direct testimony of Edward Barca,
 14 PWSA undertook a cost-benefit analysis, which concluded that the costs of restructuring
 15 the program as supported by Mr. Geller would result in an estimated loss of \$900,000 in
 16 annual revenue. (PWSA St. No. 6 at 45-47; PWSA St. No. 2 at 51-52). The costs of
 17 granting full arrearage forgiveness over a shorter period of time, 24 months as
 18 recommended by Mr. Colton, would likely be greater as more debt would be forgiven. I
 19 would also note that the distribution of funding for the Low-Income Household Water
 20 Assistance Program (“LIHWAP”) is continuing, and, therefore, it is too soon to project
 21 the impact of the grants received by PWSA. These grants are applied to satisfy overdue
 22 water/wastewater conveyance bills. Given that source of funding provides actual grant
 23 payments to PWSA for services rendered in contrast with a forgiveness program that
 24 attempts to recover those amounts from ratepayers through rates, PWSA does not support
 25 restructuring its Arrearage Forgiveness Program at this time.

ii. Proposal to Remove Requirement that Customer Enter into a Payment Arrangement and Remain Current on Payments

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Q. DOES PWSA ALREADY AUTOMATICALLY ENROLL ELIGIBLE CUSTOMERS IN THE ARREARAGE FORGIVENESS PROGRAM?

A. Yes. PWSA is already automatically enrolling customers who are eligible for the Bill Discount Program into the Arrearage Forgiveness Program when they have past due charges and are willing to enter into a payment plan. As such, Mr. Colton’s proposal is not really about automatic enrollment but rather about removing the requirement that the participant enter into a payment plan as a condition of receiving the credit and that they remain current on their payment plan to continue to receive the credit.

Q. DOES PWSA SUPPORT OCA AND UNITED’S RECOMMENDATION TO REMOVE THE REQUIREMENT THAT CUSTOMERS ENTER INTO A PAYMENT ARRANGEMENT AND KEEP CURRENT ON THEIR PAYMENTS AS A CONDITION OF RECEIVING THE ARREARAGE FORGIVENESS PROGRAM CREDIT?

A. No. PWSA’s current Arrearage Forgiveness Program is an incentive for customers to keep paying on their interest free payment arrangements to receive the benefit of a monthly credits off their existing arrearages. I also do not support providing the credits for missed or late payments. Importantly, the existing program permits two missed payments before the customer is removed from the program and enables customers removed from the program to be reenrolled upon full payment. In my judgment, this offers the appropriate balance between providing a reasonable level of financial assistance to those in need while also requiring them to make fair payments recognizing their use of our systems. Any other approach whereby PWSA is required to cover the full costs of services rendered without any incentives to customers to pay is unreasonable and will cause our other ratepayers to unfairly subsidize these costs. For these reasons, PWSA’s Arrearage Forgiveness Program is a valuable tool to incentivize payment.

1 Proposals such as those offered by Mr. Colton and Mr. Geller to remove important
 2 payment incentives for consumers to contribute to the cost of PWSA’s service that they
 3 utilized are not reasonable and I do not support them.

4 **2. Proposals Regarding the Hardship Grant Program**

5 **Q. DOES PWSA PROPOSE TO INCREASE THE AVAILABILITY OF HARDSHIP**
 6 **GRANTS TO CUSTOMERS AS PART OF THIS PROCEEDING?**

7 A. Yes. Currently, PWSA provides grants up to \$300 per year to be allocated to customers at
 8 or below 150% of the FPL. As explained in my direct testimony, PWSA proposes to
 9 allocate two, separate \$300 annual grants one to be distributed to eligible water customers
 10 and one to be distributed to eligible wastewater conveyance customers. (PWSA St. No. 6
 11 at 37).

12 **Q. PLEASE DESCRIBE UNITED WITNESS GELLER’S PROPOSALS**
 13 **REGARDING THE HARDSHIP GRANT PROGRAM.**

14 A. Mr. Geller identifies a “need to improve access to grants through the Hardship Fund” and
 15 recommends that PWSA increase the maximum grant of \$300 to \$500 and allow
 16 households to apply for grant assistance twice a year regardless of whether a customer
 17 elects to apply either or both of the grants to water or wastewater charges. (United St. No.
 18 1 at 43). Mr. Geller also expresses concern about the administration of the Hardship
 19 Grant Program by the Dollar Energy Fund (“DEF”) and recommends that “within one
 20 year of the final Order in this matter, PWSA [be] required to submit a report to the
 21 Commission related to DEF’s administration” of the Hardship Grant Program. (United
 22 St. No. 1 at 44).

1 **Q. DO YOU SUPPORT UNITED’S PROPOSAL TO INCREASE THE AMOUNT OF**
 2 **THE HARDSHIP GRANT AND TO MAKE IT AVAILABLE TWICE A YEAR?**

3 A. I do not. While PWSA continues to fund Hardship Grants with resources outside of
 4 ratepayer funding (i.e., civil litigation settlement fund and donations received from
 5 employees, PWSA Board members, and customers), PWSA anticipates that, based on
 6 historical granting, the non-ratepayer funding sources will be exhausted in late 2024. As
 7 such, PWSA remains mindful of ensuring that there is available grant funding for eligible
 8 customers at the current and proposed future program amounts and is concerned that Mr.
 9 Geller’s proposal would deplete funding sources prematurely.

10 **Q. DO YOU SUPPORT UNITED’S PROPOSAL THAT PWSA BE REQUIRED TO**
 11 **REPORT TO THE COMMISSION ABOUT DEF’S ADMINISTRATION OF THE**
 12 **HARDSHIP GRANT PROGRAM?**

13 A. I do not. PWSA is obligated to ensure that its programs are offered appropriately and
 14 within the requirements we have established. Whether or not the program is administered
 15 internally or by an outside vendor, this obligation remains. Therefore, if there are issues
 16 with DEF’s administration of PWSA’s Hardship Grant Program, then PWSA will address
 17 them. I would note that Mr. Geller’s concern that DEF can “unilaterally modify program
 18 requirements without review and approval by PWSA or the Commission” is mistaken.
 19 (United St. No. 1 at 43). PWSA remains in control of ensuring that the terms of the
 20 program are administered properly. Mr. Geller also acknowledged in discovery that he is
 21 unaware of any Commission finding expressing concerns about the administration by
 22 DEF of any other utility low income customer assistance program and that he is unaware
 23 of any guidelines or established standards regarding account handling errors of a low

1 income customer assistance program fund administrator.¹⁹ As such, there has been no
 2 showing of any specific issue related to DEF, no past concerns expressed by the
 3 Commission regarding DEF, and no Commission standards or guidelines about an
 4 administrator's handling of a low income customer assistance program. For these
 5 reasons, PWSA opposes United's recommendations regarding this issue.

6 **C. Proposed Modification of Stormwater Credit Program**

7 **Q. PLEASE DESCRIBE UNITED WITNESS GELLER'S CRITICISMS AND**
 8 **PROPOSAL REGARDING PWSA'S STORMWATER FEE AND LOW-INCOME**
 9 **CUSTOMERS.**

10 A. According to Mr. Geller, "PWSA fails to provide additional ways for low-income
 11 customers to adopt green stormwater mitigation." (United St. No. 1 at 45). He testifies
 12 that the current discount for eligible customers of an 85% reduction on the stormwater fee
 13 "is not the same thing as having the ability to adopt green mitigation strategies and
 14 receive other critical benefits as a result of those strategies." (United St. No. 1 at 45.)
 15 Accordingly, Mr. Geller proposes that PWSA be required to allocate \$100,000 annually
 16 in rates to permit low-income customers access to green mitigation measures at no cost to
 17 the low income customer. (United St. No. 1 at 46). He also proposes that low-income
 18 customers who engage in green mitigation measures, at no cost to them, also be eligible
 19 to receive the \$40 credit PWSA is offering to residential customers who purchase rain
 20 barrels. (United St. No. 1 at 46).

21 **Q. DO YOU SUPPORT THESE RECOMMENDATIONS?**

22 A. No; I am firmly opposed to these recommendations. Unlike the existing customer
 23 assistance programs that either regularly or intermittently reduce low-income customers'

¹⁹ PWSA Exh. JAM-18 United Responses to PWSA-I-24 and I-25.

1 financial obligations to pay, Mr. Geller’s idea is short-sighted in that all green
 2 infrastructure improvements will require maintenance from the customer. I am
 3 concerned that low-income customers will not be able to devote the time, resources or
 4 financial requirements necessary to perform regular maintenance of the “free” green
 5 infrastructure improvements to their properties. If unmaintained, then other ratepayers
 6 who have financed the projects through rates will not receive any return on their
 7 investment in terms of stormwater mitigation. I also view the cost proposal as
 8 unreasonably using ratepayer money to increase some customers’ property values.
 9 Finally, PWSA’s \$40 rain barrel credit proposal first requires that a customer purchase a
 10 rain barrel to be eligible for the credit. In Mr. Geller’s scenario, other ratepayers would
 11 be required to pay for the cost of installation of the mitigation project and to pay for the
 12 costs of financial credits, such as the \$40 credit, provided to the low-income consumer.
 13 This is not a reasonable or justifiable use of ratepayer money and, therefore, I do not
 14 support Mr. Geller’s recommendations regarding stormwater mitigation.

15 **VII. PUBLIC INPUT HEARING TESTIMONY AND FILED PUBLIC COMMENTS**
 16 **(CUSTOMER SERVICE ISSUES)**

17 **Q. DID YOU REVIEW THE TESTIMONY PROVIDED AT THE PUBLIC INPUT**
 18 **HEARINGS IN THIS PROCEEDING ON JULY 25, JULY 27, AND AUGUST 29,**
 19 **2023, AS WELL AS THE PUBLIC COMMENTS AND RATE COMPLAINTS**
 20 **FILED WITH THE COMMISSION?**

21 A. Yes, I did.

22 **Q. PLEASE SUMMARIZE THE TESTIMONY FROM THE PUBLIC INPUT**
 23 **HEARINGS, COMMENTS AND RATE COMPLAINTS TO WHICH YOU WILL**
 24 **RESPOND.**

25 A. I will broadly respond to concerns raised about: (1) affordability of the proposed rate
 26 increase; (2) suggestions that PWSA should exhaust all other funding and financing

1 options before implementing a rate increase; (3) outreach regarding the availability of
2 assistance programs; and (4) notice of the public input hearings. I will also specifically
3 address service issues raised by customers, as also noted by OCA witness Terry Fought.

4 **Q. PLEASE RESPOND TO THE COMMENTS RECEIVED ABOUT**
5 **AFFORDABILITY OF RATES.**

6 A. PWSA understands and appreciates customers' concerns about affordability of rates. As
7 I discussed in my direct testimony, PWSA has carefully considered the impact of the
8 proposed rate increase on future affordability and has offered several proposals to
9 mitigate the impacts. *See* PWSA St. No. 6 at 22-38. This includes proposals to enhance
10 PWSA's customer assistance programs (which, as discussed above, it has voluntarily
11 offered to assist customers in need), provide additional stormwater rate mitigation
12 measures, gradually remove the minimum allowance, and increase rates through a
13 multiyear rate plan. In his direct and rebuttal testimonies, Mr. Pickering also explains the
14 necessity of the proposed rate increase, which is essential to address decades of deferred
15 infrastructure investment and meet numerous regulatory requirements.

16 **Q. HAS PWSA PURSUED OTHER FUNDING OR FINANCING OPPORTUNITIES**
17 **BEFORE PROPOSING THE RATE INCREASE?**

18 A. Yes. PWSA's efforts are discussed in detail in Mr. Barca's testimony, which explains
19 that PWSA has received hundreds of millions of dollars in low-interest loans and grants
20 from PENNVEST since 2018, as well as WIFIA loans, and continues to apply for
21 additional funding. Mr. Pickering's rebuttal testimony also describes funding PWSA has
22 received from local foundations to support development of PWSA's Stormwater Strategic
23 Plan and other stormwater projects. PWSA has diligently pursued all funding
24 opportunities; however, the Authority's capital improvement program efforts simply
25 cannot be funded without additional rate increases.

1 **Q. PLEASE RESPOND TO COMMENTS REGARDING OUTREACH ON THE**
 2 **AVAILABILITY OF PWSA’S CUSTOMER ASSISTANCE PROGRAMS.**

3 A. As discussed in my direct testimony, PWSA is doing significant outreach to low-income
 4 customers to inform them about the available customer assistance programs and help
 5 them enroll. For example, in 2021, the PGH2O Cares team increased enrollment by 20%.
 6 PWSA also increased staffing of its PGH2O Cares team in 2022 to perform additional
 7 outreach and enrollment. PWSA St. No. 6 at 36. As discussed above in response to
 8 recommendations by Mr. Colton and Mr. Geller, PWSA continues to work closely with
 9 the LIAAC to provide meaningful outreach to low-income customers and to enroll
 10 eligible customers in assistance programs. I would again reiterate that PWSA offers
 11 these assistance programs voluntarily in an effort to assist customers who may be
 12 struggling to afford their bills.

13 **Q. PLEASE DISCUSS THE NOTICE AND OUTREACH PWSA PERFORMED**
 14 **REGARDING THE PUBLIC INPUT HEARINGS.**

15 A. PWSA provided numerous notices regarding the public input hearings, and the hearings
 16 also received significant media attention.

- 17 • For the public input hearings held on July 25, and 27, 2023, notice was published
 18 in the Pittsburgh Post-Gazette on July 16, 2023, and an event listing was
 19 published on PWSA’s website. On July 18, 2023, PWSA issued a press release
 20 regarding the hearings, which was also posted to PWSA’s website, and
 21 information started being shared through the Authority’s social media channels.
 22 On July 20, 2023, PWSA sent a targeted newsletter to community groups that
 23 included information about the hearings. The hearings were promoted on
 24 PWSA’s Twitter and Facebook accounts, with 10 announcements shared via
 25 Twitter from July 18 through July 27, and four announcements shared via
 26 Facebook between July 18 through July 26. These posts included links to the
 27 press release.
- 28 • *Prior to the July hearings, there was media coverage by KDKA (radio, television*
 29 *and website), the Pittsburgh Post-Gazette, Next Pittsburgh, WTAE, and WPXI.*
 30 *Once the hearings were in progress, there was additional coverage by WPXI,*
 31 *KDKA (including radio and the Morning Show), WTAE, WPGH, and WESA.*

- 1 • For the public input hearings held on August 29, 2023, notice was published in
2 the Pittsburgh Post-Gazette on August 13, 2023. PWSA shared the Commission’s
3 press release on social media on August 9, 2023 and made additional social media
4 posts and published an event listing on its website on August 22, 2023.
5 Specifically, the hearings were promoted on PWSA’s Twitter and Facebook
6 accounts, with seven announcements posted to Twitter and four announcements
7 posted to Facebook.
- 8 • *Prior to* the August hearings, there was media coverage by WTAE, Next
9 Pittsburgh, the Pittsburgh Post-Gazette, and KDKA Radio.

10 As such, PWSA provided significant outreach regarding the public input hearings, which
11 also received substantial coverage by major news outlets. This advertisement was in
12 addition to any promotion performed by the Commission or other parties.

13 **Q. HOW DID PWSA ADDRESS OCA WITNESS TERRY FOUGHT’S CONCERNS**
14 **REGARDING PWSA’S RESPONSE TO CUSTOMERS WHO TESTIFIED**
15 **DURING THE PUBLIC INPUT HEARINGS?**

16 A. PWSA addressed issues raised by customers concerning service issues for their own
17 water/wastewater conveyance service in the following manner:

- 18 • State Representative La’Tasha D. Mayes described her office’s active
19 participation in the community that she serves during a Boil Water Advisory that
20 was issued in response to a break on a 20” water main on March 24, 2023.
21 **PWSA Response** PWSA provided water buffaloes at the following locations to
22 provide residents with clean water during the event:

23 Oranmore Street at Summerville Avenue
24 5330 North Aiken Court (The Commons Senior Living)
25 Stanton Avenue at Woodbine Street
26 Hawthorne Street at Amsterdam Avenue
27 Callowhill Street at N. Highland Avenue
28 Heberton Street at Hampton Street

29 The PGH2O Cares team connected with Ms. Mayes and her aide, Tawanda
30 Carlisle, following the hearing, to plan a customer assistance program enrollment
31 event in Ms. Mayes’ district.

- 32 • Richard Marini of 1901 Curranhill Avenue testified that, following PWSA sewer
33 work, his street became impassible due to the driveway being so low that it is not
34 usable.

35 **PWSA Response:** Both I and PWSA Deputy Director of Customer Service,
36 Brittany Schacht, spoke with Mr. Marini following the hearing. We pledged to

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look into his complaint. Ms. Schacht and I then communicated with several members of PWSA’s Engineering department to investigate. This investigation led to a meeting between PWSA Customer Service, PWSA Engineering, the City of Pittsburgh Department of Mobility and Infrastructure (DOMI), and Mr. Marini on August 15, 2023. Representatives from DOMI also surveyed the site and Mr. Marini directed them to the problem area. Following this meeting, PWSA Engineering determined that the groundwater that had been present long after their work had been performed had since been mitigated/moved. They mobilized a restoration contractor who completed milling and paving at 1901 Curranhill Avenue on August 29, 2023. Mr. Marini expressed to the contractor that he was pleased with the work. The following are pictures of the site as provided by the contractor.



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1 Lastly, PWSA Engineering added to their process for sites where paving
 2 restoration work cannot occur due to the presence of groundwater the
 3 commitment to regularly scout the location to see if conditions change.

- 4
- 5 • Phyllis Hankins of 644 Hollace Street expressed that PWSA field crews need to
 6 be more accountable for their actions, relating that work did not occur on the date
 7 that was posted on no parking signs and that, when crews did arrive, they stood
 8 around talking at length.

9 **PWSA Response:** I spoke in person with Ms. Hankins at the conclusion of the
 10 public input hearing where she provided her comments. She advised that there
 11 were no service issues at her residence and that the wall that she had referenced
 12 was on a neighbor’s property. I gave Ms. Hankins my business card and asked
 13 her to reach out to me directly if she has any concerns about future work on or
 14 around her property.

- 15 • Melissa McSwiggan spoke about the volumetric aspect of PWSA’s rate structure
 16 and the negative impact that it has on her monthly bill because their household
 17 usage is less than the minimum allowance associated with their meter size.

18 **PWSA Response:** As part of this rate case, PWSA has proposed a new rate
 19 structure that would, if approved by the Commission, remove the volumetric
 20 usage allowance. This would resolve Ms. McSwiggan’s complaint and that of
 21 similarly situated customers.

- 22 • Robert Rubenstein provided commentary on service outages and property
 23 restoration delays. Mr. Rubenstein did not provide the location of these alleged
 24 issues, so PWSA was unable to research them.

- 25 • Caroline West stated that she was speaking on behalf of the Apartment
 26 Association of Metropolitan Pittsburgh and expressed dissatisfaction with only
 27 being advised of the impact of the proposed rates on Residential customers.

28 **PWSA Response:** The following is the section of PWSA’s Notice of Proposed
 29 Rate Changes that was included in all customers’ bills for one month beginning
 30 on the rate request filing date of May 9, 2023:

The typical Commercial customer using 13,000 gallons per month with a 1-inch meter and generating stormwater runoff from 8 ERU's, the total bill would increase from \$356.54 to \$441.19 per month or by 23.7% in 2024, from \$441.19 to \$565.41 per month or by 28.2% in 2025, and from \$565.41 to \$668.24 per month or by 18.2% in 2026 as shown below:

Commercial	Current Rates	2024 Rates	2025 Rates	2026 Rates
Water	\$223.10	\$285.39	\$370.93	\$442.18
Wastewater Conveyance	\$69.84	\$73.72	\$94.48	\$109.10
Stormwater	\$63.60	\$82.08	\$100.00	\$116.96
Total	\$356.54	\$441.19	\$565.41	\$668.24

1 The Notice also provided information about how to contact PWSA to view the
 2 full rate filing or to obtain information about a specific customer class or how the
 3 proposal may impact a particular customer’s bill.

- 4 • Kim Williams testified regarding a high consumption issue she experienced.

5 **PWSA Response:** PWSA’s PUC Compliance Manager, Zachary Larimer,
 6 previously assisted Ms. Williams by investigating her high consumption dispute.
 7 PWSA Exhibit JAM-24 is the Utility Report that Mr. Larimer compiled, shared
 8 with the customer, and filed with the Commission’s Bureau of Consumer Services
 9 in April 2021.²⁰ Mr. Larimer made a sincere attempt to work with Ms. Williams
 10 to help her identify and address the high consumption she was experiencing at her
 11 property.

12 Additionally, I ran Ms. Williams’ address in PWSA’s work order and asset
 13 management system that was implemented on January 14, 2020; no water quality
 14 complaints were received and recorded for this address. Lastly, the PGH2O Cares
 15 team has worked with Ms. Williams to enroll her into the Bill Discount Program
 16 and has facilitated grants that were applied to Ms. Williams’ account.

17 **Q. ARE THERE ANY OTHER CUSTOMERS WHO WERE ASSISTED BY PWSA**
 18 **FOLLOWING THEIR PUBLIC COMMENTS?**

19 A. Yes. Following her public comments, the PGH2O Cares team assisted customer Patrice
 20 McNeely in person on the evening of July 25, 2023. Ms. McNeely is now enrolled in
 21 PWSA’s Bill Discount Program and Winter Moratorium so that she will receive a
 22 monthly bill discount and is protected from termination activities in the winter months.
 23 With a credit account balance, this customer does not have a current need for the
 24 Arrearage Forgiveness or Hardship Grant programs.

25 **Q. DO YOU HAVE OTHER AFTER-HEARING PWSA RESPONSES TO**
 26 **CUSTOMERS TO SHARE CONCERNING THE ADDITIONAL PUBLIC INPUT**
 27 **HEARINGS ON AUGUST 29, 2023?**

28 A. Yes; following the two additional Public Input Hearings on August 29, 2023, the PGH2O
 29 Cares team connected with customer Anita Penn to walk her through the Application for
 30 Service form. Once Ms. Penn completes the form, she can and will be vetted for

²⁰ Since Ms. Williams testified on the record at the public input hearing, this exhibits redacts only her account number, telephone number and email address.

1 eligibility for PWSA's low-income customer assistance programs. The PGH2O Cares
2 team also called and spoke with customer Dorothy Brooks. Based on her reported
3 income, Ms. Brooks did not qualify for the Bill Discount Program, Hardship Grant, or the
4 ALCOSAN Clean Water Assistance Fund; however, she was interested in the Lead Line
5 Replacement Reimbursement Program, so her application was forwarded to PWSA's
6 Lead Help team to confirm her service line material. Finally, Ms. Brooks' account was
7 coded for shut-off protection during the Winter Moratorium.

VIII. CONCLUSION

9 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

10 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

PWSA EXHIBIT JAM-17

Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority (PWSA)
Docket Nos. R-2023-3039919 (Stormwater)
R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
2023 Base Rate Case Proceeding

Responses to PWSA
Interrogatories to OCA Set I

44. Reference OCA St. No. 4 at 73-76. Please confirm that the cost estimate developed for Mr. Colton's proposed changes to the existing Bill Discount Program and Arrearage Forgiveness Program do not include any programming or other staffing costs. If this cannot be confirmed, please state the amount of costs estimated by Mr. Colton for these tasks.

Response: Confirmed. No cost estimate has been prepared for "programming or other staffing costs."

Sponsoring Witness: Roger D. Colton

Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority (PWSA)
Docket Nos. R-2023-3039919 (Stormwater)
R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
2023 Base Rate Case Proceeding

Responses to PWSA
Interrogatories to OCA Set I

37. Reference OCA St. 4 at 37. Is it Mr. Colton's position that participants in PWSA's low income customer assistance programs should not share any of the costs of a Commission approved rate increase? Please explain your response.

Response: No. Although Mr. Colton does recommend that one tier of participants in PWSA's low-income bill discount program (50% - 100% Federal Poverty Level) receive a higher discount than is currently provided.

Sponsoring Witness: Roger D. Colton

Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority (PWSA)
Docket Nos. R-2023-3039919 (Stormwater)
R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
2023 Base Rate Case Proceeding

Responses to PWSA
Interrogatories to OCA Set I

55. Reference OCA St 5 at 20. Does Ms. Alexander agree that the optimal path for PWSA to provide service is by receiving as much payment for services rendered as possible?

Response: At the high level of this question, “yes.”

Sponsoring Witness: Barbara R. Alexander

PWSA EXHIBIT JAM-18

**RESPONSES OF PITTSBURGH UNITED'S OUR WATER TABLE TO THE
PITTSBURGH WATER AND SEWER AUTHORITY'S INTERROGATORIES, SET I**

Pa. PUC v. PWSA, R-2023-3039920; R-2023-3039921; R-2023-3039919; P-2023-3040678

9. Has Mr. Geller performed any analysis of the cost to PWSA to provide safe and reliable utility service? If so, please provide the results and/or workpapers related to such analysis. If not, please explain why not.

RESPONSE:

Mr. Geller has not performed an independent analysis of the cost to PWSA related to the provision of utility services. As discussed extensively in Pittsburgh United St. 1, Mr. Geller's analyses and recommendations focused on the affordability of rates for low income residential ratepayers.

Response Provided By:

Harry Geller, Esq.

Witness for Pittsburgh United's Our Water Table

Dated: August 31, 2023

**RESPONSES OF PITTSBURGH UNITED'S OUR WATER TABLE TO THE
PITTSBURGH WATER AND SEWER AUTHORITY'S INTERROGATORIES, SET I**

Pa. PUC v. PWSA, R-2023-3039920; R-2023-3039921; R-2023-3039919; P-2023-3040678

13. Reference United St. 1 at 17. Does Mr. Geller agree that all customers, including those who do not qualify or are not participating in PWSA's low income customer assistance program, benefit when BDP participants pay for services rendered?

RESPONSE:

All PWSA ratepayers benefit when BDP customers are able to afford to pay their monthly bills, including those ratepayers who do not qualify or are not participating in PWSA's low income customer assistance program.

Response Provided By:

Harry Geller, Esq.

Witness for Pittsburgh United's Our Water Table

Dated: August 31, 2023

**RESPONSES OF PITTSBURGH UNITED'S OUR WATER TABLE TO THE
PITTSBURGH WATER AND SEWER AUTHORITY'S INTERROGATORIES, SET I**

Pa. PUC v. PWSA, R-2023-3039920; R-2023-3039921; R-2023-3039919; P-2023-3040678

14. Reference United St. 1 at 25. Would Mr. Geller prefer PWSA staffing resources to focus on (1) developing a Universal Service Plan to be submitted, reviewed and approved by the Commission or (2) customer outreach about its low income customer assistance programs? For purposes of this question, assume resources do not exist to do both.

RESPONSE:

Mr. Geller has based his recommendations toward PWSA meeting the essential elements of an appropriately funded comprehensive universal services program. The hypothetical presented poses an inappropriate choice to be made between (1) and (2) since these actions are each essential to administering a comprehensive suite of accessible, well-administered low income programs. As stated in Pittsburgh United St 1, Mr. Geller recommends that PWSA expand its capacity to submit a comprehensive Universal Service Plan, while conducting appropriate and necessary outreach related to PWSA's low income programming.

Response Provided By:

Harry Geller, Esq.

Witness for Pittsburgh United's Our Water Table

Dated: August 31, 2023

**RESPONSES OF PITTSBURGH UNITED’S OUR WATER TABLE TO THE
PITTSBURGH WATER AND SEWER AUTHORITY’S INTERROGATORIES, SET I**

Pa. PUC v. PWSA, R-2023-3039920; R-2023-3039921; R-2023-3039919; P-2023-3040678

15. Reference United St. 1 at 25-26. Is Mr. Geller’s position that important information about PWSA’s “rules, policies and procedures on PWSA’s low income assistance programs” is not made available during its LIAAC meetings such that imposing new and time consuming requirements to prepare a Universal Service Plan is necessary?

RESPONSE:

No.

Response Provided By:

Harry Geller, Esq.

Witness for Pittsburgh United’s Our Water Table

Dated: August 31, 2023

**RESPONSES OF PITTSBURGH UNITED'S OUR WATER TABLE TO THE
PITTSBURGH WATER AND SEWER AUTHORITY'S INTERROGATORIES, SET I**

Pa. PUC v. PWSA, R-2023-3039920; R-2023-3039921; R-2023-3039919; P-2023-3040678

24. Reference United St. 1 at 44. Is Mr. Geller aware of any Commission finding expressing concerns about the administration by Dollar Energy Fund of any other utility low income customer assistance program? If yes, please provide reference to such findings whether in the context of a Commission Order (provide docket number and entry date of order) or another staff report.

RESPONSE:

No.

Response Provided By:

Harry Geller, Esq.

Witness for Pittsburgh United's Our Water Table

Dated: August 31, 2023

**RESPONSES OF PITTSBURGH UNITED'S OUR WATER TABLE TO THE
PITTSBURGH WATER AND SEWER AUTHORITY'S INTERROGATORIES, SET I**

Pa. PUC v. PWSA, R-2023-3039920; R-2023-3039921; R-2023-3039919; P-2023-3040678

25. Reference UNITED St. No. 1 at 44. Is Mr. Geller aware of any guidelines or established standards regarding account handling errors of a low income customer assistance program fund administrator? If so, please provide. If not, please set forth appropriate metrics in Mr. Geller's opinion that could be used to assess the performance of PWSA's administrator.

RESPONSE:

No.

Response Provided By:

Harry Geller, Esq.

Witness for Pittsburgh United's Our Water Table

Dated: August 31, 2023

PWSA EXHIBIT JAM-19



CUSTOMER EXPERIENCE

Fact Sheet



< 1 Min

PWSA representatives answer customers' calls in less than one minute on average.

Callback Service

If wait times exceed two minutes, customers can opt to receive a call back instead of waiting on hold.

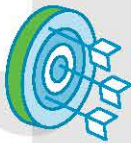


Customer Portal

The Customer Advantage Portal allows customers to view and pay bills, check water usage, set leak alerts, and start and stop service.

Outage Notifications

Customers can view real-time outage status by visiting pgh2o.com. PWSA also shares outage details via recorded hold messaging.



Weekly Call Evaluations

Customer Service Representatives receive weekly customer call evaluation and coaching sessions to ensure consistent excellent service.

Multi-Layered Team

Customers requesting to speak with a supervisor are transferred to a team lead. If the customer's issue is still unresolved, they are connected with PWSA Customer Service management.



After Call Surveys

Customers may score and provide detailed feedback about their PWSA call experience.

Text Updates

Customers are notified via text message when a PWSA Plumber is on the way to upgrade their water meter and when that work is complete.



Smart Email

50% of customer emails are processed via a machine learning tool, which results in expedited resolutions for our customers.

Ongoing Improvements

PWSA regularly surveys our customer base and applies the findings to consistently make service enhancements.



PWSA EXHIBIT JAM-20

Transcription of After Call Customer Survey Voicemail
(August 1, 2023 – Unidentified Consumer)

Transcription:

I have been very, very happy with the service that I have received from PWSA. I rated a few things lower because I do not understand why it changes from month to month this much when we are not doing that much different. But, I would like to talk to somebody and I'm grateful that your people have – Lance is the last man I just talked with. I am grateful that we have had such wonder people and thank you for all the effort that you folks put forth to help the City of Pittsburgh residents with clean and safe water. And, and we, my husband and are I very, very grateful for all of your help and for the service that we receive from you folks.

Only the best and we'll talk to you soon.

You see my phone number 412-XXX-XXXX. Feel free to call me back if you wish.

Thank you.

Link to audio file: <https://www.imanageshare.com/pd/4Q9EVYm72hB>

PWSA EXHIBIT JAM-21



Pittsburgh Water and Sewer Authority
Request for Proposals (RFP)
Debt Collection Services
PWSA Project No. 2023-015-OPS

Issued: August 6, 2023
Proposals Due: September 7, 2023, at 2:00 p.m. EST

Contact: Susan Kemery, Sr. Contract Specialist

Late Proposals will not be accepted

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PROJECT INTRODUCTION

1. BACKGROUND

General

The Pittsburgh Water and Sewer Authority (PWSA) currently serves 81,000 drinking water connections, 111,000 sewage service connections, and 5,000 stormwater-only properties. In addition, PWSA also provides bulk water sales to municipalities including Reserve Township, Fox Chapel Borough, and Aspinwall Borough, along with being interconnected to several other regional water systems. PWSA's drinking water system consists of five reservoirs, two water treatment plants, 11 pump stations, 11 tanks, and approximately 1,000 miles of water lines. In addition, PWSA's sewer system is comprised of four booster pumping stations and approximately 1,200 miles of sewer lines. PWSA has 400+ employees across six locations with the main headquarters located at 1200 Penn Avenue, Pittsburgh, PA, 15222.

Under the Compliance Plan, Stage 2 settlement as approved by the Pennsylvania Public Utility Commission (PA PUC), PWSA created a Collections Plan. PWSA queried other PA PUC regulated utilities to determine that most contract with one or multiple collection agencies to collect debt that remains unpaid following their application of all other collection tools. As such, PWSA is making this offering to prospective Bidders.

Through the formation of the PGH2O Cares team in February 2021, PWSA is actively offering its [suite of assistance programs](#) to customers. Responsive Bidders must exhibit a willingness to disengage from any aggressive or predatory collection behavior. Additionally, all Bidders must agree to warm transfer any confirmed low income customers to the PGH2O Cares team for assistance with addressing their unpaid service charges. PWSA will offer training to the selected bidder and any employee or individuals authorized to conduct collection activities on behalf of the selected bidder on protections afforded to its customers, and this training is described in the Scope of Services in Attachment 6.

2. PURPOSE

Through the issuance of this RFP, PWSA is seeking qualified firms that are financially and technically qualified to perform the scope of services as described herein. PWSA's goal in partnering with potentially more than one debt collector is to increase PWSA's monthly collection rate by 10%. The scope will include debt collection services for accounts with balances that are past due ≥ 180 days, representing individuals who are no longer customers of PWSA with 52 Pa. Code Chapter 56 protections, *and* meet one or more of the following criteria:

- inactive accounts where 1) PWSA has ceased to provide service, or 2) a previous customer has moved out and the debt is ≥ 90 days,
- inactive accounts that have been final billed and the charges on the final bill are past due ≥ 90 days, or

- accounts where water service is shut at the curb stop.

Also, responsive firms must adhere to the training that PWSA provides to consistently ensure the protections that are afforded to customers with unpaid charges as required under 52 Pa. Code Chapter 56 and DSLPA 66 Pa.C.S. Ch. 15 Subch. B. Additionally, once a customer is determined to be eligible for a medical, PFA, or are confirmed low income, they must be warm transferred to PWSA Customer Service personnel at 412-255-2423 and choose Option #5.

3. CONTRACT TERM

The term of this Agreement shall commence upon the Authority's issuance of a Notice to Proceed and shall continue for two years. Time is of the essence of this Agreement. Thereafter, this Agreement shall not renew, unless agreed upon in writing between the Parties. In the event that the Parties elect to renew the Agreement, the Contract may be extended for three additional one-year Term(s), or any portion thereof, if mutually agreed upon by the Parties in writing. For such renewal Term(s), Consultant agrees that pricing for option renewals shall be submitted to the Authority's Contract Administrator at least 60 days prior to the most current term renewal and shall not exceed 3% annually.

SOLICITATION SCHEDULE

4. SCHEDULE

Task	Date
Advertisement of RFP	08/06/23, 08/10/23
Preproposal Meeting	08/17/23
Deadline for Questions	08/24/23
Proposals Due	09/07/23
Project Award	09/2023

5. PRE-PROPOSAL MEETING

All Bidders interested in submitting a proposal in response to this solicitation are required to attend a Mandatory Pre-Proposal Meeting, to be held on August 17, 2023, at 1:00 p.m. EST via a Microsoft Teams meeting. Meeting information will be provided via the Bonfire Procurement Tool. The purpose of this meeting is to give an overview of the contract requirements and to allow Bidders to ask questions.

6. INQUIRIES

This RFP will be administered by Susan Kemery, Sr. Contract Specialist. All questions pertaining to this RFP prior to selection shall be submitted via the Bonfire Procurement Portal. Questions are due no later than 4:00 p.m. EST on August 24, 2023.

All communication of any nature with respect to this RFP shall be addressed to Susan Kemery, Sr. Contract Specialist. Prospective firms and their staffs are prohibited from

communicating with City and Authority officials, staff, and any Selection Committee member as well as members of City Council and Authority Board of Directors regarding this RFP or submittals. Such contact is prohibited from the time the RFP was released until the selection results are publicly announced. Violation of this provision may lead to disqualification of the firm's submittal for consideration.

7. PRESENTATIONS

PWSA reserves the right to shortlist any number of qualified Firms. The Selection Committee will notify the shortlisted Bidders via e-mail and/or phone in advance to allow time to arrange travel.

Shortlisted Firms may be invited to provide a brief in-person presentation or webinar. The shortlisted Firms will be asked to make formal presentation of their Proposals and respond to questions from the Selection Committee. All costs incurred by the Firm during the presentation shall be the responsibility of the Firm. Following the presentations or webinars, the Selection Committee will make the final selection.

8. NEGOTIATIONS

At the request of PWSA, the Bidder may be required to meet to review the scope of services. The meeting may include review and discussion of:

- Examples of similar work;
- Standards, specifications, manuals, and other practices to be used;
- Policies used by the Authority for the type of work involved;
- A contract in draft form;
- Methods of payment;
- Procedures for invoicing;
- Standard forms to be used;
- Fiscal requirements; and
- Items and/or services to be provided by PWSA.

Where appropriate, the Bidder will prepare a revised cost proposal for performing the required services. The Bidder's original or revised cost proposal shall be supported by a breakdown of the estimated workdays required to perform each of the services contained in the scope of work and the salary range for each of the classifications of personnel to be utilized. The Bidder's original or revised cost proposal must include supporting documentation for payroll additives, direct costs, indirect costs, fixed fee, and overhead. The Designated Chairperson may request further discussion and negotiation to determine the reasonableness of the firm's cost proposal.

9. PROPOSAL WITHDRAWAL OR MODIFICATION

A Bidder Respondent may withdraw or modify its proposal at any time prior to the due date as provided in this RFP, at which time proposals will be considered firm and become the property of the Authority.

10. PUBLIC INFORMATION

Respondent, by submittal of a proposal, acknowledges that all proposals may be considered public information in accordance with the Commonwealth of Pennsylvania Right to Know laws. Subject to award of this RFP, all or part of any submittal may be released to any person or organization who may request it. Therefore, Bidder shall specify in their Cover Letter if any portion of their submittal should be treated as proprietary and not releasable as public information. Respondents should be aware that all such requests may be subject to legal review and challenge. All information considered proprietary should be clearly indicated as such or not included in the response.

ATTACHMENTS

11. SCOPE OF SERVICES

The Bidder shall do all the work and furnish all supervision, labor, materials, equipment, tools, and appurtenances necessary or proper for the performance and completion of the Scope of Services described in Attachment 6.

12. ATTACHMENTS

The following attachments are included as part of this request for proposals. All Bidders must review all attachments and complete where appropriate.

Attachment 1: Professional Service Agreement
Attachment 2: Affidavit under Pittsburgh Code §161.22 (f)
Attachment 3: Supplier Diversity Program and Documents
Attachment 4: Addenda Acknowledgement Form
Attachment 5: Reference Form
Attachment 6: Scope of Services

REQUIREMENTS

13. MANDATORY MINIMUM REQUIREMENTS

Each Firm shall meet the mandatory minimum requirements. Failure to meet these requirements will cause the Firm's Proposal to be deemed non-responsive and will not be considered for award:

- Demonstrate debt service collection experience for other utilities that are also regulated by the Pennsylvania Public Utility Commission.
- Provide a list of staff, including any staff of independent contractors working for Bidder, who would be trained by PWSA.
- Share a plan to regularly monitor staff to ensure non-aggressive collection behaviors.

14. SUPPLIER DIVERSITY PROGRAM

Minority Business Enterprise (MBE), Women Business Enterprise (WBE), Small Business Enterprises (SBE), Veteran Business Enterprise (VBE) (this includes Service Disabled-Veteran Business Enterprises (SDVBE)), Disability-Owned Business Enterprise (DOBE), and LGBT Business Enterprise (LGBTBE) participation is requested in all PWSA contracts.

The PWSA requires that all Bidders demonstrate a good faith effort to obtain the participation of MBEs, WBEs, SBEs, VBEs, DOBEs, LGBTBEs in all work to be performed under PWSA contracts. Such participation may be demonstrated by utilization of MBE/WBE/SBE/VBE/DOBE/LGBTBE firms through the use of subcontracts with such firms in support services, supplies, etc. For many of the services, supplies and equipment for which the PWSA contracts, the PWSA recognizes that the current business pool does not include percentages of minorities, women, veterans, or service-disabled veterans. The PWSA, however, wishes to encourage MBE/WBE/SBE/VBE/DOBE/LGBTBE participation in all business pools.

It is therefore the current goal of the PWSA to encourage increased MBE, WBE, SBE, VBE, DOBE, LGBTBE participation in all business pools. The PWSA's current supplier diversity goal is between ten percent (10%) and twenty-five percent (25%). The PWSA intends to monitor the progress closely, including revising the practices and procedures from time to time as conditions warrant.

- a. The dollar amount of the contract paid to MBEs along with the names and addresses of those MBEs.
- b. The dollar amount of the contract paid to WBEs along with the names and addresses of those WBEs.
- c. The dollar amount of the contract paid to SBEs along with the names and addresses of those SBEs.
- d. The dollar amount of the contract paid to VBE'S along with the names and addresses of those VBE'S.
- e. The dollar amount of the contract paid to DOBE'S along with the names and addresses of those DOBE'S.
- f. The dollar amount of the contract paid to LGBTBE'S along with the names and addresses of those LGBTBE'S.
- g. An explanation of any failure to achieve the goals represented prior to award of the contract.

This Section does not convey a requirement to meet MBE, WBE, SBE, VBE, DOBE, LGBTBE goals and final payment to Vendor shall not be withheld if the PWSA's goal is not achieved, unless Vendor fails to provide an explanation as to why the goals were not met.

15. NON-DISCRIMINATORY PRACTICES AND POLICIES

Bidder shall not discriminate in its employment on the basis of race, color, religion, ancestry, national origin, place of birth, sex, age, disability, non-job-related handicap or sexual orientation. Bidder shall comply with the applicable provisions of the Pittsburgh Code, Title Six - Conduct, Article V - Discrimination, and any amendments thereto. Bidder shall also comply with the applicable provisions of Title I and Title II of the Americans with Disabilities Act, any amendments thereto and any regulations issued thereunder. Bidder shall incorporate in any subcontracts which may be permitted under the terms of this Agreement a requirement that said subcontractors also comply with the provisions of this Section.

Prior to the award, the Authority reserves the right to direct Bidder to submit a statement signed by an authorized officer or agent of any labor union or any agency referring workers or providing or supervising apprenticeship or other training, with which the Bidder deals, with supporting information to the effect that the signer's practices and policies do not discriminate on the grounds of race, sex, color, religion, ancestry, national origin or place of birth. In this statement the signer either will agree to cooperate affirmatively in the implementation of the policy and provisions of the Agreement and the MBE/WBE/VBE/SDVBE Solicitation and Commitment Statement or will agree that recruitment, employment, and the terms and conditions of employment under the Agreement shall be in accordance with the purposes and provisions of the Agreement. In the event that the union, or agency, shall refuse to execute such a statement, the Bidder shall so certify and set forth what efforts have been made to secure such a statement and such additional factual material as the Authority may require.

16. STATEMENT OF AFFILIATION

Successful Bidders must provide PWSA with a statement of affiliation. The statement of affiliation shall include:

- A. a description of the Bidder's qualifications and experience;
- B. a description of any contractual or business relationship with the City of Pittsburgh or PWSA within the past three years; and
- C. an identification of the Bidder's principals, owners, partners or shareholders, or if the Bidder is a public corporation, the officers, members of the board of directors and shareholders holding more than three percent of the corporate stock.

17. EXCLUDE SALES TAX

In computing Proposals, the Bidder shall not include amounts for Pennsylvania Sales or Use Tax on materials and equipment to be incorporated in facilities used directly in rendering public utility service pursuant to 61 PA Code § 31.11 – 31.16. The Bidder

shall ascertain in advance whether such exemption is available, and the Bidder shall, in compliance with such regulation, furnish the supplier with an exemption certificate properly endorsed by PWSA.

The Bidder shall supply PWSA with a statement that Pennsylvania Sales or Use Tax on materials and equipment to be incorporated in facilities used directly in rendering public utility service has not been included in the computation of the proposal.

18. AFFIDAVIT UNDER PITTSBURGH CODE §161.22 (f)

The Bidder will also be required to submit an executed Affidavit of Consultant as required by Pittsburgh Code §161.22(f) which will state, under penalty of perjury, that neither they nor their company, corporation, partnership, or any affiliated individual is prohibited from entering a bid or participating in a City of Pittsburgh or a PWSA contract by reason of debarment or disqualification as defined by Pittsburgh Code §161.22(b). the firm shall be deemed to have represented and warranted that the Proposal is not made in connection with any competing firm submitting a separate response to this RFP and is in all respects fair and without collusion or fraud. Furthermore, the firm certifies that neither it, any of its affiliates or subconsultants, nor any employees of any of the foregoing has bribed or lobbied, or attempted to bribe or lobby, an officer or employee of the City in connection with this RFQ.

19. PROJECT SCHEDULE

The following table provides a list of major milestones that need to be met in order to meet PWSA's need for this project. If the Bidder takes exception to any of these deadlines, Bidder must include any explanation as described in the proposal contents included in this proposal.

Milestone	Date
Launch debt collection services.	Within 30 days of signed agreement
Provide monthly collection activity reports.	On the first business day of each month

PROPOSAL FORMAT AND SUBMITTAL REQUIREMENTS

20. PROPOSAL COMPONENTS

Each response to this RFP shall include all sections described below and, in the order, listed. Failure to include all of the elements specified may be cause for rejection. While there is no page limit, proposals should be succinct and relevant to the scope of work.

A. Cover Letter: The Cover Letter must contain all of the following information

- 1) RFP Title
- 2) Offering firm's legal name, address, and telephone number
- 3) Contact person's name, address, telephone number, and email address

- 4) Confirmation that contact person can legally bind firm to agreements and commit the Bidder to the obligations outlined in this RFP

B. Table of Contents: Each proposal must include a table of contents that clearly indicates the location of the major sections of the proposal.

C. Firm Qualifications & References

- 1) Please provide an overview of your firm's qualifications and experience.
- 2) Three references for projects of similar scope. References must include a brief description of the project and outcome, a contact person along with their address, phone number, and email address. References must be provided using the Reference Form included with this RFP.

D. Project Team

- 1) Identify the primary team members and their roles in the project in an organizational chart.
- 2) Provide each person's name, title, summarized qualifications and related experience, and their resume.

E. Project Approach and Scope of Work: Detail the firm's approach to the Scope of Work attached to this RFP. Highlight alternative solutions, innovations, new technologies, or potential cost savings.

F. Required Statements: Bidder must prepare a Statement of Affiliation as described in this RFP. Bidder must also submit the following completed attachments included with this RFP.

- 1) Affidavit under Pittsburgh Code §161.22 (f)
- 2) Supplier Diversity Program Commitment Form
- 3) Addenda Acknowledgement Form

G. Exceptions: Should Bidder have any exceptions to the sample agreement included with this RFP, Bidder must include them with this proposal.

H. Timeline: Prepare a project timeline that reflects the project schedule described in this RFP and includes all meetings, major deliverables, and milestones. If Bidder believes there is a need for any changes to the project schedule, please explain why such changes are necessary.

I. Schedule of Prices: Please provide your pricing proposal per our "Required Documents" field in the Bonfire procurement tool.

21. REIMBURSABLE PROJECT EXPENSES

The Authority will reimburse for the following, documented expense charges during the course of the project: (a) photocopying at a cost up to a maximum of ten cents per page; (b) reasonable postage; (c) reasonable travel expense, including airline transportation not to exceed coach fares; (d) actual meal allowance not to exceed \$50.00 per day; (e) reasonable rental care expense; (f) reasonable hotel expense; (g) mileage for roundtrips greater than 50 miles; (h) parking expense; and (i) messenger delivery and air freight/courier expense. For all such charges, the Consultant shall provide documentation of the actual expense incurred as part of the invoice(s) submitted to the Authority. In the event that the Consultant does not submit such documentation, the Authority reserves the right to reject the charges set forth in the invoice(s).

22. PROPOSAL EVALUATION

This Contract will be awarded to the highest ranked Bidder, based on the evaluation criteria described herein.

Criteria	Points
Firm Qualifications & References	15
Project Team*	30
Project Approach and Scope of Work	30
Timeline	5
Schedule of Prices	10
Supplier Diversity Program - Participation Plan	10
Total	100

**Firms with a project manager/team located in Pittsburgh are given preference*

23. PROPOSAL SUBMISSION

Proposals will be received electronically via the Bonfire Procurement Portal. Proposals shall not be accepted in person, by U.S. Mail, by private courier service, via oral or e-mail communication, telephone or fax transmission.

Proposals must be submitted in the format described in this RFP. To be considered, the proposal must respond to all requirements in the RFP. The contents of this RFP and your proposal shall become part of any contract(s) entered into as a result of this RFP.

Submission of a Proposal indicates acceptance of the conditions in this RFP. Exceptions and assumptions shall be noted. The PWSA will not reimburse any expenses associated with this proposal. All proposals will become property of the PWSA and will remain firm and effective for 90 days from the closing date of this RFP. PWSA reserves the right to reject any or all Proposals, waive technicalities, and to be the sole judge of the suitability of the proposed services for its intended use and further specifically reserves the right to make the award of this Contract in the best interest of PWSA. Provisions of this RFP and the contents of the successful Proposals are considered available for inclusion in final contractual obligations. Prices quoted in the Proposal shall be firm for the duration of this Contract.

The Authority reserves the right to request additional information which, in the Authority's opinion, is necessary to assure that the proposer's competence, business organization, and financial resources are adequate to perform in accordance with this RFP and any resultant contract.

The Authority may make such investigation as it sees fit to determine the ability of the proposer to perform the work, and the proposer shall furnish the Authority all such information and data for this purpose as requested by the Authority. The Authority reserves the right to reject any proposal if the evidence submitted by, or investigation

of, such proposer fails to satisfy the Authority that such proposer is properly qualified to carry out the obligations of the contract and to satisfactorily perform the work specified.

When asked, proposers shall also include their answers to the questions listed in this RFP using the same answering sequence as put forth in the RFP.

The Authority reserves the right to extend or postpone the date and time for accepting proposals through an addendum.

Issuance of this RFP does not constitute a commitment by The PWSA to award a contract. The opening of a proposal does not constitute the Authority's acceptance of the Bidder as a responsive and responsible Bidder. The PWSA reserves the right to reject any or all proposals received in response to this RFP, or to cancel this RFP if it is in the best interests of the Authority.

All proposals, responses, inquiries, or correspondence relating to or in reference to this RFP, and all electronic media, reports, charts, and other documentation submitted by supplier shall become the property of the Authority when received.

24. PWSA'S RESPONSIBILITIES

It is PWSA's responsibility to:

- A. Ensure appropriate PWSA representation to perform assigned activities, attend meetings, and answer questions;
- B. Ensure that decisions are made in a timely manner;
- C. Designate a Project Manager; and
- D. Provide access to all necessary information to successfully complete the project.
- E. Provide training to Bidder and their staff in the form of an interactive session where PowerPoint slides are shared and the following are explained: 1) the protections that are afforded to customers with unpaid charges as required under 52 Pa. Code Chapter 56, and 2) the procedures that must be followed under DSLPA 66 Pa.C.S. Ch. 15 Subch. B for situations during debt collection when a previously unidentified tenant is reached on a terminated/inactive landlord account.
- F. Provide multiple Collections personnel as points of contact empowered to assist the Bidder and their staff when questions arise that are not addressed in PWSA's training.
- G. Evaluate two, randomly selected recorded calls of conversations between PWSA customers and the Vendor's employee and/or independent contractor working PWSA's account, both weekly and ad hoc, for quality assurance purposes.

CONTRACT AWARD

25. CONDITIONS OF AWARD

The performance of this Contract shall be governed solely by the terms and conditions as set forth in the executed Contract.

26. NOTICE OF AWARD

The successful Bidder(s) will be notified by letter, giving Notice of Award, of PWSA's acceptance of their Proposal.

27. DEBRIEFING OF UNSUCCESSFUL BIDDERS

Upon written request made within 30 calendar days after Contract Award, the Procurement Department shall debrief any unsuccessful Bidder on PWSA's evaluation of his/her proposal, citing the deficiencies and weaknesses. Point-by-point comparisons with the proposals of others will not be made. Debriefings will not include discussions of information contained in other Bidders' proposals.

28. NO CONTRACT WILL BE AWARDED TO PERSONS IN ARREARS TO PWSA

The Contract will not be awarded to any corporation, firm or individual who is, from any cause, in arrears to PWSA.

29. NOTICE TO PROCEED

Upon execution of the Agreement by PWSA and the Bidder, PWSA shall issue Notice to Proceed to the Bidder. The successful Bidder shall not begin any work on this Contract until such time as a Notice to Proceed has been issued by PWSA.

CONTRACT REQUIREMENTS

30. AGREEMENT

Firms shall review and confirm its acceptance of the Professional Services Agreement attached to this solicitation. If a Bidder is unable to agree to any of the terms or conditions of the PSA in the form attached hereto, the Bidder must identify the provisions in question with their proposal and provide an explanation as to why the Bidder cannot comply with such provisions. The final executed Agreement will be mutually agreed upon by PWSA and the Consultant. PWSA reserves the right to renegotiate services deemed necessary to meet the needs of the program according to PWSA's priorities and goals. Renegotiated services outside the scope of the original contract shall require contract amendment prior to commencement of work.

31. INSURANCE REQUIREMENTS

Prior to the beginning of any Services under this Agreement, Consultant shall deliver to the Authority certificates of insurance evidencing the following minimum coverages:

- A. Workers compensation insurance at statutory limits and employer's liability insurance with limits of one million (\$1,000,000.00) dollars. Consultant will have attached to its policy an alternate employer endorsement naming the Authority and will provide a waiver of subrogation in favor of the Authority.
- B. Commercial general liability insurance with limits of one million (\$1,000,000.00) dollars each occurrence and two million (\$2,000,000.00) dollars in the aggregate and containing or endorsed to contain the following coverages: contractual liability; broad form property damage; personal/advertising injury; an endorsement including the Authority as an additional insured and containing no special limitation on the scope of protection afforded the additional insured; waiver of subrogation to the benefit of all additional insureds; no explosion, collapse or underground exclusion; and, for any claims related to the Services, provision that Consultant's insurance shall be primary and non-contributory and any insurance or self-insurance maintained by the Authority shall be excess of Consultant's insurance and not contribute with it.
- C. Automobile liability insurance with limits of one million (\$1,000,000.00) dollars per occurrence and in the aggregate for bodily injury and property damage. Such automobile liability insurance shall cover all owned automobiles as well as non-owned automobiles operated by Consultant. The policy shall be endorsed to include the Authority as an additional insured and to include waiver of subrogation to the benefit of additional insureds.
- D. Professional liability insurance with limits of one million (\$1,000,000.00) dollars per claim or occurrence and annual aggregate. The policy shall be endorsed to include a waiver of subrogation to the benefit of the Authority. If coverage is on a claims-made form, Consultant shall maintain continuous coverage or shall exercise an extended discovery period for at least two (2) years following the expiration or other termination of this Agreement.

Except where stated otherwise above, the policies or coverages required by this Section shall be maintained during the term of this Agreement. All insurance coverages must be placed with insurance carriers having an AM Best rating of A- or higher rating. Each required policy shall be endorsed to state that coverage shall not be suspended, voided, cancelled, reduced, or limits or certificate holder be deleted as an additional insured except after thirty (30) days' prior written notice, by certified mail, return-receipt requested, has been given to the Authority.

All deductibles and self-insured retentions under policies required by this Section 9 shall be the responsibility of Consultant. The failure of the Authority to pursue or obtain any certificate of insurance or endorsement or to point out any non-compliance of any certificate of insurance or endorsement shall not constitute a waiver of any of the insurance requirements of this Agreement or relieve Consultant of any of its obligations hereunder. Self-funded or other non-risk transfer insurance mechanisms are not acceptable to the Authority. If Consultant has such a program, full disclosure must be made to the Authority prior to any consideration being given. These insurance provisions are intended to be a separate and distinct obligation on the part of

Consultant. The Authority's acceptance of insurance submitted by Consultant does not relieve or decrease in any way the liability of Consultant for performance under this Agreement.

32. INDEMNIFICATION

To the fullest extent permitted by law, Consultant shall indemnify, defend, and hold harmless the Authority, its officers, agents and employees, from and against liens, charges, claims, penalties, damages, demands, judgments, liabilities, losses and expenses for bodily injury, personal injury or loss, death or damage or destruction to property (real or personal and regardless of ownership), or the loss of use thereof, caused or allegedly caused by or arising from the performance of Consultant under this Agreement, but only to the extent caused or allegedly caused in part by the negligent acts or omissions of Consultant, its employees, agents or persons for whose acts Consultant may be liable.

To the fullest extent permitted by law, Consultant shall defend, indemnify and hold harmless the Authority, its officers, agents and employees, from and against claims and damages arising out of or resulting from the performance of the professional services of Consultant under this Agreement, but only to the extent caused in whole or in part by the negligent acts or omissions of Consultant, its employees, agents or persons for whose acts Consultant may be liable.

To the fullest extent permitted by law, Consultant shall indemnify, save and hold harmless, and defend the Authority, its officers, agents and employees from all liens, charges, claims, demands, losses, costs, judgments, liabilities and damages of every kind and nature whatsoever, including, but not limited to, court costs and attorney's fees arising from or based upon any violation by Consultant of any applicable laws, regulations, ordinances or codes.

Consultant shall defend, indemnify and hold harmless the Authority, together with its managers, officers, agents, employees and affiliates, from and against any loss, liability, claim, damage (including incidental and consequential damages), expense (including costs of investigation, defense and attorneys' fees) or diminution of value, whether or not involving a third party claim, arising, directly or indirectly, from or in connection with Consultant's infringement on any intellectual property rights of any third party.

The defense and indemnification obligations accepted by Consultant under this Section 10 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by Consultant, or by Consultant's subcontractors or permitted assigns, pursuant to any applicable workers' compensation statute or disability benefit statute or any other employee benefit law, rule or regulation.

33. COMPLIANCE WITH ALL LAWS

Consultant shall fully obey and comply with all laws, ordinances and administrative regulations made in accordance therewith, which are or shall become applicable to the Services performed under the terms of the Agreement.

34. INDEPENDENT CONSULTANT

The Consultant is and will remain at all times an independent Consultant, and no provision of this Contract is intended to create any relationship of employment, joint venture, partnership, or agency between the Consultant and PWSA. The Consultant will have no authority to bind PWSA in any respect or otherwise execute any documents on behalf of PWSA pursuant to this Contract. The Consultant shall not be eligible to participate in any benefit plans, programs or arrangements made available to employees of PWSA.

35. SUBCONTRACTING AND ASSIGNMENT

None of the Services provided shall be subcontracted or assigned without the prior written approval of the Authority. Such approval or consent will not relieve Consultant of its obligations and Consultant shall remain responsible for any assigned and/or subcontracted obligations. The Authority reserves the right to object and require the replacement of any subconsultant who is hired or retained without the Authority's prior written consent. For any subcontracted Services agreed upon by the Authority in writing, such subcontractor shall be entirely and exclusively under the direction, supervision and control of Consultant.

36. CONFIDENTIALITY

Consultant will not release any information related to the Services or publish any reports or documents related to the Services without the prior written consent of the Authority, which may be withheld or conditioned as deemed appropriate by the Authority in its sole discretion.

Consultant will not, either during or after performance of the Services, except as required in the performance of the Services or with the prior written consent of the Authority, communicate or divulge to, or use for the benefit of Consultant or any other person, firm, association, or corporation, any confidential or proprietary information of the Authority, including but not limited to the project deliverables and other data reviewed or developed during the performance of the Services.

Any information of a restricted nature provided by Consultant by the Authority's Project Manager or his or her designee during the term of this Agreement shall be handled in accordance with restrictions placed thereon by the Project Manager. Information or documents, written or electronic, given to or generated by Consultant during the term of this Agreement shall be considered restricted information and subject to dissemination restrictions as specified herein or by the Project Manager.

37. OWNERSHIP RIGHTS

All Data developed or created pursuant to this Agreement shall be the property of the Authority and the Authority shall have the full right to use such Data for any official purpose and in whatever manner deemed desirable and appropriate, including making it available to the general public. Such use shall be without any additional payment to or approval by Consultant. The Authority shall have unrestricted authority to publish, disclose, distribute and otherwise use, in whole or in part, any Data developed or prepared under the Agreement. However, any reuse of such Data by the Authority on any other project shall be at the sole risk of the Authority.

Consultant hereby relinquishes, or shall cause to be relinquished, any and all copyrights and/or privileges to Data developed or prepared under the Agreement without any additional payment to Consultant therefor. However, Consultant may use copies of Consultant's work products prepared pursuant to this project as part of its record of professional activity. Consultant shall not include in the Data any copyrighted matter unless Consultant obtains the written approval of the Project Manager of the Authority and provides said Project Manager with written permission of the copyright owner for Consultant to use such copyrighted matter in the manner provided herein.

Unless expressly permitted in writing, no Data developed or prepared, in whole or in part, under the Agreement shall be subject to a third party's copyright in the United States of America or in any other country. Further, unless expressly permitted in writing, Consultant, in rendering the Services, represents and warrants that it shall not infringe any intellectual property, brand identity, invention, discovery, development, improvement, innovation or trade secret rights of any third party.

38. PAYMENT

Consultant shall submit, on a monthly basis, properly detailed report(s) setting forth an itemization of the amounts collected from PWSA customers and the amount withheld by the Consultant for full payment of their services to collect those debts.

39. SETTLEMENT OF DISPUTES OR CONTROVERSIES

Should any dispute or controversy whatsoever arise between Consultant and the Authority with respect to the executed Agreement or any Services performed by Consultant or its subconsultants or permitted assigns pursuant to the Agreement, then the complaining party shall give the other party thirty (30) days' written notice of the complaining party's intent to resort to legal action. If Consultant chooses to pursue legal action against the Authority, it must commence such legal action within one (1) year of the accrual of any such alleged claim. In the event that Consultant brings and/or files a lawsuit against the Authority, and does not recover the entire amount sought and/or alleged in its lawsuit against the Authority, Consultant shall compensate the Authority for any and all attorneys' fees and costs incurred by the Authority to defend itself against the Consultant's lawsuit.

40. TERMINATION

Consultant shall have seven (7) days to cure an Event of Default. Should Consultant fail to remedy the Event of Default to the satisfaction of the Authority, the Authority shall have the right:

- A. to remedy the deficiency and deduct the cost thereof from any payment then or thereafter due to Consultant; and/or
- B. to terminate the Agreement and to complete the Services by whatever method the Authority deems expedient; and
- C. to pursue any other remedy available at law or equity

Upon receipt of a termination notice from the Authority, Consultant shall:

- A. stop the performance of all Services, except as may be necessary to carry out the termination;
- B. either terminate or assign to the Authority, as the Authority may direct, any subcontracts or other contracts or purchase orders entered into by Consultant in performing the Services under this Agreement;
- C. deliver to the Authority all documents prepared as part of the Services; and
- D. take such other action toward termination of the Services as the Authority may reasonably direct.

The Authority shall have the right to terminate this Agreement for its convenience upon ten (10) days written notice to Consultant whenever the Authority determines such termination to be in its own best interest. Upon its receipt of notice of a termination for convenience, Consultant shall cease operations as directed by the Authority and shall take all actions as directed by the Authority for the preservation or protection of any of the products of the Services.

Upon a termination for the Authority's convenience, the Authority shall pay Consultant for all Services satisfactorily completed through the date of termination, less the sums Consultant shall have already been paid on account of the Services performed. The Authority shall not pay Consultant, and Consultant shall not be entitled to payment, for any Services not performed or for any anticipated profit for such non-completed Services.

41. AUDIT

At any time up to three years after the day of final payment, Consultant will provide the Authority with access to its records related, in any way, to the Program and/or this Agreement for inspection and audit.

42. DISSEMINATION OF INFORMATION

Consultant agrees to not release any information related to the Services or the performance of Services, nor publish any reports or documents related to the Services with the prior written consent of the Authority. Consultant agrees to hold all materials and information belonging to the Authority or the Authority's agents in the strictest confidence and not to make use thereof other than for the performance of its contractual obligations, to release it or to disclosure it to any other entity and/or

individual. Any information of a restricted nature provided to Consultant by the Authority in the course of the Services shall be handled in accordance with the restrictions placed thereon by the Authority. Information or documents given to or generated by Consultant in the course of the Services shall be considered restricted information and subject to handling and dissemination restrictions as specified herein and/or as specified by the Authority.

Attachment 6: Scope of Services

It is the intent of PWSA to establish a contract with multiple Vendors to provide debt collection services of unpaid water, wastewater, and stormwater charges. The Vendors shall provide all labor, software, and staff necessary to complete the scope of work as required below.

PWSA will issue monthly files to Vendors containing the customer's name, service address, mailing address, telephone number(s) when available, account number and past due balances. PWSA will simultaneously mail a letter to the customer advising them that their account has been turned over to a collection agency. Said letter will include the customer's name, mailing address, service address, account number, the amount due on their account, the collection agency's contact information, as well as language similar to that of PWSA termination notices regarding medicals, PFA's, and confirmed low income, advising affected customers to call PWSA directly. PWSA will also insert the customer assistance program and domestic violence victims flyers with these mailings.

The PWSA file will contain accounts with balances that are past due ≥ 180 days, representing individuals who are no longer customers of PWSA with 52 Pa. Code Chapter 56 protections, *and* meet one or more of the following criteria:

- inactive accounts where 1) PWSA has ceased to provide service, or 2) a previous customer has moved out and the debt is ≥ 90 days,
- inactive accounts that have been final billed and the charges on the final bill are past due ≥ 90 days, or
- accounts where water service is shut at the curb stop.

Responsive Vendors must demonstrate that their collection methods regarding this PWSA data will include outbound telephone, mail, and email contacts *only*. Additionally, PWSA will provide a separate file of 1) landlord accounts where PWSA is accepting tenant payments of current charges only, and 2) accounts scheduled for termination and all regulated notices were mailed/posted by PWSA; however, a curb stop is unable to be located and/or operated, thereby eliminating the option to shut the service at the curb, for responsive Vendors to perform skip tracing and deliver viable leads to PWSA for collection. PWSA will also issue a daily balance file to Vendors so that customer account balances are consistently updated.

Responsive Vendors must have the ability to provide daily payment files to PWSA with any amounts they collect from customers. Said files must contain the customer's name, service address, account number and payment amount along with a check and a spreadsheet that can be utilized to disburse individual payments to customer accounts.

Vendors must make themselves available at any time during normal working hours to respond to PWSA's questions concerning the content of any delivered file.

Responsive Vendors must have the capability of live call translation, and translation of any printed materials, into the following languages previously identified to be used by PWSA customers in addition to English; they are, Spanish, Tigrinya, Mandarin, Ukrainian, Russian, Swahili, Arabic, Dari, and Pashto.

PWSA will provide training to the chosen Vendor, and any employee or individuals authorized to conduct collection activities on behalf of the Vendor, in the form of an interactive session where PowerPoint slides are shared and the following are explained: 1) the protections that are afforded to customers with unpaid charges as required under 52 Pa. Code Chapter 56, and 2) the procedures that must be followed under DSLPA 66 Pa.C.S. Ch. 15 Subch. B for situations during debt collection when a previously unidentified tenant is reached on a terminated/inactive landlord account. Said training will be provided prior to the launch of any debt collection services, will be updated to communicate any changes in the regulations, and will be provided to the chosen Vendor for use in retraining their staff and in training newly hired employees and/or independent contractors. Additionally, responsive Vendors agree to add to their scripting questions that PWSA will provide to be asked by the Vendor in every collection call, mailing, or email interaction to determine if the individual resides in a property that is serviced by PWSA, is eligible for a medical, has a PFA or other court order that is indicative of domestic violence, or are confirmed low income. Said scripting will include the directive that such individuals must be warm transferred to PWSA Customer Service personnel by calling 412-255-2423 and choosing Option #5.

Responsive Vendors must have access to the Allegheny County Department of Court Records portal to identify when a property has a water/sewer lien and must refer customers to contact PWSA directly with any questions, or to satisfy, liens filed by PWSA.

Responsive Vendors must also record all telephone interactions with PWSA customers, make available said recordings for up to one year following the termination of the agreement between the chosen Vendor and PWSA, and provide said recordings to PWSA Customer Service management according to the below schedule *and* upon request by PWSA for quality assurance purposes.

- The Vendor will provide PWSA with their telephone scripting for review and will accept and incorporate constructive feedback in advance of debt collection on behalf of PWSA.
- Two, random, recorded calls of conversations between PWSA customers and each Vendor employee working PWSA's account will be evaluated weekly by PWSA Collections management to ensure PWSA-approved

telephone presence, non-aggressive collection tactics, and customer comfortability with the Vendor's approach are maintained.

- Vendor employees and/or independent contractors failing to deliver in any of the above listed areas will receive retraining from the Vendor with documentation of same to PWSA. Failure to improve by the next weekly PWSA call evaluation will result in the Vendor removing the employee from PWSA's account.

Lastly, Vendors must warm transfer customers requesting to schedule a restoration of their water service to PWSA Customer Service personnel by calling 412-255-2423 and choosing Option #5.

PWSA EXHIBIT JAM-22

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
1998			No - tried to reach customer
1999			No - tried to reach customer
2013			No - tried to reach customer
2034			No - property since sold
1953			Yes
1966			Yes
1970			Yes
1973			Yes
1975			Yes
1978			Yes
1982			Yes
1986			Yes
1991			Yes
1997			Yes
2000			Yes
2003			Yes
2006			Yes
2007			Yes
2008			Yes
2012			Yes
2016			Yes
2017			Yes
2018			Yes
2023			Yes
2030			Yes
2041			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
2168			Yes
2046			Yes
2048			Yes
2053			Yes
2054			Yes
2055			Yes
2056			Yes
2060			Yes
2063			Yes
2064			Yes
2066			Yes
2075			Yes
2077			Yes
2078			Yes
2105			Yes
2111			Yes
2112			Yes
2113			Yes
2118			Yes
2122			Yes
2124			Yes
2130			Yes
2141			Yes
2149			Yes
2151			Yes
2158			Yes
2164			Yes
2165			Yes
3164			Yes
3179			Yes
3184			Yes
3187			Yes
3189			Yes
3205			Yes
3207			Yes
3215			Yes
3224			Yes
3225			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
4793			No - tried to reach customer
4377			No - tried to reach customer
4710			No - tried to reach customer
5144			No - has since moved out
4701			No - property since sold
4931			No - water off
4896			No
5190			Yes
2071			Yes
2078			Yes
3246			Yes
4246			Yes
4254			Yes
4264			Yes
4290			Yes
4304			Yes
4321			Yes
4335			Yes
4350			Yes
4356			Yes
4361			Yes
4371			Yes
4404			Yes
4406			Yes
4691			Yes
4716			Yes
4736			Yes
4777			Yes
4834			Yes
4838			Yes
5051			Yes
5108			Yes
5150			Yes
5152			Yes
5188			Yes
5189			Yes
5211			Yes
5224			Yes
5261			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
7243			No - has since moved out
6736			Yes
6844			Yes
624			Yes
2007			Yes
5291			Yes
5389			Yes
5430			Yes
5515			Yes
5607			Yes
5611			Yes
5692			Yes
5727			Yes
5768			Yes
5836			Yes
5862			Yes
6162			Yes
6287			Yes
6313			Yes
6497			Yes
6520			Yes
6522			Yes
6609			Yes
6784			Yes
6799			Yes
7244			Yes
7261			Yes
7283			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
7454			No - unlisted tenant
8677			Yes
2078			Yes
4834			Yes
6520			Yes
7435			Yes
7451			Yes
7455			Yes
7572			Yes
7613			Yes
7615			Yes
7687			Yes
7689			Yes
7720			Yes
7722			Yes
7736			Yes
7738			Yes
7962			Yes
8009			Yes
8064			Yes
8081			Yes
8119			Yes
8204			Yes
8232			Yes
8243			Yes
8259			Yes
8268			Yes
8332			Yes
8343			Yes
8431			Yes
8456			Yes
8556			Yes
8602			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
9276			No - tried to reach customer
6520			Yes
8860			Yes
8961			Yes
9017			Yes
9045			Yes
9049			Yes
9091			Yes
9136			Yes
9168			Yes
9256			Yes
9271			Yes
9285			Yes
9459			Yes
9654			Yes
9725			Yes
9777			Yes
9801			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
10305			No - tried to reach customer
12465			No - tried to reach customer
11084			No - tried to reach customer
10739			No - vetted and was over income
10621			No
11189			No
11478			No
11527			No
10304			No
10486			Yes
12567			Yes
9025			Yes
10256			Yes
10265			Yes
10295			Yes
10320			Yes
10329			Yes
10374			Yes
10479			Yes
10566			Yes
10656			Yes
10713			Yes
10834			Yes
10922			Yes
10940			Yes
11009			Yes
11034			Yes
11159			Yes
11249			Yes
11291			Yes
11467			Yes
11482			Yes
11661			Yes
11769			Yes
11789			Yes
11817			Yes
11832			Yes
11943			Yes
12077			Yes
12087			Yes
12118			Yes
12221			Yes

PWSA BDP and Hardship Grants
Cross-Enrollment July 2022

12357		Yes
12633		Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
13216			No - has since moved out
13372			No - has since moved out
14673			No - has since moved out
13100			No - vetted and was over income
13867			No - water is off
15395			No
13091			No
13522			No
13823			No
13973			No
14871			Yes
14561			Yes
13012			Yes
13022			Yes
13150			Yes
13227			Yes
13276			Yes
13324			Yes
13386			Yes
13462			Yes
13517			Yes
13523			Yes
13532			Yes
13552			Yes
13573			Yes
13585			Yes
13614			Yes
13685			Yes
13723			Yes
13799			Yes
13838			Yes
13876			Yes
13993			Yes
14240			Yes
14269			Yes
14405			Yes
14638			Yes
14855			Yes
15096			Yes
15138			Yes
15373			Yes

PWSA BDP and Hardship Grants Cross-
Enrollment September 2022

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
16310			No - water off
16792			No
16871			No
17011			No
17065			No
16309			No
17212			Yes
15652			Yes
16517			Yes
16444			Yes
16002			Yes
16045			Yes
15581			Yes
15673			Yes
15684			Yes
15736			Yes
15837			Yes
16092			Yes
16327			Yes
16450			Yes
16751			Yes
16799			Yes
16894			Yes
16904			Yes
16914			Yes
16949			Yes
17014			Yes
17100			Yes
17130			Yes
17139			Yes
17280			Yes
17379			Yes
17479			Yes
17497			Yes
17519			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
715			No - account since closed
726			No - requires investigation
1075			No
1837			No
103			Yes
636			Yes
19			Yes
142			Yes
328			Yes
353			Yes
448			Yes
527			Yes
960			Yes
1398			Yes
1454			Yes
1627			Yes
1690			Yes
1695			Yes
1832			Yes
1957			Yes
2051			Yes

PWSA BDP and Hardship Grants Cross-
Enrollment November 2022

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
2161			Yes
2275			Yes
2598			Yes
2639			Yes
2670			Yes
2708			Yes
2709			Yes
2770			Yes
2987			Yes
3114			Yes
3116			Yes
3130			Yes
3141			Yes
3181			Yes
3201			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
3346			No - tried to reach customer
3211			No - water since shut
3370			Yes
3428			Yes
3340			Yes
3238			Yes
3257			Yes
3302			Yes
3304			Yes
3329			Yes
3339			Yes
3342			Yes
3364			Yes
3368			Yes
3369			Yes
3399			Yes
3424			Yes
3427			Yes
3429			Yes
3434			Yes
3446			Yes
3451			Yes
3459			Yes

PWSA EXHIBIT JAM-23

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
3695			No
3468			Yes
3501			Yes
3511			Yes
3514			Yes
3529			Yes
3541			Yes
3547			Yes
3549			Yes
3559			Yes
3565			Yes
3581			Yes
3591			Yes
3609			Yes
3618			Yes
3624			Yes
3630			Yes
3643			Yes
3647			Yes
3666			Yes
3674			Yes
3678			Yes
3679			Yes
3681			Yes
3682			Yes
3685			Yes
3696			Yes
3701			Yes
3707			Yes
3710			Yes
3712			Yes
3716			Yes
3734			Yes
3741			Yes
3743			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
3740			No
3884			No - requires investigation
3760			Yes
3764			Yes
3766			Yes
3767			Yes
3768			Yes
3771			Yes
3778			Yes
3788			Yes
3792			Yes
3802			Yes
3825			Yes
3838			Yes
3849			Yes
3856			Yes
3858			Yes
3859			Yes
3879			Yes
3883			Yes
3897			Yes
3913			Yes
3918			Yes
3930			Yes
3937			Yes
3954			Yes
3955			Yes
3958			Yes
3965			Yes
3984			Yes
3988			Yes
4003			Yes
4019			Yes
4020			Yes
4034			Yes
4042			Yes
4060			Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
5547			No
4725			No
4255			No - tried to reach customer
4118			No
4103			Yes
4217			Yes
4224			Yes
4349			Yes
4413			Yes
4418			Yes
4540			Yes
4601			Yes
4627			Yes
4631			Yes
4712			Yes
4767			Yes
4856			Yes
4898			Yes
4987			Yes
5173			Yes
5186			Yes
5195			Yes
5207			Yes
5248			Yes
5268			Yes
5293			Yes
5311			Yes
5320			Yes
5367			Yes
5384			Yes
5400			Yes
5544			Yes
5580			Yes
5625			Yes
5633			Yes
5671			Yes
5774			Yes
5811			Yes
5845			Yes
5968			Yes
6008			Yes
6180			Yes

BDP and Hardship Grant Cross-Enrollment
March 2023

6185		Yes
6194		Yes
6326		Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
8033			No - tried to reach customer
8869			No - unlisted tenant
6915			Yes
8639			Yes
4353			Yes
6565			Yes
6809			Yes
6889			Yes
6893			Yes
6991			Yes
7004			Yes
7256			Yes
7284			Yes
7397			Yes
7409			Yes
7466			Yes
7555			Yes
7582			Yes
7609			Yes
7842			Yes
7843			Yes
7848			Yes
7971			Yes
7974			Yes
7995			Yes
8217			Yes
8239			Yes
8318			Yes
8322			Yes
8329			Yes
8430			Yes
8566			Yes
8642			Yes
8677			Yes
8734			Yes
8744			Yes
8839			Yes
8899			Yes
8913			Yes
9154			Yes
9214			Yes
9287			Yes

BDP and Hardship Grant Cross-Enrollment
April 2023

9443		Yes
9446		Yes
9591		Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
9732			No
10376			No - tried to reach customer
11095			No
11307			No
11346			No - requires investigation
9604			Yes
9627			Yes
9689			Yes
9724			Yes
9798			Yes
9809			Yes
9852			Yes
9862			Yes
9886			Yes
9889			Yes
9906			Yes
10026			Yes
10033			Yes
10051			Yes
10064			Yes
10074			Yes
10079			Yes
10085			Yes
10107			Yes
10170			Yes
10185			Yes
10193			Yes
10241			Yes
10286			Yes
10301			Yes
10384			Yes
10394			Yes
10395			Yes
10440			Yes
10474			Yes
10485			Yes
10559			Yes
10578			Yes
10603			Yes
10684			Yes
10713			Yes
10730			Yes

BDP and Hardship Grant Cross-Enrollment
May 2023

10749		Yes
10812		Yes
10841		Yes
10872		Yes
10898		Yes
10935		Yes
10969		Yes
10983		Yes
10999		Yes
11019		Yes
11155		Yes
11156		Yes
11271		Yes
11354		Yes
11450		Yes
11471		Yes
11648		Yes
11688		Yes
11695		Yes
11719		Yes
11778		Yes
11784		Yes
11799		Yes
11825		Yes
11828		Yes
11852		Yes
11959		Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
14900			No - tried to reach customer
14682			No
14697			No - customer since deceased
14840			No - tried to reach customer
12151			No
12580			No - Cares info provided
12977			No
13978			No - tried to reach customer
14400			No
14172			Yes
14737			Yes
14669			Yes
10841			Yes
12192			Yes
12199			Yes
12262			Yes
12340			Yes
12342			Yes
12375			Yes
12387			Yes
12405			Yes
12495			Yes
12622			Yes
12626			Yes
12767			Yes
12853			Yes
12917			Yes
12926			Yes
12927			Yes
12985			Yes
13123			Yes
13124			Yes
13144			Yes
13178			Yes
13414			Yes
13459			Yes
13532			Yes
13539			Yes
13624			Yes
13732			Yes
13856			Yes
13870			Yes

BDP and Hardship Grant Cross-Enrollment
June 2023

13985		Yes
13995		Yes
14009		Yes
14027		Yes
14036		Yes
14205		Yes
14309		Yes
14320		Yes
14324		Yes
14382		Yes
14405		Yes
14441		Yes
14449		Yes
14546		Yes
14557		Yes
14565		Yes
14574		Yes
14613		Yes
14671		Yes
14686		Yes
14688		Yes
14716		Yes
14728		Yes
14732		Yes
14741		Yes
14743		Yes
14759		Yes
14760		Yes
14770		Yes
14774		Yes
14775		Yes
14851		Yes
14856		Yes
14897		Yes
14908		Yes
14935		Yes
14963		Yes

Process #	Last, First Name	Account #	Cross Enrolled in BDP?
15460			No
15551			No - vetted and was over income
15605			No - has since moved out
15616			No - tried to reach customer
15632			No - tried to reach customer
15885			No
13191			Yes
15013			Yes
15125			Yes
15183			Yes
15185			Yes
15211			Yes
15223			Yes
15286			Yes
15291			Yes
15309			Yes
15366			Yes
15402			Yes
15407			Yes
15465			Yes
15468			Yes
15474			Yes
15497			Yes
15499			Yes
15502			Yes
15558			Yes
15562			Yes
15573			Yes
15585			Yes
15592			Yes
15595			Yes
15600			Yes
15620			Yes
15663			Yes
15704			Yes
15706			Yes
15758			Yes
15774			Yes
15787			Yes
15789			Yes
15795			Yes
15800			Yes

BDP and Hardship Grant Cross-Enrollment
July 2023

15822		Yes
15841		Yes
15851		Yes
15865		Yes
15866		Yes
15870		Yes
15923		Yes
15930		Yes

PWSA EXHIBIT JAM-24



UTILITY REPORT

Customer Name: Kim Williams

Date: April 19, 2021

Service Address: 2412 Wylie Avenue

Account Number: [REDACTED]

1. Customer's Dispute: The customer is disputing the accuracy of the water meter.
2. PWSA's Position:

Kim Williams became the owner of record of the single-family residential property located at 2412 Wylie Avenue on October 22, 2003, according to the Allegheny County Real Estate website. PWSA bills the property for water, wastewater conveyance, and sewage treatment services.

On February 8, 2021, PWSA sent Kim Williams a High Consumption notification.

On February 9, 2021, PWSA generated a billing statement for 10,000 gallons of water in the amount of \$282.21. This bill was based on an actual meter reading of 205.

On February 12, 2021, Ms. Williams called Customer Service to dispute the recent consumption on the account. The Customer Service Representative reviewed the consumption history on the account with Ms. Williams and suggested that there may have been a leak at the property. Ms. Williams requested to have the water meter replaced. The Customer Service Representative reviewed the process for having the water meter tested and advised of the applicable \$10.00 meter testing fee. Ms. Williams asked to speak with a manager. The call was transferred to a Senior Customer Service Representative. The Senior Customer Service Representative advised Ms. Williams that the billing was based on actual readings from the water meter and suggested that there may have been a leak at the property. Ms. Williams insisted that there were no leaks at the property. The Senior Customer Service Representative explained the process for having the water meter tested. Ms. Williams requested to be provided with the name of PWSA's Chief Executive Officer as well the time when the Board of Directors meet before ultimately disconnecting the call.

On March 11, 2021, PWSA sent Kim Williams a High Consumption notification.

On March 14, 2021, PWSA generated a billing statement for 19,000 gallons of water in the amount of \$555.20. This bill was based on an actual meter reading of 224.

On March 22, 2021, Ms. Williams called Customer Service to assert that there was no leak at the property. The Customer Service Representative offered to schedule an appointment to have the water meter tested. Ms. Williams asked to speak with a supervisor. The call was transferred to a Senior Customer Service Representative. Ms. Williams explained that she had been billed for 19,000 gallons of consumption, but she did not have any leaks or believe that she had used that much water. The Senior Customer Service Representative reviewed the consumption history on the account with Ms. Williams, providing the dates when the high consumption occurred. Ms. Williams disputed the information provided and expressed that she did not trust PWSA. The Senior Customer Service Representative explained the process for having the water meter tested and scheduled an appointment to pull and test the water meter for March 23, 2021. Ms. Williams stated that she was not employed and was unable to afford the amount of the recent bill. The Senior Customer Service Representative provided Ms. Williams with information pertaining to PWSA's Customer Assistance Programs and advised her that she was already enrolled in PWSA's Bill Discount Program. Ms. Williams requested contact information for PWSA's Lead Department. The Senior Customer Service Representative provided Ms. Williams with the requested information and advised Ms. Williams that it may have been

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Customer Service /
Emergencies:
412.255.2423



beneficial for her to contact Dollar Energy Fund to ensure that she is enrolled in all Customer Assistance Programs for which she qualifies. Ms. Williams stated that she still needed more help. The Senior Customer Service Representative advised Ms. Williams that the only remaining option would be to establish a payment arrangement. Ms. Williams stated that she would still not be able to pay the recent bill. The Senior Customer Service Representative explained how to check for a running toilet and how to utilize PWSA's Customer Usage Portal. The Senior Customer Service Representative explained the dispute process to Ms. Williams.

On March 23, 2021, a PWSA Plumber visited the property for the scheduled service visit and removed the water meter with serial number 16174503 and register number B16174503 with a reading of 225,500 gallons, installed meter number 0021026281 with a starting reading of zero gallons, and activated the MXU, meter reading device. The Plumber submitted the removed water meter to PWSA's Central Warehouse for testing.

On March 25, 2021, PWSA tested the water meter with serial number 16174503 and register number B16174503. This meter passed testing with an accuracy rating of 100.36%. PWSA mailed a meter test results letter, and the account was debited for the \$10.00 meter testing fee.

On April 9, 2021, Ms. Williams called Customer Service to request the names of the members of PWSA's Board of Directors, the name of the Chief Executive Officer, and the next meeting time for the Board of Directors. The Customer Service Representative provided Ms. Williams with some of the information requested and advised her that a Compliance Analyst would contact her the following week. Ms. Williams asked to be provided with a specific date when she might expect to be contacted. The Customer Service Representative explained that the Compliance Department must process disputes in the order they are received. Ms. Williams asserted that she would not pay the most recent bill on the account because she had reports provided by multiple plumbers stating that they were unable to detect any leaks at the property.

On April 19, 2021, a Compliance Analyst called the customer to review the results of the recent meter test and recent consumption on the account. The Compliance Analyst attempted to review the information with Ms. Williams, but she was not receptive to any explanation or offer to assist in deducing what may have caused the high consumption. Ms. Williams continued to assert that PWSA was being dishonest before abruptly ending the call.

On April 19, 2021, a Compliance Analyst emailed the Utility Report, a copy of the meter testing results, billing history, daily meter readings, ALCOSAN's One-Time Leak Credit Request Procedure, and information about the Customer Usage Portal to [REDACTED]

PWSA's daily meter reading records indicate that the high consumption occurred between January 30, 2021 and February 19, 2021 on a meter registering at 100.36% accuracy. Based on the PWSA account information, the billing history is correct as rendered. The daily actual meter readings have been attached to indicate the dates of high consumption.



3. We will not shut off your service or cancel your service contract during the dispute process, including both informal and formal complaints, as long as you pay all undisputed bills by the due date.

4. You may make payments to The Pittsburgh Water and Sewer Authority by mail, or get more information by calling us as (412) 255-2423 or writing to us at:

The Pittsburgh Water and Sewer Authority
 Penn Liberty Plaza I
 1200 Penn Avenue
 Pittsburgh, PA 15222

5. If you do not agree with this dispute report, you have the right to file an informal complaint with the Pennsylvania Public Utility Commission (PUC). The PUC office where you could file an informal complaint is:

Pennsylvania Public Utility Commission
 Bureau of Consumer Services
 P.O. Box 3265
 Harrisburg, PA 17105-3265
 1-800-692-7380

PROCEDURE FOR FILING AN INFORMAL COMPLAINT

You can file an informal complaint by calling or writing to the PUC. You must include the following information:

- a. The customer's name.
- b. The customer's address, and if different, the service address.
- c. The telephone number of the ratepayer.
- d. The customer's account number, if there is one.
- e. The utility company's name.
- f. A brief statement of the dispute.
- g. Whether the company has already investigated and reported on the dispute.
- h. Whether you filed the same formal and informal complaint with the PUC in the past.
- i. The proposed shut-off date, if any.
- j. What you want the PUC to do.

6. BILLING DISPUTE:

Attached is an itemized statement of your account showing the amount of credit and the proper amount due. Due = \$1,976.86.

Company Representative: Zachary Larimer

Date Report Communicated to Customer: April 19, 2021

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 Pittsburgh PA 15222

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 Emergencies:
 412.255.2423



MARS

MARS Meter Management

Standard Test Report

Test Details

Test Date:	3/25/2021 9:18:22 AM	Test Name:	5/8" x 3/4" Used Test - 30 Gallons		
Job Number:	1	Remarks:	2nd test		
Bench:	2400 Bench	Bench Operator:	JWagner	Units:	Gallons

SubTest Details

Name	Tank	Line	Temp(F)	Exp Rate	Act Rate	Exp Vol	Act Vol	Low Tol	High Tol
PUC Test - 30 Gallons	100 Gal	1" Line		6.00	6.329	30.00	29.992	4.00%	4.00%

Meter Details

Meter	Sub Test	Comp.	Start	End	Volume	Accuracy	Pass
#1 - 16174503 Passed Badger M25	PUC Test - 30 Gallons	No	225564.20	225594.30	30.10	100.36	Yes
	Comments	2nd test					
	Service Address	2412 Wylie ave					

Pittsburgh Water & Sewer Authority

Location
Customer2412 WYLIE AVE PITTSBURGH PA 15219
KIM WILLIAMS

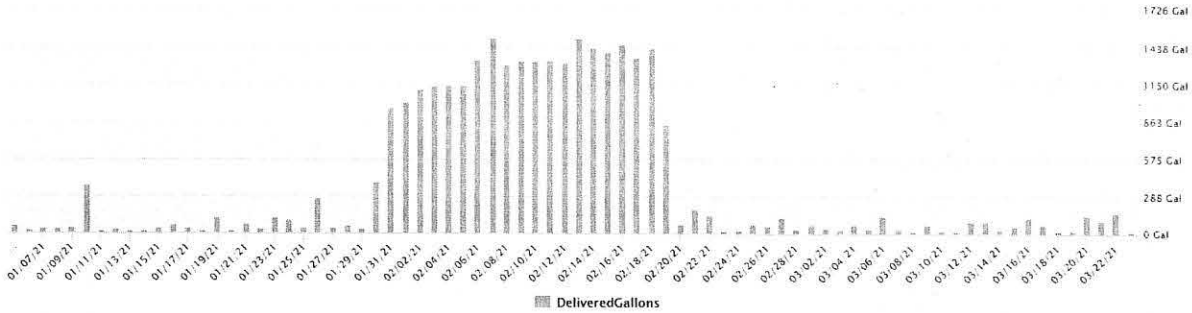
Billing History

Date	Activity	Transaction	Consumption	Amount	Balance
4/13/2021	Bill	BILL00018135767	2	\$45.45	\$1,976.86
3/25/2021	Meter Test Fee 5/8" - 1"	MISC00002986011		\$10.00	\$1,931.41
3/14/2021	Bill	BILL00017950706	19	\$555.20	\$1,921.41
2/15/2021	Payment	PYMT00008224805		(\$300.00)	\$1,366.21
2/10/2021	Bill	BILL00017727712	10	\$282.21	\$1,666.21
2/9/2021	PWSA Interest	PNLT00004153593		\$11.43	\$1,384.00
1/12/2021	Bill	BILL00017579956	3	\$77.64	\$1,372.57
12/9/2020	Bill	BILL00017405604	2	\$50.31	\$1,294.93
11/9/2020	Bill	BILL00017210091	2	\$50.31	\$1,244.62
10/8/2020	Bill	BILL00017045329	2	\$50.31	\$1,194.31
9/17/2020	Payment	PYMT00007754548		(\$200.00)	\$1,144.00
9/10/2020	Bill	BILL00016894086	3	\$77.28	\$1,344.00
8/11/2020	Bill	BILL00016739585	7	\$185.16	\$1,266.72
7/12/2020	Bill	BILL00016617196	7	\$185.16	\$1,081.56
7/8/2020	Payment	PYMT00007537130		(\$200.00)	\$896.40
6/9/2020	Bill	BILL00016477433	2	\$50.31	\$1,096.40
5/10/2020	Bill	BILL00016352939	2	\$50.31	\$1,046.09
5/2/2020	Payment	PYMT00007322042		(\$100.00)	\$995.78

DEVICE B16174503
 ACCOUNT [REDACTED]
 RADIO 81154680
 CUSTOMER KIM WILLIAMS
 LOCATION 2412 Wylie Ave Pittsburgh PA 15219
 PROCESSED DATE/TIME Mar 24, 2021 10:20:49 AM
 UPLOADED DATE/TIME Mar 24, 2021 6:05:14 AM
 DATE RANGE 01/05/2021 - 03/23/2021

Meter Readings for 2412 Wylie

Old Meter Uninstalled 3/23/2021



Metric	Time	Read	Quality	Source	Type
DeliveredGallons	03/23/21 02:00:00	225,497	Raw	PWSA-IntervalReport.20210323030003.csv;14692	Reads
DeliveredGallons	03/23/21 00:00:00	225,497	Raw	PWSA-IntervalReport.20210323030003.csv;14692	Reads
DeliveredGallons	03/22/21 19:00:00	225,494	Raw	PWSA-IntervalReport.20210322200003.csv;15478	Reads
DeliveredGallons	03/22/21 11:00:00	225,394	Raw	PWSA-IntervalReport.20210322120003.csv;14834	Reads
DeliveredGallons	03/22/21 06:00:00	225,379	Raw	PWSA-IntervalReport.20210322070002.csv;14191	Reads
DeliveredGallons	03/22/21 00:00:00	225,335	Raw	PWSA-IntervalReport.20210322070002.csv;14191	Reads
DeliveredGallons	03/21/21 23:00:00	225,329	Raw	PWSA-IntervalReport.20210322010003-000002.csv;4888	Reads
DeliveredGallons	03/21/21 18:00:00	225,269	Raw	PWSA-IntervalReport.20210321190002.csv;14297	Reads
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DeliveredGallons	02/25/21 00:00:00	223,580	Raw	PWSA-IntervalReport.20210225070003.csv;14301	Reads
DeliveredGallons	02/24/21 18:00:00	223,573	Raw	PWSA-IntervalReport.20210224190006.csv;14089	Reads
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DeliveredGallons	02/23/21 14:00:00	223,547	Raw	PWSA-IntervalReport.20210223150002.csv;14304	Reads
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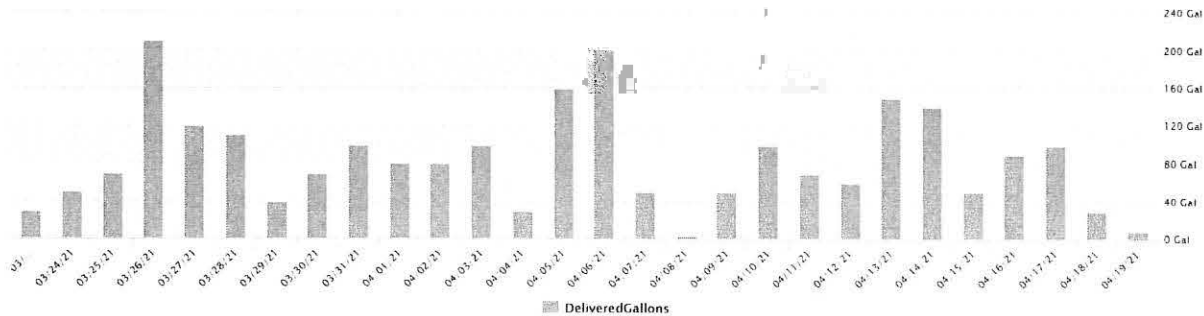
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DeliveredGallons	02/21/21 22:00:00	223,390 Raw	PWSA-IntervalReport.20210222010003-000002.csv;3199	Reads
DeliveredGallons	02/21/21 14:00:00	223,288 Raw	PWSA-IntervalReport.20210221150002.csv;14489	Reads
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DeliveredGallons	02/03/21 00:00:00	200,830	Raw	PWSA-IntervalReport.20210203030004.csv;14636	Reads
DeliveredGallons	02/02/21 21:00:00	200,692	Raw	PWSA-IntervalReport.20210202220003.csv;14798	Reads
DeliveredGallons	02/02/21 14:00:00	200,380	Raw	PWSA-IntervalReport.20210202150004.csv;14090	Reads
DeliveredGallons	02/02/21 09:00:00	200,135	Raw	PWSA-IntervalReport.20210202100004.csv;14206	Reads
DeliveredGallons	02/02/21 02:00:00	199,830	Raw	PWSA-IntervalReport.20210202030003.csv;14644	Reads
DeliveredGallons	02/02/21 00:00:00	199,740	Raw	PWSA-IntervalReport.20210202030003.csv;14644	Reads
DeliveredGallons	02/01/21 18:00:00	199,446	Raw	PWSA-IntervalReport.20210201190003.csv;14231	Reads
DeliveredGallons	02/01/21 10:00:00	199,106	Raw	PWSA-IntervalReport.20210201110003.csv;14441	Reads
DeliveredGallons	02/01/21 02:00:00	198,758	Raw	PWSA-IntervalReport.20210201030003.csv;14624	Reads
DeliveredGallons	02/01/21 00:00:00	198,680	Raw	PWSA-IntervalReport.20210201030003.csv;14624	Reads
DeliveredGallons	01/31/21 17:00:00	198,393	Raw	PWSA-IntervalReport.20210131180003.csv;14243	Reads
DeliveredGallons	01/31/21 10:00:00	198,092	Raw	PWSA-IntervalReport.20210131110003.csv;14321	Reads
DeliveredGallons	01/31/21 02:00:00	197,781	Raw	PWSA-IntervalReport.20210131030003.csv;14563	Reads
DeliveredGallons	01/31/21 00:00:00	197,710	Raw	PWSA-IntervalReport.20210131030003.csv;14563	Reads
DeliveredGallons	01/30/21 18:00:00	197,484	Raw	PWSA-IntervalReport.20210130190004.csv;14738	Reads
DeliveredGallons	01/30/21 10:00:00	197,265	Raw	PWSA-IntervalReport.20210130110004.csv;14687	Reads
DeliveredGallons	01/30/21 05:00:00	197,265	Raw	PWSA-IntervalReport.20210130060004.csv;15471	Reads
DeliveredGallons	01/30/21 00:00:00	197,265	Raw	PWSA-IntervalReport.20210130060004.csv;15471	Reads
DeliveredGallons	01/29/21 21:00:00	197,265	Raw	PWSA-IntervalReport.20210129220004.csv;15221	Reads
DeliveredGallons	01/29/21 14:00:00	197,234	Raw	PWSA-IntervalReport.20210129150003.csv;13845	Reads
DeliveredGallons	01/29/21 06:00:00	197,224	Raw	PWSA-IntervalReport.20210129070002.csv;13901	Reads
DeliveredGallons	01/29/21 00:00:00	197,224	Raw	PWSA-IntervalReport.20210129070002.csv;13901	Reads
DeliveredGallons	01/28/21 22:00:00	197,223	Raw	PWSA-IntervalReport.20210129010003-000002.csv;2619	Reads
DeliveredGallons	01/28/21 17:00:00	197,223	Raw	PWSA-IntervalReport.20210128180003.csv;14287	Reads
DeliveredGallons	01/28/21 10:00:00	197,165	Raw	PWSA-IntervalReport.20210128110003.csv;15712	Reads
DeliveredGallons	01/28/21 02:00:00	197,163	Raw	PWSA-IntervalReport.20210128030003.csv;15574	Reads
DeliveredGallons	01/28/21 00:00:00	197,163	Raw	PWSA-IntervalReport.20210128030003.csv;15574	Reads
DeliveredGallons	01/27/21 21:00:00	197,163	Raw	PWSA-IntervalReport.20210127220003.csv;15922	Reads
DeliveredGallons	01/27/21 14:00:00	197,163	Raw	PWSA-IntervalReport.20210127150003.csv;12934	Reads
DeliveredGallons	01/27/21 09:00:00	197,113	Raw	PWSA-IntervalReport.20210127100003.csv;12780	Reads
DeliveredGallons	01/27/21 02:00:00	197,112	Raw	PWSA-IntervalReport.20210127030005.csv;16694	Reads
DeliveredGallons	01/27/21 00:00:00	197,112	Raw	PWSA-IntervalReport.20210127030005.csv;16694	Reads
DeliveredGallons	01/26/21 21:00:00	197,078	Raw	PWSA-IntervalReport.20210126220003.csv;17160	Reads
DeliveredGallons	01/26/21 14:00:00	196,941	Raw	PWSA-IntervalReport.20210126150003.csv;10505	Reads
DeliveredGallons	01/26/21 06:00:00	196,838	Raw	PWSA-IntervalReport.20210126070003.csv;7004	Reads
DeliveredGallons	01/26/21 01:00:00	196,838	Raw	PWSA-IntervalReport.20210126060003-000006.csv;3095	Reads
DeliveredGallons	01/26/21 00:00:00	196,838	Raw	PWSA-IntervalReport.20210126060003-000006.csv;3095	Reads
DeliveredGallons	01/25/21 18:00:00	196,822	Raw	PWSA-IntervalReport.20210125190003.csv;14272	Reads
DeliveredGallons	01/25/21 09:00:00	196,789	Raw	PWSA-IntervalReport.20210125100003.csv;14792	Reads
DeliveredGallons	01/25/21 02:00:00	196,789	Raw	PWSA-IntervalReport.20210125030003.csv;14903	Reads
DeliveredGallons	01/25/21 00:00:00	196,789	Raw	PWSA-IntervalReport.20210125030003.csv;14903	Reads
DeliveredGallons	01/24/21 18:00:00	196,788	Raw	PWSA-IntervalReport.20210124190003.csv;15067	Reads
DeliveredGallons	01/24/21 13:00:00	196,788	Raw	PWSA-IntervalReport.20210124140003.csv;15207	Reads
DeliveredGallons	01/24/21 05:00:00	196,744	Raw	PWSA-IntervalReport.20210124060004.csv;15233	Reads
DeliveredGallons	01/24/21 00:00:00	196,700	Raw	PWSA-IntervalReport.20210124060004.csv;15233	Reads
DeliveredGallons	01/23/21 22:00:00	196,655	Raw	PWSA-IntervalReport.20210124010003-000002.csv;5508	Reads
DeliveredGallons	01/23/21 17:00:00	196,644	Raw	PWSA-IntervalReport.20210123180003.csv;15385	Reads
DeliveredGallons	01/23/21 10:00:00	196,560	Raw	PWSA-IntervalReport.20210123110003.csv;14680	Reads
DeliveredGallons	01/23/21 02:00:00	196,556	Raw	PWSA-IntervalReport.20210123030003.csv;14831	Reads
DeliveredGallons	01/23/21 00:00:00	196,556	Raw	PWSA-IntervalReport.20210123030003.csv;14831	Reads
DeliveredGallons	01/22/21 18:00:00	196,536	Raw	PWSA-IntervalReport.20210122180003.csv;14844	Reads
DeliveredGallons	01/22/21 13:00:00	196,513	Raw	PWSA-IntervalReport.20210122140003.csv;15169	Reads
DeliveredGallons	01/22/21 05:00:00	196,511	Raw	PWSA-IntervalReport.20210122060003.csv;14705	Reads
DeliveredGallons	01/22/21 00:00:00	196,511	Raw	PWSA-IntervalReport.20210122060003.csv;14705	Reads
DeliveredGallons	01/21/21 22:00:00	196,510	Raw	PWSA-IntervalReport.20210122010003-000002.csv;4973	Reads
DeliveredGallons	01/21/21 14:00:00	196,493	Raw	PWSA-IntervalReport.20210121150003.csv;14556	Reads

DEVICE 0021026281
 ACCOUNT [REDACTED]
 RADIO 81154680
 CUSTOMER KIM WILLIAMS
 LOCATION 2412 Wylie Ave Pittsburgh PA 15219
 PROCESSED DATE/TIME Apr 19, 2021 10:42:57 AM
 UPLOADED DATE/TIME Apr 19, 2021 6:04:35 AM
 DATE RANGE 03/23/2021 - 04/19/2021

Meter Readings for 2412 Wylie

New Meter Installed 3/23/2021



Metric	Time	Read	Quality	Source	Type
DeliveredGallons	04/19/21 07:00:00	2,371	Raw	PWSA-IntervalReport.20210419080005.csv;15358	Reads
DeliveredGallons	04/19/21 00:00:00	2,369	Raw	PWSA-IntervalReport.20210419010004-000002.csv;6326	Reads
DeliveredGallons	04/18/21 16:00:00	2,353	Raw	PWSA-IntervalReport.20210418170003.csv;15170	Reads
DeliveredGallons	04/18/21 08:00:00	2,339	Raw	PWSA-IntervalReport.20210418090003.csv;15381	Reads
DeliveredGallons	04/18/21 00:00:00	2,337	Raw	PWSA-IntervalReport.20210418010004-000002.csv;6530	Reads
DeliveredGallons	04/17/21 16:00:00	2,333	Raw	PWSA-IntervalReport.20210417170003.csv;14822	Reads
DeliveredGallons	04/17/21 11:00:00	2,237	Raw	PWSA-IntervalReport.20210417120003.csv;15339	Reads
DeliveredGallons	04/17/21 04:00:00	2,233	Raw	PWSA-IntervalReport.20210417050003.csv;15215	Reads
DeliveredGallons	04/17/21 00:00:00	2,233	Raw	PWSA-IntervalReport.20210417050003.csv;15215	Reads
DeliveredGallons	04/16/21 23:00:00	2,232	Raw	PWSA-IntervalReport.20210417010005-000002.csv;5589	Reads
DeliveredGallons	04/16/21 15:00:00	2,186	Raw	PWSA-IntervalReport.20210416160003.csv;15345	Reads
DeliveredGallons	04/16/21 07:00:00	2,147	Raw	PWSA-IntervalReport.20210416080004.csv;15527	Reads
DeliveredGallons	04/16/21 00:00:00	2,145	Raw	PWSA-IntervalReport.20210416080004.csv;15527	Reads
DeliveredGallons	04/15/21 23:00:00	2,143	Raw	PWSA-IntervalReport.20210416010003-000002.csv;6548	Reads
DeliveredGallons	04/15/21 16:00:00	2,132	Raw	PWSA-IntervalReport.20210415170003.csv;14937	Reads
DeliveredGallons	04/15/21 04:00:00	2,098	Raw	PWSA-IntervalReport.20210415050003.csv;14925	Reads
DeliveredGallons	04/15/21 00:00:00	2,098	Raw	PWSA-IntervalReport.20210415050003.csv;14925	Reads
DeliveredGallons	04/14/21 16:00:00	2,097	Raw	PWSA-IntervalReport.20210414170003.csv;14846	Reads
DeliveredGallons	04/14/21 08:00:00	2,009	Raw	PWSA-IntervalReport.20210414090003.csv;14681	Reads
DeliveredGallons	04/14/21 03:00:00	2,009	Raw	PWSA-IntervalReport.20210414040004.csv;15393	Reads
DeliveredGallons	04/14/21 00:00:00	2,009	Raw	PWSA-IntervalReport.20210414040004.csv;15393	Reads
DeliveredGallons	04/13/21 20:00:00	1,958	Raw	PWSA-IntervalReport.20210413210003.csv;14951	Reads
DeliveredGallons	04/13/21 15:00:00	1,954	Raw	PWSA-IntervalReport.20210413160007.csv;16001	Reads
DeliveredGallons	04/13/21 07:00:00	1,811	Raw	PWSA-IntervalReport.20210413080003.csv;15622	Reads
DeliveredGallons	04/13/21 00:00:00	1,809	Raw	PWSA-IntervalReport.20210413010004-000002.csv;5408	Reads
DeliveredGallons	04/12/21 19:00:00	1,808	Raw	PWSA-IntervalReport.20210412200003.csv;16088	Reads
DeliveredGallons	04/12/21 12:00:00	1,771	Raw	PWSA-IntervalReport.20210412130003.csv;15086	Reads
DeliveredGallons	04/12/21 00:00:00	1,744	Raw	PWSA-IntervalReport.20210412130003.csv;15086	Reads
DeliveredGallons	04/11/21 23:00:00	1,741	Raw	PWSA-IntervalReport.20210412010007-000002.csv;6161	Reads
DeliveredGallons	04/11/21 16:00:00	1,719	Raw	PWSA-IntervalReport.20210411170003.csv;15381	Reads
DeliveredGallons	04/11/21 08:00:00	1,677	Raw	PWSA-IntervalReport.20210411090003.csv;14787	Reads
DeliveredGallons	04/11/21 00:00:00	1,677	Raw	PWSA-IntervalReport.20210411090003.csv;14787	Reads
DeliveredGallons	04/10/21 23:00:00	1,675	Raw	PWSA-IntervalReport.20210411010004-000002.csv;6928	Reads
DeliveredGallons	04/10/21 16:00:00	1,672	Raw	PWSA-IntervalReport.20210410170003.csv;15281	Reads
DeliveredGallons	04/10/21 08:00:00	1,581	Raw	PWSA-IntervalReport.20210410090003.csv;15074	Reads
DeliveredGallons	04/10/21 00:00:00	1,579	Raw	PWSA-IntervalReport.20210410010006-000002.csv;5315	Reads
DeliveredGallons	04/09/21 15:00:00	1,574	Raw	PWSA-IntervalReport.20210409160004.csv;15232	Reads
DeliveredGallons	04/09/21 00:00:00	1,525	Raw	PWSA-IntervalReport.20210409010003-000002.csv;6284	Reads
DeliveredGallons	04/08/21 15:00:00	1,525	Raw	PWSA-IntervalReport.20210408160003.csv;15580	Reads
DeliveredGallons	04/08/21 08:00:00	1,525	Raw	PWSA-IntervalReport.20210408090003.csv;14699	Reads
DeliveredGallons	04/08/21 00:00:00	1,521	Raw	PWSA-IntervalReport.20210408010004-000002.csv;6657	Reads
DeliveredGallons	04/07/21 16:00:00	1,498	Raw	PWSA-IntervalReport.20210407170003.csv;14787	Reads
DeliveredGallons	04/07/21 11:00:00	1,498	Raw	PWSA-IntervalReport.20210407120003.csv;15512	Reads
DeliveredGallons	04/07/21 04:00:00	1,477	Raw	PWSA-IntervalReport.20210407050003.csv;15436	Reads

DeliveredGallons	04/07/21 00:00:00	1,477 Raw	PWSA-IntervalReport.20210407050003.csv;15436	Reads
DeliveredGallons	04/06/21 20:00:00	1,395 Raw	PWSA-IntervalReport.20210406210003.csv;14894	Reads
DeliveredGallons	04/06/21 08:00:00	1,285 Raw	PWSA-IntervalReport.20210406090003.csv;14295	Reads
DeliveredGallons	04/06/21 03:00:00	1,284 Raw	PWSA-IntervalReport.20210406040003.csv;15497	Reads
DeliveredGallons	04/06/21 00:00:00	1,284 Raw	PWSA-IntervalReport.20210406040003.csv;15497	Reads
DeliveredGallons	04/05/21 19:00:00	1,278 Raw	PWSA-IntervalReport.20210405200003.csv;16011	Reads
DeliveredGallons	04/05/21 11:00:00	1,156 Raw	PWSA-IntervalReport.20210405120003.csv;14231	Reads
DeliveredGallons	04/05/21 04:00:00	1,114 Raw	PWSA-IntervalReport.20210405120003.csv;14231	Reads
DeliveredGallons	04/04/21 20:00:00	1,114 Raw	PWSA-IntervalReport.20210404210003.csv;15159	Reads
DeliveredGallons	04/04/21 08:00:00	1,087 Raw	PWSA-IntervalReport.20210404090003.csv;14563	Reads
DeliveredGallons	04/04/21 03:00:00	1,086 Raw	PWSA-IntervalReport.20210404090003.csv;14563	Reads
DeliveredGallons	04/03/21 12:00:00	1,081 Raw	PWSA-IntervalReport.20210403130003.csv;14041	Reads
DeliveredGallons	04/03/21 07:00:00	989 Raw	PWSA-IntervalReport.20210403080003.csv;15637	Reads
DeliveredGallons	04/03/21 00:00:00	989 Raw	PWSA-IntervalReport.20210403080003.csv;15637	Reads
DeliveredGallons	04/02/21 20:00:00	968 Raw	PWSA-IntervalReport.20210402210005.csv;15087	Reads
DeliveredGallons	04/02/21 04:00:00	916 Raw	PWSA-IntervalReport.20210402050004.csv;15070	Reads
DeliveredGallons	04/02/21 00:00:00	910 Raw	PWSA-IntervalReport.20210402050004.csv;15070	Reads
DeliveredGallons	04/01/21 23:00:00	908 Raw	PWSA-IntervalReport.20210402010004-000002.csv;6371	Reads
DeliveredGallons	04/01/21 11:00:00	859 Raw	PWSA-IntervalReport.20210401120004.csv;15748	Reads
DeliveredGallons	04/01/21 04:00:00	830 Raw	PWSA-IntervalReport.20210401050003.csv;15528	Reads
DeliveredGallons	04/01/21 00:00:00	830 Raw	PWSA-IntervalReport.20210401050003.csv;15528	Reads
DeliveredGallons	03/31/21 16:00:00	807 Raw	PWSA-IntervalReport.20210331170003.csv;14809	Reads
DeliveredGallons	03/31/21 03:00:00	774 Raw	PWSA-IntervalReport.20210331040003.csv;15613	Reads
DeliveredGallons	03/31/21 00:00:00	770 Raw	PWSA-IntervalReport.20210331040003.csv;15613	Reads
DeliveredGallons	03/30/21 20:00:00	721 Raw	PWSA-IntervalReport.20210330210003.csv;14897	Reads
DeliveredGallons	03/30/21 12:00:00	676 Raw	PWSA-IntervalReport.20210330130003.csv;14526	Reads
DeliveredGallons	03/30/21 04:00:00	661 Raw	PWSA-IntervalReport.20210330050003.csv;15111	Reads
DeliveredGallons	03/30/21 00:00:00	660 Raw	PWSA-IntervalReport.20210330050003.csv;15111	Reads
DeliveredGallons	03/29/21 16:00:00	650 Raw	PWSA-IntervalReport.20210329160003.csv;16029	Reads
DeliveredGallons	03/29/21 07:00:00	610 Raw	PWSA-IntervalReport.20210329080003.csv;15658	Reads
DeliveredGallons	03/29/21 00:00:00	610 Raw	PWSA-IntervalReport.20210329080003.csv;15658	Reads
DeliveredGallons	03/28/21 23:00:00	610 Raw	PWSA-IntervalReport.20210329010003-000002.csv;5874	Reads
DeliveredGallons	03/28/21 16:00:00	571 Raw	PWSA-IntervalReport.20210328170003.csv;15142	Reads
DeliveredGallons	03/28/21 08:00:00	513 Raw	PWSA-IntervalReport.20210328090003.csv;15101	Reads
DeliveredGallons	03/28/21 00:00:00	509 Raw	PWSA-IntervalReport.20210328010003-000002.csv;6952	Reads
DeliveredGallons	03/27/21 19:00:00	498 Raw	PWSA-IntervalReport.20210327200003.csv;15637	Reads
DeliveredGallons	03/27/21 11:00:00	494 Raw	PWSA-IntervalReport.20210327120003.csv;15840	Reads
DeliveredGallons	03/27/21 04:00:00	405 Raw	PWSA-IntervalReport.20210327050003.csv;15330	Reads
DeliveredGallons	03/27/21 00:00:00	382 Raw	PWSA-IntervalReport.20210327050003.csv;15330	Reads
DeliveredGallons	03/26/21 20:00:00	382 Raw	PWSA-IntervalReport.20210326210003.csv;15011	Reads
DeliveredGallons	03/26/21 12:00:00	286 Raw	PWSA-IntervalReport.20210326130003.csv;14672	Reads
DeliveredGallons	03/26/21 04:00:00	179 Raw	PWSA-IntervalReport.20210326050003.csv;14645	Reads
DeliveredGallons	03/26/21 00:00:00	179 Raw	PWSA-IntervalReport.20210326050003.csv;14645	Reads
DeliveredGallons	03/25/21 19:00:00	148 Raw	PWSA-IntervalReport.20210325200003.csv;14965	Reads
DeliveredGallons	03/25/21 12:00:00	135 Raw	PWSA-IntervalReport.20210325130003.csv;13705	Reads
DeliveredGallons	03/25/21 04:00:00	110 Raw	PWSA-IntervalReport.20210325050003.csv;14825	Reads
DeliveredGallons	03/25/21 00:00:00	110 Raw	PWSA-IntervalReport.20210325050003.csv;14825	Reads
DeliveredGallons	03/24/21 19:00:00	106 Raw	PWSA-IntervalReport.20210324200003.csv;15468	Reads
DeliveredGallons	03/24/21 11:00:00	100 Raw	PWSA-IntervalReport.20210324120003.csv;15719	Reads
DeliveredGallons	03/24/21 03:00:00	62 Raw	PWSA-IntervalReport.20210324040003.csv;15108	Reads
DeliveredGallons	03/24/21 00:00:00	60 Raw	PWSA-IntervalReport.20210324040003.csv;15108	Reads
DeliveredGallons	03/23/21 16:00:00	51 Raw	PWSA-IntervalReport.20210323170003.csv;14434	Reads
DeliveredGallons	03/23/21 11:00:00	32 Raw	PWSA-IntervalReport.20210323120003.csv;15830	Reads
DeliveredGallons	03/23/21 10:00:00	32 Raw	PWSA-IntervalReport.20210323120003.csv;15830	Reads

Ms. Williams,

In my review of the account history, I have come across previous instances of high consumption that occurred in June and July 2020. Additionally, I have included hourly data for July 8, 2020 to show that the consumption is occurring steadily over several hours of time in all these circumstances.

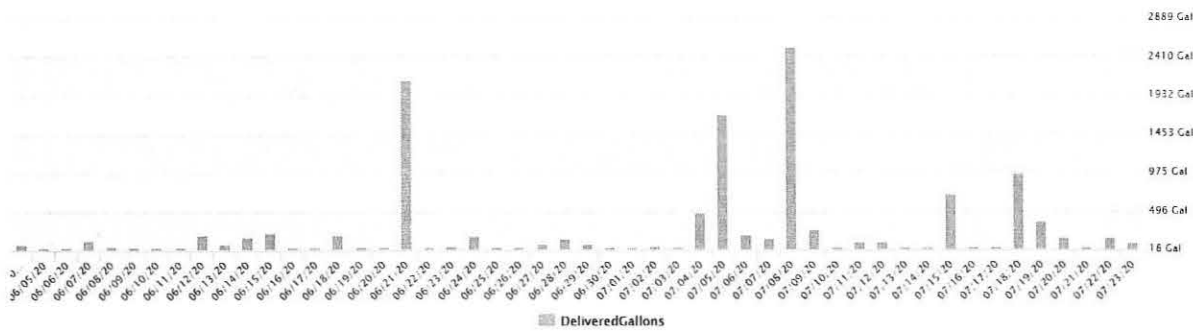


Figure 1: Summer 2020 Consumption History

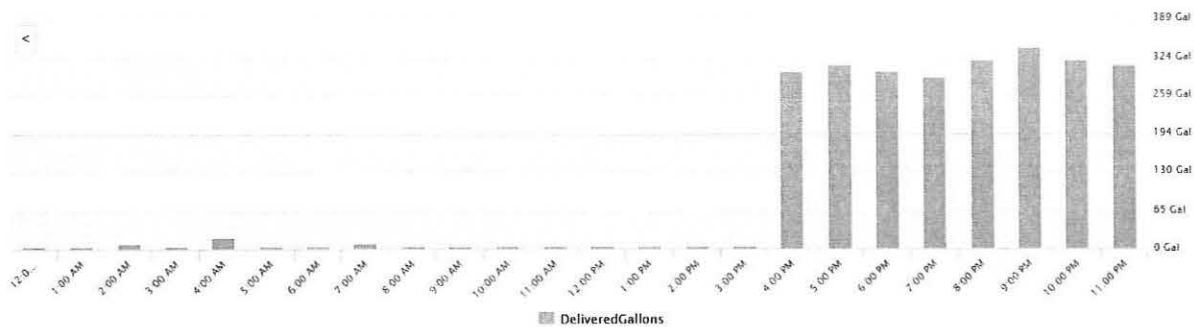
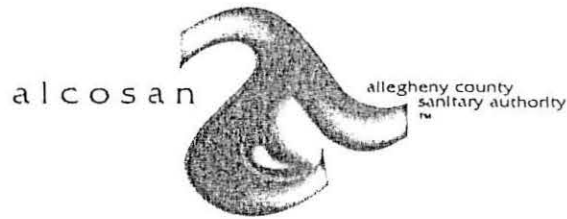


Figure 2: July 8, 2020 Hourly Consumption



Leak Credit Request Procedure

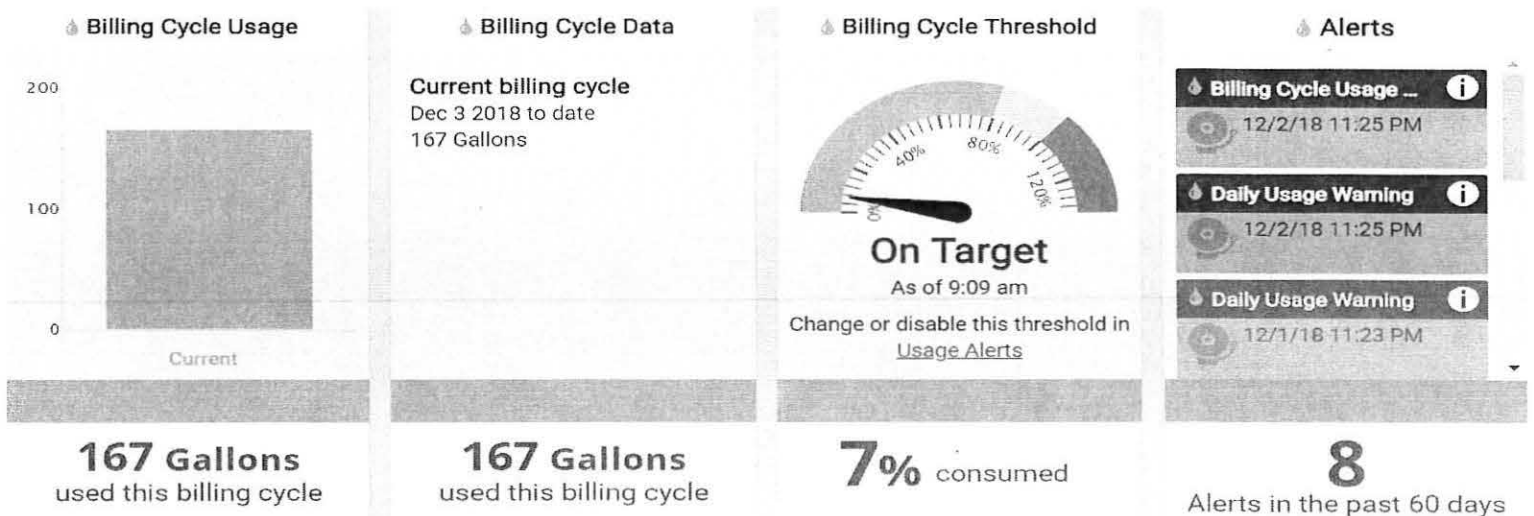
- All leak credits will be reviewed on a case by case basis.
- The determining factor of whether or not a customer will receive a leak credit is whether or not the 'Leak' went into the sanitary sewer.
- The customer must send in a written request for a 'Leak' credit detailing the duration, location and steps taken to repair the leak along with any other pertinent facts.
- To support the customer's request, they must provide all documentation of the leak including but not limited to-plumber/contractor receipts, photos, insurance claim documents, etc.
- Once all the above information is submitted, pending further review by the department supervisor a determination will be made if a "One Time Leak Credit" will be issued.
- You can contact ALCOSAN by telephone at 412-766-6696 or U.S. Postal to ALCOSAN 3101 Preble Ave. Pittsburgh, Pa. 15233 Attn: Leak Credit Request



Customer Portal

Our Customer Usage Portal is live!

This new feature will allow you to monitor your water use in real-time and set customized, automated usage alerts. You can even authorize multiple users, such as tenants, to receive usage alerts. Setting usage alerts can help you to detect costly water leaks in your property.



To sign up for this service:

1. Go to pgh2o.com and click on **USAGE ALERTS**
2. Click "Need to set up an account?"
3. Enter your email address, and click the link provided in an email that you will receive from the portal.
4. Type your full 14-digit account number and meter serial number.
5. Add your cell phone number to receive important alerts via text message, and create a password.
6. Use your email address and password to login.
7. Tour the portal, and set usage thresholds for email and/or text alerts.

For assistance and questions, please call Pittsburgh Water and Sewer Authority Customer Service Monday through Friday 8:00 am to 6:00 pm at 412.255.2423, or email info@pgh2o.com.

VERIFICATION

I, Julie A. Mechling, hereby state that: (1) I am the Director of Customer Service for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 09/05/2023 | 3:50 PM EDT

DocuSigned by:
Julie A. Mechling
00802B35EAA54E3...

Julie A. Mechling
Director of Customer Service
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

HAROLD J. SMITH

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
R-2023-3039919 (Stormwater)

TOPICS:

Modifications of the CCOSS Model
Allocation of CAP-BDP to Residential Class
Allocation of Administrative Support Costs
Readiness to Serve
Industrial Class Gradualism
Multi-Year Rate Plan

September 8, 2023

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VI. INDUSTRIAL CLASS GRADUALISM.....8

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TABLE OF EXHIBITS

HJS-Exhibit A	Rhode Island MYRP Legislation
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HJS-1-R	2024 Revenue Requirements by Utility
HJS-2-R	Utility Allocation Factor Summary
HJS-1W-R	FPPTY Water Revenue Requirements
HJS-2W-R	Assignment to Functional Categories (Water)
HJS-3W-R	Allocation to Base/Extra Capacity Categories (Water)
HJS-4W-R	Allocation Factor Summary (Water)
HJS-5W-R and 5WW-R	Allocation Factor Detail (Water and Wastewater)
HJS-6W-R	Water Units of Service
HJS-7W-R	Fire Protection Cost Allocation and Units of Service
HJS-8W-R	Water Unit Cost of Service
HJS-9W-R	Cost Distribution to Customer Classes (Water)
HJS-10W-R	Adjustments to Allocated Cost of Service (Water)
HJS-11W-R	Forgone Revenue Cost of the Bill Discount Program (Water)
HJS-12W-R	Minimum Charge Calculation
HJS-13W-R	Proposed Rates (Water)
HJS-14W-R	Comparison of Base Rate Revenues by Customer Class (Water)
HJS-15W-R	FPPTY CCOS Comparison - Water
HJS-16W-R	Typical Bill Comparison (Water)
HJS-17W-R	Water Revenue Proof
HJS-18W-R	Projected Units of Service
HJS-19W-R	2025 and 2026 Water Revenue Requirements
HJS-20W-R	Revenue Increase Needed for 2025 and 2026 (Water)
HJS-21SW-R	2025 Minimum Charge Calculation
HJS-21W-R	2025 Volume Charge Calculation (Water)
HJS-23W-R	Comparison Prior and Proposed Rates 2024-2026 (Water)

HJS-24W-R	Water Revenue Proof 2025 and 2026
HJS-25W-R	Typical Bill Comparison (Water)
HJS-1WW-R	FPPTY Wastewater Conveyance Revenue Requirements
HJS-2WW-R	Assignment to Functional Categories (Wastewater)
HJS-3WW-R	Allocation to Cost Categories (Wastewater)
HJS-4WW-R	Allocation Factor Summary (Wastewater)
HJS-5W-R and 5WW-R	Allocation Factor Detail (Water and Wastewater)
HJS-6WW-R	Wastewater Conveyance Units of Service
HJS-7WW-R	Wastewater Conveyance Unit Cost of Service
HJS-8WW-R	Cost Distribution to Customer Classes (Wastewater)
HJS-9WW-R	Adjustments to Allocated Cost of Service (Wastewater)
HJS-10WW-R	Forgone Revenue Cost of the Bill Discount Program (Wastewater)
HJS-11WW-R	Minimum Charge Calculation
HJS-12WW-R	Proposed Rates (Wastewater)
HJS-13WW-R	Comparison of Base Rate Revenues by Customer Class (Wastewater)
HJS-14WW-R	FPPTY CCOS Comparison - Wastewater
HJS-15WW-R	Typical Bill Comparison (Wastewater)
HJS-16WW-R	Wastewater Revenue Proof
HJS-17WW-R	Projected Units of Service
HJS-18WW-R	2025 and 2026 Wastewater Revenue Requirements
HJS-19WW-R	Revenue Increase Needed for 2025 and 2026 (Wastewater)
HJS-20WW-R	2025 Minimum Charge Calculation
HJS-21SW-R	2025 Volume Charge Calculation (Wastewater)
HJS-22WW-R	Comparison Prior and Proposed Rates 2024-2026 (Wastewater)
HJS-23WW-R	Wastewater Revenue Proof 2025 and 2026
HJS-24WW-R	Typical Bill Comparison (Wastewater)
HJS-1SW-R	FPPTY Stormwater Revenue Requirements
HJS-2SW-R	Net Revenue Requirements (Stormwater)
HJS-3SW-R	Stormwater Units of Service
HJS-4SW-R	Stormwater COS by Customer Class
HJS-5SW-R	Adjustments to Cost of Service - Stormwater
HJS-6SW-R	Stormwater Rate Design
HJS-7SW-R	FPPTY CCOS Comparison - Stormwater
HJS-8SW-R	Stormwater Revenue Proof
HJS-9SW-R	2025 and 2026 Stormwater Revenue Requirements
HJS-10SW-R	Revenue Increase Needed for 2025 and 2026 (Stormwater)
HJS-11SW-R	Stormwater Rate Design
HJS-12SW-R	Stormwater Revenue Proof – 2025 and 2026
HJS-13SW-R	Typical Bill Comparison

1 **I. INTRODUCTION AND PURPOSE OF TESTIMONY**

2 **Q. PLEASE STATE YOUR NAME**

3 A. My name is Harold J. Smith.

4 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?**

5 A. Yes, I submitted direct testimony sponsoring Pittsburgh Water and Sewer Authority's
6 ("PWSA" or the "Authority") class cost of service study ("CCOSS") which as pre-
7 marked as PWSA St. No. 7 and filed on May 9, 2023. The primary purpose of my direct
8 testimony was to describe the principles, methodology, and data utilized in PWSA's
9 CCOSS (the "Original CCOSS").

10 **Q. HAVE YOU REVIEWED THE TESTIMONY SUBMITTED BY THE OTHER**
11 **PARTIES IN THIS RATE CASE?**

12 A. Yes, specifically, I have reviewed the testimony submitted by Mr. Cline and Mr.
13 Spadaccio, representing the Bureau of Investigation and Enforcement ("I&E"); Mr.
14 Mierzwa and Mr. Pavlovic, representing the Office of the Consumer Advocate ("OCA"),
15 and Mr. Higgins, representing Office of the Small Business Advocate ("OSBA"). I have
16 also reviewed responses to discovery requests to other parties.

17 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

18 A. In my rebuttal testimony, I will first address the changes to the CCOSS model that have
19 been incorporated as a result of issues identified through the discovery process. I will
20 then respond to the direct testimony of other witnesses in the following areas:

- 21 • Allocation of CAP-BDP costs
- 22 • Allocation of Administrative Support costs
- 23 • Readiness to Serve Component included in minimum charges and fire charges
- 24 during rate design
- 25 • Gradualism for the Industrial Class
- 26 • Multi-Year Rate Plans

1 In the event that an issue raised in the testimony of others is not addressed in my
2 rebuttal testimony, this should not be viewed as my acceptance of their testimony. Rather,
3 it reflects my belief that a further response in this rebuttal testimony is not warranted,
4 either because it was adequately addressed in my direct testimony, is being addressed by
5 the rebuttal testimony of another PWSA witness, or because it is a legal matter that is
6 better addressed by counsel in briefs or other pleadings.

7 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

8 A. Yes, as listed in the Table of Exhibits, I am sponsoring supporting schedules from the
9 rebuttal CCOSS model as described in this rebuttal testimony.

10 **II. MODIFICATIONS OF THE CCOSS MODEL**

11 **Q. PLEASE PROVIDE A BREIF DESCRIPTION OF THE CHANGES MADE TO**
12 **THE CCOSS MODEL.**

13 A. As a result of the discovery and direct testimony of others, we have made several
14 modifications to the originally filed CCOSS model as described below:

- 15 • A formula was calculating total sewer demand for FY 2025 incorrectly, leading to
16 a very minor overestimation of total sewer demand (<1%) in FY 2025. That error
17 has been corrected.
- 18 • The debt coverage calculations in the ‘Sufficiency’ tab did not include the costs of
19 arrearage forgiveness, hardship, and DWSL, among other minor costs. Those
20 calculations have been updated to include all miscellaneous expense items.
- 21 • The formula for developing bad debt expense for FY 2025 and FY 2026 was
22 assigning more bad debt expense to stormwater than necessary because of
23 stormwater only revenue being included in the bad debt calculator for customers
24 that have water meters. That error has been corrected. The two results are added
25 together for a total bad debt figure.
- 26 • The cost for the first year of the stormwater credit program was being calculated
27 with a preliminary stormwater rate. That value has been updated with the final
28 rate.

- 1 • The number of fire hydrants has been revised to match the most recently updated
2 number from PWSA provided in discovery.
- 3 • The line item “Non.City Water Reimburse” in Department 911 should be and is
4 now exclusively allocated to water.
- 5 • The model’s cost of service allocations were not including bills or equivalent
6 meters units of service for wholesale customers. The model formulas have been
7 updated.
- 8 • As a result of discovery, we have updated the model to recover portions of the FY
9 2025-2026 water IIC and CAC charges from the “Private Fire” class.
- 10 • As a result of discovery, we have changed the water construction and engineering
11 allocation factor (W-J in ‘W>Func’) to include distribution and meters/services
12 components.
- 13 • As a result of discovery, we have added system average day, max day, and max
14 hour production from 2018 and 2019 into the model for informational purposes
15 only. The model now contains system production information from 2018-2022,
16 but the three-year average of 2020-2022 is still being used for the peaking factor
17 calculations.
- 18 • As a result of direct testimony by other parties, the ratios of rate revenue increases
19 for individual customer classes to the overall system revenue increase did not
20 factor in existing revenues recovered from DSIC charges. The model has been
21 updated to address this issue, and the gradualism adjustment for the Industrial
22 class has been revised such that the Industrial class’s rate increase is
23 approximately 1.5 times the system average increase. We have also changed the
24 amount of industrial gradualism so that the industrial class revenue increases by
25 1.5x the increase of overall system revenue.
- 26 • As a result of discovery, we fixed a formula reference error that was resulting in
27 incorrect displays of wholesale rates in the ‘W>Results25-26’ tab.

28 **Q. WHAT ARE THE IMPACTS OF THESE CHANGES?**

29 A. The impact of the changes can be seen in the revised CCROSS schedules provided in the
30 PWSA Exhibits as listed in the Table of Exhibits. Ultimately, the overall change to the
31 proposed rates and charges, as well as the proposed allocation of the rate increase to
32 individual rate classes, is minimal.

1 **III. ALLOCATION OF THE CAP-BDP TO THE RESIDENTIAL CLASS**

2 **Q. PLEASE DESCRIBE THE RECOMMENDATION OF THE OSBA TO**
3 **ALLOCATE THE COSTS OF THE CAP-BDP TO THE RESIDENTIAL CLASS.**

4 A. Mr. Higgins recommends that the costs of the CAP-BDP should be recovered solely by
5 the Residential customer class, claiming that the CAP-BDP program only benefits
6 residential customers and citing Commission decisions in previous dockets as the basis
7 for this recommendation.

8 **Q. DO YOU AGREE WITH MR. HIGGIN'S RECOMMENDATION?**

9 A. No, I do not. PWSA has always recovered the costs of its BDP-CAP from all customer
10 classes and should be allowed to continue doing so. The CAP-BDP benefits the entire
11 Pittsburgh community, including businesses, by helping to ensure that all residents
12 located in PWSA's service area are able to afford water for essential uses, such as
13 drinking, cooking, and cleaning. These residents are the workforce that area businesses
14 rely on to keep their businesses running, and the BDP-CAP helps ensure that employees
15 are able to meet their most basic nutrition and hygiene needs. They are also the
16 customers that purchase the goods and services offered by commercial customer
17 businesses and industries. The BDP-CAP enables those potential customers to stay in
18 their homes and continue to purchase the goods and services offered by Pittsburgh
19 businesses, or to use the services of Pittsburgh education and medical firms. Thus, all
20 classes of PWSA customers benefit from the BDP-CAP and it is fair that all classes
21 contribute to the costs of that program.

1 **Q. DO ANY OTHER UTILITIES REGULATED BY THE PA PUC RECOVER THE**
2 **COSTS ASSOCIATED WITH THEIR CUSTOMER ASSISTANCE PROGRAM**
3 **FROM ALL CUSTOMER CLASSES?**

4 A. Yes, Philadelphia Gas Works (PGW) recovers the costs associated with its Customer
5 Responsibility Program through a surcharge assessed to all customer classes (except
6 Interruptible Transportation customers) and has done so through several base rate filings.
7 In fact, OSBA specifically litigated the allocation of customer assistance program costs
8 for a municipal utility in PGW’s 2017 base rate proceeding. (*Pennsylvania PUC v.*
9 *Philadelphia Gas Works*, Docket Nos. R-2017-2586783, Opinion and Order, November
10 8, 2017).

11 **IV. ALLOCATION OF ADMINISTRATIVE SUPPORT COSTS**

12 **Q. PLEASE SUMMARIZE MR. MIERZWA’S POSITION WITH REGARD TO**
13 **ALLOCATING A PORTION OF ADMINISTRATIVE SUPPORT COSTS FOR**
14 **RECOVERY THROUGH THE MINIMUM CHARGE.**

15 A. Mr. Mierzwa asserts that it is inappropriate to recover a portion of PWSA’s
16 administrative support costs through the fixed minimum charge.

17 **Q. DO YOU AGREE WITH HIS ASSERTION?**

18 A. No, I do not. As demonstrated on Schedules HJS 4-W and HJS4-WW and included with
19 my Direct Testimony and updated with this Rebuttal Testimony, Administrative Support
20 costs are allocated for recovery through the fixed minimum or base charges using
21 allocator W-GG for water costs and allocator WW-DD for sewer conveyance costs. This
22 approach is common practice and is consistent with the approach used by PWSA in each
23 of its previous rate filings and also with guidance provided by AWWA Manual M-1.

1 **Q. HAVE YOU USED THIS APPROACH IN OTHER JURISDICTIONS?**

2 A. Yes, in cost of service studies prepared for rate filings submitted to the Rhode Island
3 Public Utilities Commission (RIPUC) on behalf of both Newport Water (RIPUC Docket
4 No. 4933) and the Providence Water Supply Board (Providence Water) (RIPUC Docket
5 No. 4994), a portion of costs associated with administrative support are allocated for
6 recovery through a fixed base charge. Mr. Mierzwa served as an expert witness for the
7 Rhode Island Division of Utilities and Carriers (Division) in both of these cases and did
8 not express any concern with this approach in either case.

9 **V. READINESS TO SERVE COMPONENT THE MINIMUM CHARGE**

10 **Q. PLEASE SUMMARIZE THE COMMENTS ON THE REMOVAL OF THE**
11 **READINESS-TO-SERVE COMPONENT OF THE WATER AND SEWER**
12 **SERVICE MINIMUM CHARGES AND THE FIRE PROTECTION CHARGE.**

13 A. Mr. Cline and Mr. Mierzwa addressed the readiness-to-serve component in the water and
14 sewer minimum charges and the fire protection charge and disagreed with its inclusion.
15 In past PWSA rate cases, witnesses have taken issue with the allocation of costs to a
16 Readiness-To-Serve cost category during the allocation of costs to Base/Extra Capacity
17 cost categories. In response to his criticism, the current model and the COSS model used
18 in PWSA's previous rate case address readiness-to-serve as a rate design issue.

19 **Q. DO YOU AGREE WITH MR. CLINE'S AND MR. MIERZWA'S PROPOSAL TO**
20 **REMOVE THE READINESS-TO-SERVE COMPONENT FROM THE WATER**
21 **SERVICE MINIMUM CHARGES?**

22 A. No. The readiness-to-serve component of the water minimum charges is an important
23 component of the PWSA rate structure. The readiness-to-serve component is a common
24 ratemaking technique that adds numerous key benefits.

1 **Q. IS THE INCLUSION OF A READINESS-TO-SERVE COMPONENT AN**
2 **INDUSTRY-ACCEPTED RATEMAKING PRACTICE?**

3 A. Yes. In fact, the concept of including readiness to serve costs in the fixed charge is
4 addressed in the AWWA M-1 Manual on page 97. It is a recommended practice used to
5 capture “the costs of having a system in place to provide water to the customer regardless
6 of whether the customer consumes any water in a given service period” (AWWA M-1
7 Manual – 7th Edition).

8 **Q. WHAT ARE THE BENEFITS OF THE READINESS-TO-SERVE COMPONENT**
9 **FOR THE WATER SERVICE MINIMUM CHARGES?**

10 A. The benefits of including a readiness-to-serve component in the fixed charge are two-
11 fold. First, a readiness-to-serve component within a fixed charge better aligns revenue
12 recovery with the nature of utility costs, which in PWSA’s case, are largely fixed.
13 Second, the readiness-to-serve component in PWSA’s fixed charge helps to maintain
14 PWSA’s fixed revenue at a level deemed desirable by bond rating agencies. This
15 enhances revenue stability and exposes PWSA to less financial risk, thereby contributing
16 to a better bond rating and a lower cost of capital.

17 **Q. IS 10% OF DEBT SERVICE A COST-JUSTIFIABLE AMOUNT TO INCLUDE**
18 **IN A READINESS-TO-SERVE COMPONENT?**

19 A. Yes. While there are no specific guidelines for the amount of debt service that should be
20 allocated to the readiness-to-serve component, 10% is not unreasonably high. In fact, it is
21 likely that a 10% allocation of debt service is an underestimate of the investment PWSA
22 has made to ensure the water system is in place and has the capacity to meet expected
23 customer demands.

24 Additionally, when you consider PWSA’s cost structure, the majority of the
25 Authority’s costs are fixed. In fact, for water, debt service in FY 2024 accounts for about

1 40% of the allocated net revenue requirements alone. This number grows to almost 43%
2 in FY 2025. Allocating a small portion of the Authority's debt service costs for recovery
3 through the fixed minimum or base charge better aligns the nature of these costs with
4 their recovery.

5 VI. INDUSTRIAL CLASS GRADUALISM

6 **Q. PLEASE SUMMARIZE MR. MIERZWA'S POSITION WITH RESPECT TO**
7 **PWSA'S PROPOSED GRADUALISM ADJUSTMENT FOR THE INDUSTRIAL**
8 **CLASS.**

9 A. Mr. Mierzwa suggests that the increase to the Industrial class rates should be limited to
10 1.75 times the system average increase as opposed to the 1.5 times the system average
11 increase limitation used to develop PWSA's proposed Industrial class rates.

12 **Q. DO YOU AGREE WITH THIS SUGGESTION?**

13 A. No, I do not. As stated on Page 46 of my direct testimony, in PWSA's 2020 Rate Case,
14 PWSA and the parties agreed to impose gradualism adjustments for any customer classes
15 experiencing a 1.5x increase above the system average increase. While I recognize that,
16 as a settlement term, this does not serve as precedent, I believe that threshold is still
17 appropriate and reasonable. The 1.5x system average level for allocation of rate increase
18 to a class is well-accepted in water/wastewater utility ratemaking.

19 **Q. ON PAGE 11 OF HIS TESTIMONY, MR. MIERZWA STATES THAT PWSA**
20 **HAS PROPOSED AN INDUSTRIAL RATE THAT IS 1.40 TIMES THE SYSTEM**
21 **AVERAGE INCREASE. IS THIS STATEMENT CORRECT?**

22 A. Yes, but as discussed earlier in this testimony, during the discovery process, it was
23 discovered that a cell reference error in the COSS model was resulting in an Industrial
24 rate increase that was approximately 1.4 times the system average increase instead of the

1 desired 1.5 times. This error has been corrected and the Industrial rate increase shown in
2 the attached schedules is approximately 1.5 times the system average.

3VII. MULTI-YEAR RATE PLAN

4 **Q. PLEASE SUMMARIZE THE OTHER PARTIES' POSITION WITH RESPECT**
5 **TO PWSA'S REQUEST TO IMPLEMENT A MULTI-YEAR RATE PLAN.**

6 A. Witnesses for OCA and I&E recommend that the Commission reject PWSA's request for
7 a Multi-Year Rate Plan (MYRP), citing a number of specific concerns, including the
8 difficulty associated with forecasting future costs; the alleged non-compliance of
9 PWSA's proposed MYRP with Commission guidance; and PWSA's failure to propose
10 mechanisms to ensure that rates in years 2 and 3 of the MYRP are fair and reasonable and
11 not in excess of cost of service.

12 **Q. DO YOU AGREE WITH THE RECOMMENDATIONS OF THE OTHER**
13 **PARTIES' WITH RESPECT TO THE MYRP?**

14 A. I do not. As discussed in my direct testimony, I have worked with utilities in Rhode
15 Island that have successfully implemented MYRPs that were fair and reasonable and, for
16 that reason, approved by the RIPUC, and believe that if the Pennsylvania Public Utility
17 Commission (PAPUC) were to implement processes similar to those employed by the
18 RIPUC, utility customers in Pennsylvania could reap the benefits of MYRPs as they have
19 done in Rhode Island.

20 **Q. DO YOU AGREE THAT THE DIFFICULTIES ASSOCIATED WITH**
21 **FORECASTING FUTURE COSTS ARE SO GREAT THAT THEY SHOULD**
22 **PRECLUDE THE USE OF A MYRP FOR PWSA?**

23 A. I do not. As discussed in Mr. Barca's rebuttal testimony, all rate filings are based on
24 projections of future costs. In a traditional rate filing, the Fully Projected Future Test
25 Year (FPFTY) is based on forecast costs for a period one year in the future. PWSA's

1 MYRP proposal involves projecting costs for only an additional two years into the future.
 2 While the level of certainty associated with projections of future costs does decline the
 3 further into the future one looks, in the case of PWSA, which is not proposing to make
 4 significant changes to the way in which it performs the daily activities related to
 5 providing water, sewer and stormwater management services, the primary drivers of
 6 O&M cost increases are wage levels and price inflation, two variables for which there is a
 7 wealth of information available on which to base projections of future costs. If, as is the
 8 case with PWSA’s proposed MYRP, future cost projections are for the most part based
 9 on appropriate inflation or escalation factors and the Commission implements reasonable
 10 review mechanisms prior to the final approval of rates in future years, the risk of having
 11 rates that generate revenue that is materially in excess of actual costs is all but eliminated.

12 **Q. DO YOU AGREE WITH MR. CLINE’S INTERPRETATION OF THE REPORT**
 13 **ON MYRPS PREPARED BY THE NATIONAL REGULATORY RESEARCH**
 14 **INSTITUTE (NRRI) THAT HE ATTACHED TO HIS DIRECT TESTIMONY?**

15 A. I believe that Mr. Cline discounts the potential benefits offered by MYRPs that are
 16 presented in the NRRI report and places too much emphasis on the potential drawbacks,
 17 many of which can be addressed by a robust set of oversight mechanisms that can be
 18 mandated by the Commission.

19 It should also be noted that the NRRI report is largely focused on whether
 20 MYRPs provide utilities with inappropriate opportunities to earn a rate of return that is in
 21 excess of what the Commission has determined is appropriate. As such, much of the
 22 discussion in the report is irrelevant to PWSA’s MYRP proposal in that PWSA is a “cash
 23 flow” utility and does not have shareholders that would benefit if rate revenue exceeds
 24 the cost of service. Any excess revenue that is generated by PWSA’s rates would not be

1 distributed as profit but would instead be retained as reserves that would be used to offset
2 future costs, thereby mitigating future rate increases.

3 **Q. ON PAGE 9 OF HIS DIRECT TESTIMONY, MR. PAVLOVIC POINTS OUT**
4 **THAT YOU DID NOT PROPOSE ANY MECHANISMS THAT WOULD HELP**
5 **ENSURE THAT RATES IN YEARS 2 AND 3 OF PWSA’S MYRP ARE JUST**
6 **AND REASONABLE. WHY DIDN’T YOU PROPOSE SUCH A MECHANISM?**

7 A. The discussion of my experience with MYRPs in Rhode Island included in my direct
8 testimony was intended to demonstrate that when appropriate oversight mechanisms are
9 implemented, MYRPs do indeed work and provide many benefits to both the regulated
10 utility and its customers, with one of the greatest benefits being a significant reduction in
11 the amount of effort on the part of utility management and regulators associated with
12 lengthy base rate cases. Thus, I was supporting the implementation of the MYRP with
13 safeguards.

14 **Q. IF YOU WERE GIVEN THE OPPORTUNITY TO ADVISE THE COMMISSION**
15 **WITH RESPECT TO REGULATORY PROCESSES THAT COULD BE**
16 **IMPLEMENTED TO REDUCE THE RISK OF MYRPS RESULTING IN RATES**
17 **THAT WERE NOT JUST AND REASONABLE, WHAT WOULD YOUR**
18 **ADVICE BE?**

19 A. I would suggest that the PAPUC implement review mechanisms similar to those spelled
20 out in the Rhode Island legislation that enables MYRPs in that state. § 39-15.1-4 subpart
21 c of the Rhode Island General Laws, which is attached as HJS-Exhibit A to this
22 testimony, stipulates that

23 “A water supplier with a multiyear plan approved by the commission may change
24 its rates consistent with provisions of the plan, provided that a forty-five (45) day
25 notice is given to the Commission and the Division, which notice shall state the
26 amount of the proposed rate changes, the manner in which the proposed rate is
27 consistent with the approved plan, and the purpose of the proposed rate change.
28 The proposed rate change shall be effective sixty (60) days after the notice to the
29 Commission and the Division unless the Commission shall decide that the
30 proposed rate increase may be unreasonable or inconsistent with the approved

1 plan, in which case the Commission shall hold a hearing on the proposed rate
2 increase and may approve, or reasonably amend the proposed rate increase.”

3 **Q. IN YOUR DIRECT TESTIMONY YOU MENTION THAT IN RHODE ISLAND A**
4 **UTILITY WITH AN APPROVED MYRP MUST SUBMIT A COMPLIANCE**
5 **FILING 90 DAYS PRIOR TO THE PROPOSED DATE FOR**
6 **IMPLEMENTATION OF NEW RATES, BUT THE STATUTE QUOTED ABOVE**
7 **STIPULATES THAT A UTILITY MUST PROVIDE 45 DAYS NOTICE. CAN**
8 **YOU EXPLAIN THIS DISCREPANCY?**

9 A. Yes, I was mistaken in my direct testimony, possibly because the rate case attorneys for
10 Newport Water and Providence Water advise their clients to make their filing 90 days in
11 advance to help ensure that the Commission will have sufficient time to review their
12 filing and approve rates in time for the utility to implement the news rates on the
13 scheduled implementation date. As the statute states, the filing requirement in Rhode
14 Island is 45 days prior to the proposed implementation date; however, if the PAPUC were
15 to stipulate a similar requirement, they could specify a different filing deadline. A
16 ninety-day notice period would certainly not be unreasonable.

17 **Q. THE RHODE ISLAND LEGISLATION ENABLING UTILITIES TO UTILIZE**
18 **MYRPS FOR RATEMAKING DOES NOT PROVIDE SPECIFICS OF THE**
19 **COMPLIANCE FILING THAT UTILITIES MUST SUBMIT PRIOR TO FINAL**
20 **APPROVAL OF RATES IN THE YEARS AFTER THE INITIAL RATE YEAR.**
21 **WHAT INFORMATION IS INCLUDED IN THESE FILINGS?**

22 A. The types of the information submitted in MYRP compliance filing is in large part
23 dependent upon the nature of the expenses that the utility hopes to recover through rates
24 in the later years of a MYRP. For example, if the cost driving the proposed rate increases
25 are limited to debt service on bonds issued after the initial rate year, the utility would
26 only need to provide information that relates to the actual or projected debt service on the
27 new bonds. This information is compared to the debt service assumptions included in the
28 utility’s projection of debt service included in the initial filing and rates are adjusted such
29 that they recover only the actual or revised projection of debt service. If more costs are in

1 play, then the utility provides information about actual costs incurred during the most
2 recent fiscal year and information that confirms that their projections of future costs
3 included in the initial filing are indeed accurate and justifiable.

4 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE TYPE OF**
5 **INFORMATION THAT PWSA SHOULD BE ASKED TO PROVIDE IN THEIR**
6 **MYRP COMPLIANCE FILING?**

7 A. I would suggest that all parties to this rate case work together to develop specific
8 requirements of the compliance filing such that all parties are confident that they have
9 sufficient evidence to support the proposed rate increases, but take care to ensure that the
10 compliance filing requirements are not so onerous as to negate the administrative
11 efficiency benefits provided by a MYRP. For example, since PWSA's O&M expense
12 projections for the second and third year of their MYRP are largely based on applying an
13 inflation factor to expenses in the FPFTY, it would be appropriate for PWSA to include
14 data relating to the actual expenses incurred in the most recent fiscal year along with
15 revised inflation factors that reflect the most current inflation conditions. I recommend
16 that the PUC adopt PWSA's MYRP and order a workshop be scheduled in which any
17 interested party could participate. That workshop would attempt to arrive at the
18 procedure and substance of the compliance filings that would be made prior to the
19 implementation of 2025 and 2026 rates. For example, the Parties would seek to arrive at
20 a list of specific costs or items, such as debt service costs, that would subject to review
21 and potential revision in the compliance filing proceeding. The PUC would then review
22 and approve any consensus terms or rule on any terms for which a consensus was not
23 possible. This should all be done fairly quickly after the Commission's decision in this
24 case.

1 **Q. ON PAGES 8 AND 9 OF HIS DIRECT TESTIMONY, MR. SPADACCIO**
2 **ENUMERATES HIS REASONS FOR NOT SUPPORTING PWSA’S PROPOSED**
3 **MYRP AND IMPLIES THAT APPROVING A MYRP WOULD RESULT IN**
4 **PWSA BEING SUBJECT TO LESS OVERSIGHT THAN THEY WOULD BE IF**
5 **THE COMMISSION APPROVED A SINGLE SET OF RATES BASED ON A**
6 **SINGLE FPPTY. DO YOU AGREE WITH THIS IMPLICATION?**

7 A. I do not. If the Commission mandates review mechanisms similar to those used by the
8 RIPUC, PWSA’s revenue requirement projections and rates would face scrutiny each
9 year prior to final approval of its proposed rates for the upcoming rate year. Under a
10 traditional scenario in which the Commission approves rates based on a single FPPTY,
11 PWSA would only be subject to a thorough review of its projected revenue requirements
12 and rates during the initial rate case and would not face serious scrutiny until it submits
13 its next rate filing which could be several years in the future.

14 **Q. IN YOUR EXPERIENCE HAS THE RIPUC EVER MODIFIED THE RATES**
15 **THAT IT INITIALLY APPROVED BASED ON REVIEW OF A UTILITIES**
16 **COMPLIANCE FILING?**

17 A. Yes, in RIPUC Docket No. 4994, after reviewing Providence Water’s compliance filing
18 for the second step in its MYRP, the RIPUC called for a hearing where it heard testimony
19 from representatives of Providence Water and based on that testimony, they reduced
20 Providence Water’s proposed revenue requirements for both labor costs and electricity
21 costs and approved rates reflective of the reduction in revenue requirements. In my
22 experience, this is an unusual occurrence, but it is a demonstration that the mechanisms
23 that the RIPUC has implemented are effective in ensuring that rates approved through a
24 MYRP filing are just and reasonable and based on prudent projections of the costs that a
25 utility is likely to incur.

26 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

27 A. Yes, it does.

HJS – Exhibit A

§ 39-15.1-4. Optional multiyear rate plans.

(a) Water suppliers may, at their discretion, file with the commission a rate plan for a period not to exceed six (6) years, which rate plans shall set forth proposed rates:

(1) That are adequate, as described in § 39-15.1-3(a), to pay for all reasonable costs of service associated with water supply during the period of the plan, and may include projections of cost increases, and are equitable as described in § 39-15.1-3(b);

(2) That attribute the cost of increased seasonal demand to customers who or that contribute to increased seasonal demand and that may include conservation pricing pursuant to § 39-15.1-3(d);

(3) That provide for infrastructure maintenance, repair, and replacement, especially in order to meet goals for reduction of leakage and the accounting of non-billed water, that are included in a water supply systems management plan; and

(4) That provide for the establishment and maintenance of operating reserves, capital reserves, and debt-service reserves as described in § 39-15.1-3(a).

(b) The commission shall approve or reasonably amend the plan and the rates proposed therein.

(c) A water supplier with a multiyear plan approved by the commission may change its rates consistent with provisions of the plan, provided that a forty-five (45) day notice is given to the commission and the division, which notice shall state the amount of the proposed rate changes, the manner in which the proposed rate is consistent with the approved plan, and the purpose of the proposed rate change. The proposed rate change shall be effective sixty (60) days after the notice to the commission and the division, unless the commission shall decide that the proposed rate increase may be unreasonable or inconsistent with the approved plan, in which case the commission shall hold a hearing on the proposed rate increase and may approve, or reasonably amend the proposed rate increase. Notwithstanding the foregoing notice provision, the commission shall be bound by the suspension period set forth in § 39-3-11.

(d) A water supplier may petition the commission for a modification to an approved plan, and the commission in hearing and deciding the petition need only consider those portions or elements of the plan affected by the proposed modification. The commission shall approve or reasonably modify the proposed modification. An

EXHIBIT A

approved modification shall become part of the plan for purposes of subsection (c) of this section.

(e) Each water supplier with an approved plan shall report annually to the commission and the division with regard to performance under the plan, including rates, revenues derived from rates, expenditures necessary to pay for all reasonable costs of service; and the level and status of operating reserves, capital reserves, and debt-service reserves.

Exhibit HJS-1-R

Pittsburgh Water and Sewer Authority
Revenue Requirements by Utility

	FPFTY 2024			
	Water	Wastewater Conveyance	Stormwater	Total
Base Rate Revenue Requirements				
<u>Operating Expenses</u>				
<u>Direct Operating Expenses</u>				
Administrative Division				
Executive Director	\$ 2,389,920	\$ 460,536	\$ 486,323	\$ 3,336,779
Customer Service	2,843,688	3,397,366	3,336,593	9,577,647
Management Information Systems	5,452,164	1,050,629	1,109,457	7,612,251
Finance	5,355,560	1,032,014	1,089,799	7,477,373
Human Resources	1,744,656	336,194	355,019	2,435,869
Legal	3,019,489	581,854	614,434	4,215,777
Safety & Security	1,676,729	323,105	341,197	2,341,031
Public Affairs	1,362,774	262,606	277,310	1,902,689
Operations Division				
Environmental Compliance	1,623,521	1,507,555	1,507,555	4,638,632
Ops Capital Assets	-	-	-	-
Warehouse	402,980	77,654	82,002	562,637
Water Treatment Plant	27,206,247	-	-	27,206,247
Water Quality (Lab)	2,676,383	-	-	2,676,383
Water Distribution	17,698,299	-	-	17,698,299
Sewer Operations	-	5,387,047	5,970,047	11,357,094
Engineering & Construction Division				
Engineering & Construction	15,757,737	5,623,537	5,741,630	27,122,905
<u>Subtotal: Direct Operating Expenses</u>	\$ 89,210,147	\$ 20,040,099	\$ 20,911,367	\$ 130,161,613
<u>Other Operating Expenses</u>				
Loss / (Gain) on ALCOSAN Billings	\$ -	\$ 2,066,814	\$ -	\$ 2,066,814
City Services	2,449,260	471,972	498,399	3,419,630
Non-City Water Payments	-	-	-	-
Covid Expenses	188,524	74,691	-	263,215
<u>Subtotal: Other Operating Expenses</u>	\$ 2,449,260	\$ 2,538,786	\$ 498,399	\$ 5,486,444
<u>Subtotal: Operating Expenses</u>	\$ 91,847,931	\$ 22,653,576	\$ 21,409,766	\$ 135,911,272
<u>Debt Service</u>				
<u>Existing Debt</u>				
Senior Debt Service	\$ 35,801,303	\$ 11,256,278	\$ 11,256,278	\$ 58,313,859
Subordinate Debt Service	10,748,411	3,379,405	3,379,405	17,507,221
<u>Subtotal: Existing Debt</u>	\$ 46,549,714	\$ 14,635,683	\$ 14,635,683	\$ 75,821,080
<u>Proposed Debt</u>				
Revolving Line of Credit Interest	\$ 2,404,266	\$ 282,652	\$ 313,081	\$ 3,000,000
Revenue Bonds	9,692,885	1,427,885	1,283,462	12,404,232
SRF Loans	4,351,223	853,431	502,660	5,707,313
<u>Subtotal: Proposed Debt</u>	\$ 16,448,374	\$ 2,563,968	\$ 2,099,203	\$ 21,111,546
<u>Subtotal: Debt Service</u>	\$ 62,998,088	\$ 17,199,651	\$ 16,734,886	\$ 96,932,626
<u>Capital Expenditures & Transfers</u>				
Internally Generated Funds / PAYGO	\$ -	\$ -	\$ -	\$ -
Other Transfers to Reserves	640,000	250,000	110,000	1,000,000
Reimbursements from Municipalities	-	-	-	-
Remarketing & Liquidity Charges	-	-	-	-
Bad Debt Expense	3,362,773	1,076,914	1,530,158	5,969,845
DWSL	-	-	-	-
Hardship	-	-	-	-
Arrearage	97,988	142,012	-	240,000
Stormwater Credit Program Cost	-	-	185,167	185,167
<u>Subtotal: Capital Expenditures & Transfers</u>	\$ 4,100,761	\$ 1,468,926	\$ 1,825,325	\$ 7,395,011
Total: Base Rate Revenue Requirements	\$ 158,946,780	\$ 41,322,153	\$ 39,969,977	\$ 240,238,910
DSIC Costs	\$ 11,280,378	\$ 3,756,676	\$ -	\$ 15,037,055
Total System Revenue Requirements	\$ 170,227,158	\$ 45,078,829	\$ 39,969,977	\$ 255,275,964

Exhibit - HJS-2-R

**Pittsburgh Water and Sewer Authority
Allocation Factors - Between Utilities**

Allocations to Utilities (Revenue Requirements & Assets)				
<i>Code</i>	<i>Description</i>	<i>Water</i>	<i>Sewer</i>	<i>Stormwater</i>
A	Water Only	100.0%	0.0%	0.0%
B	Wastewater Only	0.0%	100.0%	0.0%
C	Stormwater Only	0.0%	0.0%	100.0%
D	Customer Service - Meters	51.3%	48.7%	0.0%
E	Customer Bills	26.4%	34.9%	38.7%
F	Operations Cost	71.6%	13.8%	14.6%
G	Engineering and Construction	80.1%	9.4%	10.4%
H	Environmental Compliance	35.0%	32.5%	32.5%
I	Customer Service - Composite	29.7%	35.5%	34.8%
J	Wastewater - Conveyance	0.0%	50.0%	50.0%
K	Existing Debt Service - Assets	61.4%	19.3%	19.3%

Sewer / Stormwater Allocation Factor Detail

	Sewer	Stormwater
Conveyance	50.0%	50.0%
Debt Service	50.0%	50.0%

Exhibits

HJS-1W-R to 25W-R

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-1W-R

FPPTY 2024 COS & Rate Design Model

FPPTY Water Revenue Requirements

	2024 FPPTY Revenue Requirements
Water System Revenue Requirements	
<u>Operating Expenses</u>	
<i>Direct Operating Expenses</i>	
Administrative Division	
Executive Director	\$ 2,389,920
Customer Service	2,843,688
Management Information Systems	5,452,164
Finance	7,804,820
Human Resources	1,744,656
Legal	3,019,489
Safety & Security	1,676,729
Public Affairs	1,362,774
Operations Division	
Environmental Compliance	1,623,521
Ops Capital Assets	-
Warehouse	402,980
Water Treatment Plant	27,206,247
Water Quality (Lab)	2,676,383
Water Distribution	17,698,299
Sewer Operations	-
Engineering & Construction	
Engineering & Construction	15,757,737
<i>Other Operating Expenses</i>	
Loss / (Gain) on ALCOSAN Billings	-
Covid-Related Expenses	188,524
Total Operating Expenses	\$ 91,847,931
<u>Debt Service</u>	
Existing Debt	\$ 46,549,714
Future Debt	16,448,374
Subtotal: Debt Service	\$ 62,998,088
<u>Capital Expenditures & Transfers</u>	
Internally Generated Funds / PAYGO	\$ -
Internally Generated Funds / PAYGO (DSIC)	11,280,378
Other Transfers to Reserves	640,000
Bad Debt Expense	3,362,773
Arrearage	97,988
Subtotal: Capital Expenditures & Transfers	\$ 15,381,139
Total: Water System Revenue Requirements	\$ 170,227,158
<i>Capital Costs to be Recovered through DSIC</i>	\$ (11,280,378)
Total: Water System Revenue Requirement (Excl DSIC)	\$ 158,946,780

Water Operating Expenses	FY 2024	Allocation	Water Functional Categories										
			Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support		
<i>Direct Operating Expenses</i>	<i>FPPTY</i>												
Administrative Division													
Executive Director	\$ 2,389,920	W-H	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,389,920
Customer Service	2,843,688	W-I	-	-	-	-	-	-	972,592	1,871,095	-	-	-
Management Information Systems	5,452,164	W-H	-	-	-	-	-	-	-	-	-	-	5,452,164
Finance	7,804,820	W-H	-	-	-	-	-	-	-	-	-	-	7,804,820
Human Resources	1,744,656	W-H	-	-	-	-	-	-	-	-	-	-	1,744,656
Legal	3,019,489	W-H	-	-	-	-	-	-	-	-	-	-	3,019,489
Safety & Security	1,676,729	W-H	-	-	-	-	-	-	-	-	-	-	1,676,729
Public Affairs	1,362,774	W-H	-	-	-	-	-	-	-	-	-	-	1,362,774
Operations Division													
Environmental Compliance	1,623,521	W-H	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	1,623,521
Ops Capital Assets	-	W-H	-	-	-	-	-	-	-	-	-	-	-
Warehouse	402,980	W-H	-	-	-	-	-	-	-	-	-	-	402,980
Water Treatment Plant	27,206,247	W-B	-	27,206,247	-	-	-	-	-	-	-	-	-
Water Quality (Lab)	2,676,383	W-B	-	2,676,383	-	-	-	-	-	-	-	-	-
Water Distribution	17,698,299	W-K	-	-	-	6,103,833	10,412,419	1,182,047	-	-	-	-	-
Sewer Operations	-	n/a	-	-	-	-	-	-	-	-	-	-	-
Engineering & Construction Division													
Engineering & Construction	15,757,737	W-J	-	1,520,915	6,512,730	2,447,312	4,174,825	473,938	-	-	-	-	628,017
<i>Subtotal: Direct Operating Expenses</i>	<i>\$ 91,659,407</i>		<i>\$ -</i>	<i>\$ 31,403,544</i>	<i>\$ 6,512,730</i>	<i>\$ 8,551,145</i>	<i>\$ 14,587,244</i>	<i>\$ 2,628,577</i>	<i>\$ 1,871,095</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ 26,105,071</i>
<i>Other Operating Expenses</i>													
Loss / (Gain) on ALCOSAN Billings	-	n/a	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
Covid-Related Expenses	188,524		-	-	-	-	-	-	-	-	-	-	188,524
<i>Subtotal: Other Operating Expenses</i>	<i>\$ 188,524</i>		<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ 188,524</i>
Allocated Water Operating Costs	\$ 91,847,931		\$ -	\$ 31,403,544	\$ 6,512,730	\$ 8,551,145	\$ 14,587,244	\$ 2,628,577	\$ 1,871,095	\$ -	\$ -	\$ -	\$ 26,293,595

Allocated Water Assets			Water Functional Categories									
Row Labels	Allocated Costs	Allocation	Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support	Total
Struc. and Improvements - Source of Supply and Pumping	1,923,948	W-A	100.00%									100.00%
Structures and Improvements - WTP	19,375,200	W-B		100.00%								100.00%
Structures and Improvements - Transmission and Distribution	-	W-D				36.96%	63.04%					100.00%
Pumping Equipment	12,831,813	W-D				36.96%	63.04%					100.00%
Water Treatment Equipment	83,226,122	W-B		100.00%								100.00%
Distribution Reservoirs and Standpipes	53,802,852	W-C			100.00%							100.00%
Transmission and Distribution Mains	373,645,124	W-K				34.49%	58.83%	6.68%				100.00%
Meters and Meter Installations	28,397,821	W-E						100.00%				100.00%
Fire Hydrants	14,090,379	W-G								100.00%		100.00%
Office Furniture and Equipment	75,643	W-H									100.00%	100.00%
Office Furniture and Equipment - Computer Hardware	3,058,783	W-H									100.00%	100.00%
Transportation Equipment	7,286,014	W-H									100.00%	100.00%
Tools, Shop and Garage Equipment	222,622	W-H									100.00%	100.00%
Laboratory Equipment	142,164	W-B		100.00%								100.00%
Collection Sewers - Gravity	-	n/a										0.00%
Manholes	-	n/a										0.00%
Wastewater Plant	-	n/a										0.00%
Power Operated Equipment	-	n/a										0.00%
Total	598,078,484		\$ 1,923,948	\$ 102,743,485	\$ 53,802,852	\$ 133,605,850	\$ 227,915,802	\$ 53,353,106	\$ -	\$ 14,090,379	\$ 10,643,061	\$ 598,078,484

Allocation Factors for Capital Costs	0.32%	17.18%	9.00%	22.34%	38.11%	8.92%	0.00%	2.36%	1.78%	100.00%
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		Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support	Readiness-to-Serve
Allocation of Capital Costs											
Debt Service	\$ 62,998,088	\$ 202,657	\$ 10,822,398	\$ 5,667,278	\$ 14,073,258	\$ 24,007,317	\$ 5,619,904	\$ -	\$ 1,484,198	\$ 1,121,078	\$ -
Internally Generated Funds / PAYGO	-	-	-	-	-	-	-	-	-	-	-
Other Transfers to Reserves	640,000	2,059	109,945	57,574	142,971	243,891	57,093	-	15,078	11,389	-
Bad Debt Expense (1)	-	-	-	-	-	-	-	-	-	-	-
Arrearage	97,988	315	16,833	8,815	21,890	37,341	8,741	-	2,309	1,744	-
Total: Allocated Capital Costs	\$ 63,736,076	\$ 205,031	\$ 10,949,176	\$ 5,733,667	\$ 14,238,119	\$ 24,288,550	\$ 5,685,738	\$ -	\$ 1,501,585	\$ 1,134,211	\$ -

(1) Bad Debt Expense allocated directly to customer classes based on each classes responsibility for historical bad debt and included in the 'adjustments' in Rate Design.

Water Cost Drivers					
<i>Base</i>	<i>Max Day</i>	<i>Peak Hour</i>	<i>Meters / Services</i>	<i>Bills</i>	<i>Fire Protection</i>

FY 2024 **Allocation**
FPFTY

Water Revenue Requirement

Functional Categories

Supply	\$ 205,031	W-AA
Treatment	42,352,721	W-BB
Storage	12,246,397	W-CC
Transmission	22,789,264	W-BB
Distribution	38,875,794	W-CC
Meters/Services	8,314,315	W-DD
Billing	1,871,095	W-EE
Fire Protection	1,501,585	W-FF
Admin Support	27,427,805	W-GG
Readiness-to-Serve (Debt Service)	-	W-HH
Total: Water Revenue Requirements	\$ 155,584,007	

100.00%					
57.74%	40.66%				1.60%
54.05%	25.41%	12.09%			8.45%
57.74%	40.66%				1.60%
54.05%	25.41%	12.09%			8.45%
			100.00%		
				100.00%	
					100.00%
51.07%	30.80%	4.82%	6.49%	1.46%	5.36%

Water Cost Drivers					
<i>Base</i>	<i>Max Day</i>	<i>Peak Hour</i>	<i>Meters / Services</i>	<i>Bills</i>	<i>Fire Protection</i>

FY 2024 **Allocation**
FPFTY

Water Revenue Requirement

Functional Categories

Supply	\$ 205,031	W-AA
Treatment	42,352,721	W-BB
Storage	12,246,397	W-CC
Transmission	22,789,264	W-BB
Distribution	38,875,794	W-CC
Meters/Services	8,314,315	W-DD
Billing	1,871,095	W-EE
Fire Protection	1,501,585	W-FF
Admin Support	27,427,805	W-GG
Readiness-to-Serve (Debt Service)	-	W-HH
Total: Water Revenue Requirements	\$ 155,584,007	

\$ 205,031	\$ -	\$ -	\$ -	\$ -	\$ -
24,455,142	17,218,840	-	-	-	678,739
6,618,811	3,111,795	1,480,604	-	-	1,035,186
13,158,888	9,265,159	-	-	-	365,218
21,011,205	9,878,292	4,700,131	-	-	3,286,166
-	-	-	8,314,315	-	-
-	-	-	-	1,871,095	-
-	-	-	-	-	1,501,585
14,007,317	8,448,187	1,322,792	1,779,418	400,449	1,469,643
-	-	-	-	-	-
\$ 79,456,394	\$ 47,922,272	\$ 7,503,527	\$ 10,093,733	\$ 2,271,544	\$ 8,336,536

Costs to Recover from Water Charges

\$155,584,007

\$ 79,456,394	\$ 47,922,272	\$ 7,503,527	\$ 10,093,733	\$ 2,271,544	\$ 8,336,536
51.1%	30.8%	4.8%	6.5%	1.5%	5.4%

Cost Functionalization: Water										
Code	Description	Supply	Treatment	Storage	Transmission	Distribution	Meters/Services	Billing	Fire Protection	Admin Support
W-A	Supply Only	100.00%								
W-B	Treatment Only		100.00%							
W-C	Storage Only			100.00%						
W-D	Transmission & Distribution Only				36.96%	63.04%				
W-E	Meters Only						100.00%			
W-F	Billing Only							100.00%		
W-G	Fire Protection Only								100.00%	
W-H	Admin Support Only									100.00%
W-I	Customer Service						34.20%	65.80%		
W-J	Engineering & Construction		9.65%	41.33%	45.03%					3.99%
W-K	Transmission, Distribution and Services				34.49%	58.83%	6.68%			

Allocation to Cost Drivers: Water								
Code	Description	Base	Max Day	Peak Hour	Meters/Services	Bills	Readiness-to-Serve	Fire Protection
W-AA	Base	100.00%						
W-BB	Maximum Day	57.74%	40.66%					1.60%
W-CC	Peak Hour	54.05%	25.41%	12.09%				8.45%
W-DD	Customer - Meters				100.00%			
W-EE	Customer - Billing					100.00%		
W-FF	Fire Protection							100.00%
W-GG	Admin Support (Composite)	51.07%	30.80%	4.82%	6.49%	1.46%	0.00%	5.36%
W-HH	Readiness-to-Serve						100.00%	

Factor Derivations - Allocation to Functional Categories & Cost Components						
<i>Code(s)</i>	<i>Description</i>	<i>Calculations</i>				
W-I	Customer Service	2024 Customer Service Budget	FPFTY	Meter	Billing	
WW-E	- This factor allocates the 2024 customer service budget between meter- and billing-related costs.	Salaries	\$ 5,157,435	28.60%	71.40%	
		Benefits	1,815,642	28.60%	71.40%	
		Computer & Peripherals	-	100.00%	0.00%	
		Annual Software Support	251,722	50.00%	50.00%	
		Customer CC Fees	36,200	0.00%	100.00%	
		Postage	471,117	0.00%	100.00%	
		Equip Rental	1,746	100.00%	0.00%	
		Billing Contract	228,960	0.00%	100.00%	
		Consultants	47,700	20.00%	80.00%	
		Meter Services	799,148	100.00%	0.00%	
		Prof Service Other	478,967	20.00%	80.00%	
		Water Liens	-	50.00%	50.00%	
		Computer Software Supplies	84,800	100.00%	0.00%	
		GIS Plotter Xerox	636	100.00%	0.00%	
		Office Supplies	2,544	50.00%	50.00%	
		TE Items	7,685	50.00%	50.00%	
		Capital Asset Reclass	-	0.00%	0.00%	
		Customer Refund CSM	(530,000)	0.00%	100.00%	
		Customer Refund AP	530,000	0.00%	100.00%	
		Education & Outreach	5,300	0.00%	100.00%	
		One Call	25,440	0.00%	100.00%	
		Publication Subscription	3,816	0.00%	100.00%	
		Non.City Water Reimburse	158,788	100.00%	0.00%	
		Total	\$ 9,577,647	\$ 3,275,727	\$ 6,301,919	
		<i>Allocation Factors</i>		<i>34.20%</i>	<i>65.80%</i>	

W-D Water Pipe Inventory		Breakdown	
- Allocate costs between transmission and distribution functional categories. Assumes Pipes less than or equal to 16" are Distribution-related.		Distribution	35,490,728 63.0%
		Transmission	20,804,915 37.0%
		Total	56,295,642 100.0%

W-K Water Pipe Inventory with Service Lines		Breakdown	
Allocate Water Distribution costs between Transmission, Distribution, and Service Lines <i>*No size records: assumption is all are 1"</i>		Distribution	35,490,728 58.83%
		Transmission	20,804,915 34.49%
		Service Lines	4,029,007 6.68%
		Total	60,324,649 100.00%

Inch-Foot Analysis		
<i>Diameter (in)</i>	<i>Linear Feet</i>	<i>Inch-Feet</i>
0.75	799	599
1	1,314	1,314
1.5	983	1,474
2	11,004	22,009
2.5	16	39
3	268	803
4	116,991	467,963
6	2,144,789	12,868,735
8	1,181,921	9,455,372
10	81,965	819,651
12	619,567	7,434,805
14	1,296	18,147
15	15,500	232,496
16	260,458	4,167,320
18	468	8,425
20	209,715	4,194,304
24	85,229	2,045,495
28	104	2,911
30	116,456	3,493,670
36	83,180	2,994,494
42	11,013	462,562
42.5	13,261	563,591
48	16,706	801,908
50	23,263	1,163,137
50.25	12,001	603,043
60	54,606	3,276,383
66	1,492	98,501
72	3,626	261,064

Factor Derivations - Allocation to Functional Categories & Cost Components

Code(s)	Description	Calculations		
W-J	Engineering & Construction	<u>2024 Water CIP Costs</u>	<u>\$\$ Amount</u>	<u>Allocation</u>
		Treatment	\$ 26,885,665	9.65%
	- This factor uses the 2024 Water CIP costs to allocate Engineering & Construction costs to the various functional categories.	Storage	115,127,475	41.33%
		Trans. & Distr.	125,439,446	45.03%
		Admin	11,101,650	3.99%
		Total Water CIP	\$ 278,554,236	100.00%

W-BB	Maximum Day	Plant Production Data		
	- Maximum day costs are allocated using a peak day determined using system daily production records. Fire demands are determined in HJS-7W.	2020-2022 Avg Plant Production	63.88	mgd
		2020-2022 Avg. Peak Day	89.85	mgd
		Peak Hour Factor (1.6)	102.21	mgd
		Base	57.74%	0.710955365
		Maximum Day	40.66%	
		Fire Protection	1.60%	

W-CC	Peak Hour	Plant Production Data		
	- Peak hour costs are allocated using an estimated peak hour compared to system average and maximum day processed. Fire demands are determined in HJS-7W.	2020-2022 Avg Plant Production	63.88	mgd
		2020-2022 Avg. Peak Day	89.85	mgd
		Peak Hour Factor (1.6)	102.21	mgd
		Peak Hour / Avg	54.05%	
		Max Day (Plug)	25.41%	
		Peak Hr / Peak Day	12.09%	
		Fire Protection	8.45%	

Equivalency Flow Ratios	Equivalency Ratios				
	Flow		Fire Flow	Fire Equip	
- Used to escalate metering and readiness-to-serve costs, these ratios are industry standard and obtained from the American Waterworks Association	5/8"	1.00	1" or Less	2.50	1.00
	3/4"	1.50	1 1/2"-3"	8.00	6.19
	1"	2.50	4"	25.00	38.32
	1 1/2"	5.00	6" or Greater	50.00	111.31
	2"	8.00			
	3"	16.00			
	4"	25.00			
	6"	50.00			
	8"	80.00			
	10"	115.00			
	Unmetered	1.00			

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Water Units of Service

PWSA Exh. HJS-6W-R

	Collection Factor	FY 2024 Consumption	Allocated Consumption	Average Day	Maximum Day			Peak Hour			Equivalent Meters	Total Bills	Fire Equivalents
					Cap. Factor	Total Cap.	Extra Cap.	Cap. Factor	Total Cap.	Extra Cap.			
Units of Service													
<u>Retail Service</u>													
Residential (1)	100.0%	2,602,278	2,602,278	7,130	140.0%	9,981	2,852	230.0%	16,398	6,417	795,961	741,720	-
Residential - CAP	100.0%	187,825	187,825	515	140.0%	720	206	230.0%	1,184	463	66,975	66,169	-
Commercial (1)	100.0%	2,660,077	2,660,077	7,288	160.0%	11,661	4,373	265.0%	19,313	7,652	367,421	83,843	-
Industrial	100.0%	169,069	169,069	463	200.0%	926	463	265.0%	1,227	301	6,028	371	-
Health or Education	100.0%	1,010,575	1,010,575	2,769	185.0%	5,122	2,353	305.0%	8,445	3,322	76,397	5,266	-
Municipal - Residential	100.0%	1,841	1,841	5.04	140.0%	7	2	230.0%	12	5	309	243	-
Municipal - Commercial	100.0%	237,070	237,070	649.51	160.0%	1,039	390	265.0%	1,721	682	16,261	2,549	-
Private Fire Systems	100.0%	8,988	8,988	25	255.0%	63	38	425.0%	105	42	54,625	16,671	42,055
Public Fire	100.0%	-	-	-	100.0%	-	-	100.0%	-	-	-	-	10,086,105
<i>Subtotal: Retail Service</i>		<u>6,877,722</u>	<u>6,877,722</u>	<u>18,843</u>		<u>29,520</u>	<u>10,677</u>		<u>48,404</u>	<u>18,884</u>	<u>1,383,975</u>	<u>916,832</u>	<u>10,128,161</u>
<u>Wholesale & Bulk</u>													
Wholesale	100.0%	857,599	857,599	2,350	180.0%	4,229	1,880	300.0%	7,049	2,820	1,170	84	-
Bulk	100.0%	-	-	-	0.0%	-	-	0.0%	-	-	-	-	-
<i>Subtotal: Wholesale & Bulk</i>		<u>857,599</u>	<u>857,599</u>	<u>2,350</u>		<u>4,229</u>	<u>1,880</u>		<u>7,049</u>	<u>2,820</u>	<u>1,170</u>	<u>84</u>	<u>-</u>
Total: Water Units of Service		<u>7,735,321</u>	<u>7,735,321</u>	<u>21,193</u>		<u>33,749</u>	<u>12,557</u>		<u>55,453</u>	<u>21,703</u>	<u>1,385,145</u>	<u>916,916</u>	<u>10,128,161</u>

(1) Includes unmetered units and equivalent usage.

Class	Maximum Day			Peak Hour		
	MM/AD	System MD/MM	Weekly Use Adjustment	MD Peaking Factor (2)	Estimated MH/MD	MH Peaking Factor (2)
Residential	1.08	1.28	1.00	1.40	1.66	2.30
Commercial	1.24	1.28	1.00	1.60	1.66	2.65
Industrial	1.55	1.28	1.00	2.00	1.33	2.65
Health or Education	1.44	1.28	1.00	1.85	1.66	3.05
Fire System	2.00	1.28	1.00	2.55	1.66	4.25
Wholesale	1.40	1.28	1.00	1.80	1.66	3.00

Peaking Factors (1)

Residential	1.08	1.28	1.00	1.40	1.66	2.30
Commercial	1.24	1.28	1.00	1.60	1.66	2.65
Industrial	1.55	1.28	1.00	2.00	1.33	2.65
Health or Education	1.44	1.28	1.00	1.85	1.66	3.05
Fire System	2.00	1.28	1.00	2.55	1.66	4.25
Wholesale	1.40	1.28	1.00	1.80	1.66	3.00

(1) Peaking factors determined using customer billing information from 2020-2022.

(2) Maximum Day and Maximum Hour peaking factors are rounded.

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-7W-R

FPFTY 2024 COS & Rate Design Model

Fire Protection Cost Allocation and Units of Service

Determination of Allocation Factors for Public & Private Fire Costs

Required Fire Flow	6,000	GPM
Required Duration for Fire Flow (Hours)	4	hours
Maximum Day - Fire	1,440,000	gallons
Maximum Day - System	89,854,774	gallons
% of Maximum Day for Fire	1.60%	
Peak Hour - Fire	360,000	gallons
Peak Hour - System	4,258,849	gallons
% of Maximum Day for Fire	8.45%	

Fire Service Units	Connections	Equivalent Factor	Equivalent Units	Percent
<u>Allocation to Public/Private</u>				
Public Hydrants	7,551	111.31	840,509	99.58%
Private Fire				
1" or Less	1,326	1.00	1,326	
1 1/2"-3"	44	6.19	273	
4"	4	38.32	144	
6" or Greater	16	111.31	1,762	
<i>Subtotal: Private Fire</i>	1,389		3,505	0.42%
Total	8,940		844,013	

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 Water Unit Cost of Service

PWSA Exh. HJS-8W-R

Development of Unit Costs of Service	FY 2024 FPFTY	Unit Costs					
		Base	Extra Capacity		Meters / Services	Bills	Fire Protection
			Max Day	Peak Hour			
<u>Units of Service</u>							
Retail		6,877,722	10,677	18,884	1,383,975	916,832	10,128,161
Wholesale		857,599	1,880	2,820	1,170	84	-
Total System Units		7,735,321	12,557	21,703	1,385,145	916,916	10,128,161
Units		<i>kgal</i>	<i>kgal/day</i>	<i>kgal/day</i>	<i>Eq. Cost Meter</i>	<i>Total Bills</i>	<i>Eq. Fire Cnx</i>
<u>Allocated Revenue Requirement</u>							
Supply	\$ 205,031	\$ 205,031	\$ -	\$ -	\$ -	\$ -	\$ -
Treatment	42,352,721	24,455,142	17,218,840	-	-	-	678,739
Storage	12,246,397	6,618,811	3,111,795	1,480,604	-	-	1,035,186
Transmission	22,789,264	13,158,888	9,265,159	-	-	-	365,218
Distribution	38,875,794	21,011,205	9,878,292	4,700,131	-	-	3,286,166
Meters/Services	8,314,315	-	-	-	8,314,315	-	-
Billing	1,871,095	-	-	-	-	1,871,095	-
Fire Protection	1,501,585	-	-	-	-	-	1,501,585
Admin Support	27,427,805	14,007,317	8,448,187	1,322,792	1,779,418	400,449	1,469,643
Readiness-to-Serve (Debt Service)	-	-	-	-	-	-	-
<i>Total: Revenue Requirements</i>	\$ 155,584,007	\$ 79,456,394	\$ 47,922,272	\$ 7,503,527	\$ 10,093,733	\$ 2,271,544	\$ 8,336,536
Revenue Offsets	(2,171,887)	(1,109,178)	(668,975)	(104,746)	(140,904)	(31,710)	(116,375)
Total: Costs of Service	\$153,412,120	\$ 78,347,216	\$ 47,253,298	\$ 7,398,781	\$ 9,952,829	\$ 2,239,835	\$ 8,220,162
Gross Unit Cost		\$ 10.13	\$ 3,763.24	\$ 340.90	\$ 7.19	\$ 2.44	\$ 0.81
<i>Unit Cost - Retail (\$ / Unit) (Includes Distribution)</i>		\$ 10.47	\$ 3,901.74	\$ 373.24	\$ 7.19	\$ 2.44	\$ 0.81
<i>Unit Cost - Wholesale (\$ / Unit) (Excludes Distribution)</i>		\$ 7.41	\$ 2,976.54	\$ 124.34	\$ 7.19	\$ 2.44	\$ 0.81

Customer Class Cost of Service

Residential

	Unit Costs						Total
	Base	Extra Capacity		Meters / Services	Bills	Fire Protection	
		Max Day	Peak Hour				
Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	2,602,278	2,852	6,417	795,961	741,720	-	
Cost of Service	\$ 27,238,560	\$ 11,127,040	\$ 2,394,914	\$ 5,719,299	\$ 1,811,867	\$ -	\$ 48,291,681

Residential - CAP

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	187,825	206	463	66,975	66,169	-	
Cost of Service	\$ 1,965,998	\$ 803,117	\$ 172,858	\$ 481,243	\$ 161,637	\$ -	\$ 3,584,853

Commercial

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	2,660,077	4,373	7,652	367,421	83,843	-	
Cost of Service	\$ 27,843,553	\$ 17,061,272	\$ 2,856,126	\$ 2,640,069	\$ 204,811	\$ -	\$ 50,605,831

Industrial

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	169,069	463	301	6,028	371	-	
Cost of Service	\$ 1,769,681	\$ 1,807,301	\$ 112,376	\$ 43,310	\$ 906	\$ -	\$ 3,733,573

Health or Education

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	1,010,575	2,353	3,322	76,397	5,266	-	
Cost of Service	\$ 10,577,890	\$ 9,182,342	\$ 1,240,063	\$ 548,940	\$ 12,864	\$ -	\$ 21,562,099

Municipal - Residential

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	1,841	2	5	309	243	-	
Cost of Service	\$ 19,270	\$ 7,872	\$ 1,694	\$ 2,220	\$ 594	\$ -	\$ 31,650

Municipal - Commercial

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	237,070	390	682	16,261	2,549	-	
Cost of Service	\$ 2,481,464	\$ 1,520,529	\$ 254,543	\$ 116,842	\$ 6,227	\$ -	\$ 4,379,604

Private Fire System

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	8,988	38	42	54,625	16,671	42,055	
Cost of Service	\$ 94,075	\$ 148,917	\$ 15,624	\$ 392,499	\$ 40,724	\$ 34,133	\$ 725,971

Public Fire Protection

Unit Costs (\$/unit)	\$ 10.467	\$ 3,901.745	\$ 373.239	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service						10,086,105	
Cost of Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,186,029	\$ 8,186,029

Wholesale

Unit Costs (\$/unit)	\$ 7.412	\$ 2,976.539	\$ 124.342	\$ 7.185	\$ 2.443	\$ 0.812	
Units of Service	857,599	1,880	2,820	1,170	1		
Cost of Service	\$ 6,356,724	\$ 5,594,909	\$ 350,584	\$ 8,407	\$ 2	\$ -	\$ 12,310,626

Total: Costs of Service

\$ 78,347,216	\$ 47,253,298	\$ 7,398,781	\$ 9,952,829	\$ 2,239,632	\$ 8,220,162	\$ 153,411,917
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Pittsburgh Water and Sewer Authority

FPPTY 2024 COS & Rate Design Model

Adjustments to Allocated Cost of Service

COS Adjustments		Allocation Method	Residential	Residential - CAP	Commercial	Industrial	Health or Education	Municipal - Residential	Municipal - Commercial	Private Fire System	Public Fire Protection	Wholesale	Total
<u>Adjustments to Cost of Service</u>													
Public Fire (Title 66 § 1328)	Equivalent Meters		57.5%	4.8%	26.5%	0.4%	5.5%	0.0%	1.2%	3.9%			100.0%
Wholesale Contracts	Unadj. COS		36.5%	2.7%	38.3%	2.8%	16.3%	0.0%	3.3%				100.0%
Add: Bad Debt Expense	Class Contribution		84.1%		12.5%	0.2%	1.8%		0.1%	1.2%	0.0%		100.0%
BDP Forgone Revenue	Unadj. COS		37.6%		39.3%	2.9%	16.8%	0.0%	3.4%				100.0%
Gradualism: Industrial Class	Unadj. COS		37.6%	2.8%	39.4%		16.8%	0.0%	3.4%				100.0%
Cost of Service by Class													
Allocated Cost of Service (Unadjusted)		\$	48,291,681	\$ 3,584,853	\$ 50,605,831	\$ 3,733,573	\$ 21,562,099	\$ 31,650	\$ 4,379,604	\$ 725,971	\$ 8,186,029	\$ 12,310,626	\$ 153,411,917
% of COS			31.5%	2.3%	33.0%	2.4%	14.1%	0.0%	2.9%	0.5%	5.3%	8.0%	100.0%
<u>Adjustments to Cost of Service</u>		<u>Adjustment</u>											
Public Fire (Title 66 § 1328)		6,139,522	3,531,001	297,111	1,629,935	26,739	338,906	1,371	72,136	242,323	(6,139,522)	-	(0)
Wholesale Contracts		7,969,407	2,911,401	216,123	3,050,916	225,089	1,299,932	1,908	264,037	-	-	(7,969,407)	-
Add: Bad Debt Expense		3,362,773	2,828,816	-	421,577	6,171	61,620	-	2,748	41,841	-	-	3,362,773
BDP Forgone Revenue		2,453,516	921,309	(2,453,516)	965,458	71,229	411,362	604	83,554	-	-	-	(0)
Gradualism - Industrial (1)		935,000	351,504	26,093	368,348	(935,000)	156,946	230	31,878	-	-	-	0
Total: Adjusted Cost of Service		\$	58,835,712	\$ 1,670,664	\$ 57,042,066	\$ 3,127,802	\$ 23,830,865	\$ 35,763	\$ 4,833,957	\$ 1,010,134	\$ 2,046,507	\$ 4,341,220	\$ 156,774,690
% of COS			37.5%	1.1%	36.4%	2.0%	15.2%	0.0%	3.1%	0.6%	1.3%	2.8%	100.0%

(1) Gradualism adjusted such that class increase does not exceed 1.5x overall water system increase

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-11W-R

FPFTY 2024 COS & Rate Design Model

Forgone Revenue Cost of the Bill Discount Program

Units

5/8"	0.0%
3/4"	0.0%
1"	0.0%
Unmetered	0.0%

Bills	CAP Usage	CAP - 50FPL Usage
65,253	107,437	25,925
550	620	82
354	215	264
12	n/a	n/a
<u>66,169</u>	<u>108,272</u>	<u>26,271</u>

Forgone Revenue Cost

Fixed Charges
Volume Charges
Total Forgone Revenue Cost

Revenue At Full Rates	Revenue at CAP Rates	Difference
\$ 2,230,347	\$ -	\$ 2,230,347
<u>446,339</u>	<u>223,169</u>	<u>223,169</u>
2,676,686	223,169	2,453,516

Volume Discount 50.0%

		COS Rate Build-Up - Test Year: 2024									
Water	Min. Usage <i>Proposed</i>	<i>Meters/Services</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS Rates</i>	<i>Adjustments</i>					
						<i>Public Fire</i>	<i>R. T.S.</i>	<i>CAP-BDP</i>	<i>Proposed Rates</i>		
Minimum Charge											
5/8"	1	\$ 7.19	\$ 2.44	\$ 14.47	\$ 24.10	\$ 4.43	\$ 4.55	\$ -		33.08	
3/4"	2	10.78	2.44	28.94	42.16	6.65	6.83	-		55.63	
1"	5	17.96	2.44	72.34	92.75	11.08	11.38	-		115.21	
1 1/2"	10	35.93	2.44	144.68	183.05	22.16	22.76	-		227.98	
2"	17	57.48	2.44	245.96	305.89	35.46	36.42	-		377.76	
3"	40	114.97	2.44	578.73	696.14	70.92	72.83	-		839.89	
4"	70	179.64	2.44	1,012.79	1,194.86	110.81	113.80	-		1,419.47	
6"	175	359.27	2.44	2,531.97	2,893.68	221.62	227.60	-		3,342.90	
8"	325	574.83	2.44	4,702.22	5,279.50	354.59	364.16	-		5,998.25	
10" & Above	548	826.32	2.44	7,928.67	8,757.43	509.73	523.48	-		9,790.64	
Unmetered	1	7.19	2.44	14.47	24.10	4.43	4.55	-		33.08	
Residential - CAP											
5/8"	1	\$ 7.19	\$ 2.44	\$ 14.47	\$ 24.10	\$ 4.43	\$ 4.55	\$ (33.08)	\$ -	-	
3/4"	2	10.78	2.44	28.94	42.16	6.65	6.83	(55.63)	-	-	
1"	5	17.96	2.44	72.34	92.75	11.08	11.38	(115.21)	-	-	
Unmetered	1	7.19	2.44	14.47	24.10	4.43	4.55	(33.08)	-	-	
						Adjustments					
Monthly Fire Protection		<i>Meters/Services</i>	<i>Billing</i>	<i>Fire</i>	<i>Total</i>	<i>Public Fire</i>	<i>R. T.S.</i>	<i>CAP-BDP</i>	<i>Proposed Rates</i>		
<i>Public</i>											
Per Hydrant		\$ -	\$ -	\$ 90.34	\$ 90.34	\$ (67.76)	\$ -	\$ -	\$ -	22.59	
<i>Private</i>											
1" or Less		\$ 17.96	\$ 2.44	\$ 0.81	\$ 21.22		\$ 11.38	\$ -	\$ -	32.60	
1 1/2"-3"		57.48	2.44	5.02	64.95		36.42	-	-	101.37	
4"		179.64	2.44	31.10	213.18		113.80	-	-	326.98	
6" or Greater		359.27	2.44	90.34	452.05		227.60	-	-	679.65	

Unadjusted COS-Based Rates					
Unadjusted Revenue Requirement	Fixed Charge Revenue	Total Volumetric Rev Req	Billed Volume	Proposed Rates	
Residential	\$ 48,291,681	\$ 20,195,696	\$ 28,095,984	1,830,332	\$ 15.35
Residential - CAP	3,584,853	1,354,971	2,229,881	134,578	16.57
Commercial	50,605,831	15,155,224	35,450,607	2,046,690	17.32
Industrial	3,733,573	324,078	3,409,495	157,395	21.66
Health or Education	21,562,099	3,678,147	17,883,952	855,292	20.91
Municipal - Residential	31,650	8,587	23,063	1,702	13.55
Municipal - Commercial	4,379,604	724,765	3,654,839	218,440	16.73
Private Fire System	725,971	467,355	258,616	8,988	28.77
Public Fire	8,186,029	8,186,029	-	-	n/a
Wholesale	12,310,626	-	12,310,626	857,599	14.35
Totals	153,411,917	50,094,852	103,317,065	6,111,016	\$ 16.91

Volume Charge (per kgal)

Volume Charge (per kgal)

Determination of Proposed Rates					
Adjusted Revenue Requirement	Fixed Charge Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates	
Residential + CAP + City Res	\$ 60,542,139	\$ 27,357,514	\$ 33,184,626	1,953,478	\$ 16.99
Commercial + City Com	61,876,023	19,327,076	42,548,947	2,265,129	18.79
Industrial	3,127,802	378,231	2,749,571	157,395	17.47
Health or Education	23,830,865	4,364,513	19,466,352	855,292	22.76
Municipal - Commercial					
Municipal - Residential					
Private Fire System	1,010,134	716,041	294,094	8,988	32.73
Public Fire	2,046,507	2,046,925	(418)	-	n/a
Wholesale	4,341,220	-	4,341,220	n/a	n/a
Totals	\$ 156,774,690	54,190,299	102,584,392	5,240,282	\$ 19.58

Class Increase	Ratio to Total Increase
21.9%	0.79
29.7%	1.07
41.4%	1.49
35.7%	1.29
50.0%	1.80
53.9%	1.94
18.6%	0.67
27.8%	1.00

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-13W-R

FPFTY 2024 COS & Rate Design Model

Proposed Rates

	2023		2024			
	FTY Prior Tariff Rates		FPFTY Proposed Rates		Percent Difference	Dollar Difference
Existing & Proposed Rates						
<u>Minimum Charge</u>						
5/8"	\$	26.52	\$	33.08	24.7%	\$ 6.56
3/4"		46.47		55.63	19.7%	9.16
1"		102.08		115.21	12.9%	13.13
1 1/2"		201.85		227.98	12.9%	26.13
2"		337.28		377.76	12.0%	40.48
3"		766.42		839.89	9.6%	73.47
4"		1,313.93		1,419.47	8.0%	105.54
6"		3,174.80		3,342.90	5.3%	168.10
8"		5,784.48		5,998.25	3.7%	213.77
10" & Above		9,582.36		9,790.64	2.2%	208.28
<u>Minimum Charge - CAP (1)</u>						
5/8"	\$	-	\$	-	0.0%	\$ -
3/4"		-		-	0.0%	-
1"		-		-	0.0%	-
<u>Fire System Charges</u>						
Private						
1" or Less	\$	15.43	\$	32.60	111.3%	\$ 17.17
1 1/2"-3"		46.28		101.37	119.0%	55.09
4"		152.25		326.98	114.8%	174.73
6" or Greater		325.06		679.65	109.1%	354.59
Public						
Per Hydrant	\$	5.65	\$	22.59	299.7%	\$ 16.94
<u>Volume Charge</u>						
Residential	\$	14.64	\$	16.99	16.1%	\$ 2.35
Residential - CAP		14.64		16.99	16.1%	2.35
Residential - CAP (<50% FPL)		7.32		8.50	16.1%	1.18
Commercial		13.80		18.79	36.2%	4.99
Industrial		12.13		17.47	44.0%	5.34
Health or Education		16.29		22.76	39.7%	6.47
Municipal - Residential (2)		11.71		16.99	45.1%	5.28
Municipal - Commercial (2)		11.04		18.79	70.2%	7.75
Fire System		39.05		32.73	-16.2%	(6.32)
Wholesale		10.89		14.35	31.8%	14.35
<u>Unmetered Charges (per Unit)</u>						
Residential	\$	70.44	\$	84.05	19.3%	\$ 13.61
Residential - CAP		43.95		50.97	16.0%	7.02
Commercial		82.92		108.24	30.5%	25.32
DSIC (Applies to all retail customers)		5.0%		7.5%	n/a	n/a

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers in all years.

(2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

	FPFTY Revenue at Existing Rates	FPFTY Indicated COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 49,025,385	\$ 48,291,681	-1.5%	\$ (733,704)
Residential - CAP	1,777,927	3,584,853	101.6%	1,806,926
Commercial	44,921,729	50,605,831	12.7%	5,684,101
Industrial	2,264,992	3,733,573	64.8%	1,468,582
Health or Education	17,976,189	21,562,099	19.9%	3,585,910
Municipal (Residential & Commercial)	3,845,954	4,411,254	14.7%	565,300
Private Fire System	689,507	725,971	5.3%	36,464
Public Fire Protection	1,330,184	8,186,029	100.0%	6,855,845
Wholesale	3,661,855	12,310,626	236.2%	8,648,771

Total: Base Rate Revenues **\$ 125,493,721** **\$ 153,411,917** **22.2%** **\$ 27,918,197**

	FPFTY Indicated COS by Customer Class	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 48,291,681	\$ 58,835,712	21.8%	\$ 10,544,031
Residential - CAP	3,584,853	1,670,664	-53.4%	(1,914,189)
Commercial	50,605,831	57,042,066	12.7%	6,436,235
Industrial	3,733,573	3,127,802	-16.2%	(605,772)
Health or Education	21,562,099	23,830,865	10.5%	2,268,766
Municipal (Residential & Commercial)	4,411,254	4,869,720	10.4%	458,466
Private Fire System	725,971	1,010,134	39.1%	284,163
Public Fire Protection	8,186,029	2,046,507	-75.0%	(6,139,522)
Wholesale	12,310,626	4,341,220	-64.7%	(7,969,407)

Total: Base Rate Revenues **\$ 153,411,917** **\$ 156,774,690** **2.2%** **\$ 3,362,773**

	FPFTY Revenue at Existing Rates	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 49,025,385	\$ 58,835,712	20.0%	\$ 9,810,327
Residential - CAP	1,777,927	1,670,664	-6.0%	(107,263)
Commercial	44,921,729	57,042,066	27.0%	12,120,336
Industrial	2,264,992	3,127,802	38.1%	862,810
Health or Education	17,976,189	23,830,865	32.6%	5,854,677
Municipal (Residential & Commercial)	3,845,954	4,869,720	26.6%	1,023,767
Private Fire System	689,507	1,010,134	46.5%	320,628
Public Fire Protection	1,330,184	2,046,507	100.0%	716,323
Wholesale	3,661,855	4,341,220	18.6%	679,365

Total: Base Rate Revenues **\$ 125,493,721** **\$ 156,774,690** **24.9%** **\$ 31,280,970**

	FPFTY Revenue at Existing Rates	FPFTY Revenue at Proposed Rates	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 49,025,385	\$ 58,443,496	19.2%	\$ 9,418,112
Residential - CAP	1,777,927	2,063,449	16.1%	285,522
Commercial	44,921,729	56,913,519	26.7%	11,991,790
Industrial	2,264,992	3,127,928	38.1%	862,936
Health or Education	17,976,189	23,830,951	32.6%	5,854,763
Municipal (Residential & Commercial)	3,845,954	5,015,624	30.4%	1,169,670
Private Fire System	689,507	1,010,206	46.5%	320,699
Public Fire Protection	1,330,184	2,046,925	100.0%	716,741
Wholesale	3,661,855	4,341,220	18.6%	679,365

Total: Base Rate Revenues **\$ 125,493,721** **\$ 156,793,318** **24.9%** **\$ 31,299,598**

	Unadjusted COS (1)		Revenue at Existing Rates		Revenue at Proposed Rates		Proposed Increase	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Base Rate Revenues								
Residential	\$ 48,291,681	31.5%	\$ 49,025,385	39.1%	\$ 58,443,496	37.3%	\$ 9,418,112	19.2%
Residential - CAP	3,584,853	2.3%	1,777,927	1.4%	2,063,449	1.3%	285,522	16.1%
Commercial	50,605,831	33.0%	44,921,729	35.8%	56,913,519	36.3%	11,991,790	26.7%
Industrial	3,733,573	2.4%	2,264,992	1.8%	3,127,928	2.0%	862,936	38.1%
Health or Education	21,562,099	14.1%	17,976,189	14.3%	23,830,951	15.2%	5,854,763	32.6%
Municipal - Residential	31,650	0.0%	34,377	0.0%	40,285	0.0%	5,908	17.2%
Municipal - Commercial	4,379,604	2.9%	3,811,577	3.0%	4,975,339	3.2%	1,163,762	30.5%
Private Fire System	725,971	0.5%	689,507	0.5%	1,010,206	0.6%	320,699	46.5%
Public Fire Protection	8,186,029	5.3%	1,330,184	1.1%	2,046,925	1.3%	716,741	53.9%
Wholesale & Bulk	12,310,626	8.0%	3,661,855	2.9%	4,341,220	2.8%	679,365	18.6%
Subtotal: Base Rate Revenues	\$ 153,411,917	100.0%	\$ 125,493,721	100.0%	\$ 156,793,318	100.0%	\$ 31,299,598	24.9%
DSIC Revenues								
Residential	n/a	n/a	\$ 2,451,269		\$ 4,383,262		\$ 1,931,993	
Residential - CAP	n/a	n/a	88,896		154,759		65,862	
Commercial	n/a	n/a	2,246,086		4,268,514		2,022,427	
Industrial	n/a	n/a	113,250		234,595		121,345	
Health or Education	n/a	n/a	898,809		1,787,321		888,512	
Municipal - Residential	n/a	n/a	1,719		3,021		1,303	
Municipal - Commercial	n/a	n/a	190,579		373,150		182,572	
Private Fire System	n/a	n/a	34,475		75,765		41,290	
Public Fire Protection	n/a	n/a	-		-		-	
Subtotal: DSIC Revenues	n/a	n/a	\$ 6,025,084		\$ 11,280,388		\$ 5,255,304	
Total: User Charge Revenues	\$ 153,411,917		\$ 131,518,805		\$ 168,073,706		\$ 36,554,902	27.8%
Other Revenues								
Miscellaneous Revenues	2,171,887		2,171,887		2,171,887		-	0.0%
Total: Water Revenues	\$ 155,583,804		\$ 133,690,692		\$ 170,245,593		\$ 36,554,902	27.3%

(1) Difference between COS & proposed base rate revenue is attributed to BDE and rounding

	Customer Usage		FTY Existing Rates		FPPTY Proposed Rates	Percent Difference	Dollar Difference
Customer Impacts (1)							
<u>Residential</u>							
	5/8"	1 kgal	\$ 27.85	\$	35.56	27.7%	\$ 7.72
	5/8"	3 kgal	58.59		72.09	23.0%	13.50
	5/8"	5 kgal	89.33		108.62	21.6%	19.28
	5/8"	7 kgal	120.08		145.15	20.9%	25.07
	5/8"	12 kgal	196.94		236.47	20.1%	39.53
	1"	20 kgal	337.76		397.81	17.8%	60.05
<u>Commercial</u>							
	5/8"	3 kgal	\$ 56.83	\$	75.96	33.7%	\$ 19.13
	5/8"	5 kgal	85.81		116.36	35.6%	30.55
	5/8"	12 kgal	187.24		257.75	37.7%	70.52
	1"	13 kgal	223.10		285.44	27.9%	62.34
	2"	80 kgal	1,267.01		1,678.64	32.5%	411.63
	4"	160 kgal	2,683.73		3,343.86	24.6%	660.14
<u>Industrial</u>							
	1"	30 kgal	\$ 425.60	\$	593.36	39.4%	\$ 167.76
	1"	60 kgal	807.69		1,156.76	43.2%	349.07
	2"	100 kgal	1,411.27		1,964.85	39.2%	553.58
	4"	680 kgal	9,148.89		12,981.88	41.9%	3,832.99
	6"	400 kgal	6,199.25		7,819.17	26.1%	1,619.92
	8"	800 kgal	12,123.54		15,368.74	26.8%	3,245.20
<u>Health or Education</u>							
	5/8"	5 kgal	\$ 96.26	\$	133.43	38.6%	\$ 37.17
	5/8"	10 kgal	181.79		255.76	40.7%	73.98
	1"	40 kgal	705.84		980.20	38.9%	274.35
	2"	50 kgal	918.59		1,213.50	32.1%	294.91
	4"	200 kgal	3,603.21		4,706.64	30.6%	1,103.43
	6"	650 kgal	11,458.18		15,215.44	32.8%	3,757.27

(1) Customer bills at existing rates include a 5% DSIC and proposed rates include a 7.5% DSIC.

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenues									
<u>Minimum Charges</u>									
Residential									
5/8"	682,360	\$ 26.52	\$ 18,096,198	682,360	\$ 24.10	\$ 16,442,547	682,360	\$ 33.08	\$ 22,572,482
3/4"	30,308	46.47	1,408,403	30,308	42.16	1,277,706	30,308	55.63	1,686,023
1"	24,535	102.08	2,504,574	24,535	92.75	2,275,614	24,535	115.21	2,826,723
1 1/2"	452	201.85	91,236	452	183.05	82,740	452	227.98	103,047
2"	68	337.28	22,935	68	305.89	20,800	68	377.76	25,688
Unmetered	3,996	70.44	281,478	3,996	24.10	96,290	3,996	84.05	335,864
<i>Subtotal: Residential</i>	741,720		\$ 22,404,824	741,720		\$ 20,195,696	741,720		\$ 27,549,827
Residential - CAP and CAP - 50FPL									
5/8"	65,253	\$ -	\$ -	65,253	\$ 24.10	\$ 1,572,374	65,253	\$ -	\$ -
3/4"	550	-	-	550	42.16	23,187	550	-	-
1"	354	-	-	354	92.75	32,833	354	-	-
Unmetered	12	43.95	527	12	24.10	289	12	50.97	612
<i>Subtotal: Residential - CAP and CAP - 50FPL</i>	66,169		\$ 527	66,169		\$ 1,628,682	66,169		\$ 612
Commercial									
5/8"	32,509	\$ 26.52	\$ 862,139	32,509	\$ 24.10	\$ 783,355	32,509	\$ 33.08	\$ 1,075,398
3/4"	8,347	46.47	387,885	8,347	42.16	351,890	8,347	55.63	464,344
1"	17,201	102.08	1,755,878	17,201	92.75	1,595,361	17,201	115.21	1,981,727
1 1/2"	10,062	201.85	2,031,015	10,062	183.05	1,841,885	10,062	227.98	2,293,935
2"	9,730	337.28	3,281,734	9,730	305.89	2,976,294	9,730	377.76	3,675,605
3"	2,822	766.42	2,162,837	2,822	696.14	1,964,519	2,822	839.89	2,370,170
4"	2,167	1,313.93	2,847,286	2,167	1,194.86	2,589,271	2,167	1,419.47	3,075,991
6"	918	3,174.80	2,914,466	918	2,893.68	2,656,397	918	3,342.90	3,068,782
8"	75	5,784.48	433,836	75	5,279.50	395,962	75	5,998.25	449,869
10" & Above	-	9,582.36	-	-	8,757.43	-	-	9,790.64	-
Unmetered	12	82.92	995	12	24.10	289	12	108.24	1,299
<i>Subtotal: Commercial</i>	83,843		\$ 16,678,072	83,843		\$ 15,155,224	83,843		\$ 18,457,119
Industrial									
5/8"	84	\$ 26.52	\$ 2,228	84	\$ 24.10	\$ 2,024	84	\$ 33.08	\$ 2,779
3/4"	12	46.47	558	12	42.16	506	12	55.63	668
1"	69	102.08	7,044	69	92.75	6,400	69	115.21	7,949
1 1/2"	-	201.85	-	-	183.05	-	-	227.98	-
2"	60	337.28	20,237	60	305.89	18,353	60	377.76	22,666
3"	33	766.42	25,292	33	696.14	22,973	33	839.89	27,716
4"	65	1,313.93	85,405	65	1,194.86	77,666	65	1,419.47	92,266
6"	24	3,174.80	76,195	24	2,893.68	69,448	24	3,342.90	80,230
8"	24	5,784.48	138,828	24	5,279.50	126,708	24	5,998.25	143,958
10" & Above	-	9,582.36	-	-	8,757.43	-	-	9,790.64	-
<i>Subtotal: Industrial</i>	371		\$ 355,786	371		\$ 324,078	371		\$ 378,231
Health or Education									
5/8"	359	\$ 26.52	\$ 9,521	359	\$ 24.10	\$ 8,651	359	\$ 33.08	\$ 11,876
3/4"	96	46.47	4,461	96	42.16	4,047	96	55.63	5,340
1"	239	102.08	24,397	239	92.75	22,167	239	115.21	27,535
1 1/2"	755	201.85	152,397	755	183.05	138,205	755	227.98	172,125
2"	1,561	337.28	526,494	1,561	305.89	477,492	1,561	377.76	589,683
3"	1,048	766.42	803,208	1,048	696.14	729,559	1,048	839.89	880,205
4"	800	1,313.93	1,051,144	800	1,194.86	955,891	800	1,419.47	1,135,576
6"	368	3,174.80	1,168,326	368	2,893.68	1,064,874	368	3,342.90	1,230,187
8"	21	5,784.48	121,474	21	5,279.50	110,869	21	5,998.25	125,963
10" & Above	19	9,582.36	182,065	19	8,757.43	166,391	19	9,790.64	186,022
<i>Subtotal: Health or Education</i>	5,266		\$ 4,043,487	5,266		\$ 3,678,147	5,266		\$ 4,364,513
Municipal - Residential									
5/8"	219	\$ 26.52	\$ 5,808	219	\$ 24.10	\$ 5,277	219	\$ 33.08	\$ 7,245
3/4"	-	46.47	-	-	42.16	-	-	55.63	-
1"	12	102.08	1,225	12	92.75	1,113	12	115.21	1,383
1 1/2"	12	201.85	2,422	12	183.05	2,197	12	227.98	2,736
<i>Subtotal: Municipal - Residential</i>	243		\$ 9,455	243		\$ 8,587	243		\$ 11,363
Municipal - Commercial									
5/8"	697	\$ 26.52	\$ 18,484	697	\$ 24.10	\$ 16,795	697	\$ 33.08	\$ 23,057
3/4"	77	46.47	3,578	77	42.16	3,246	77	55.63	4,284
1"	517	102.08	52,775	517	92.75	47,951	517	115.21	59,564
1 1/2"	409	201.85	82,557	409	183.05	74,869	409	227.98	93,244
2"	593	337.28	200,007	593	305.89	181,392	593	377.76	224,012
3"	167	766.42	127,992	167	696.14	116,256	167	839.89	140,262
4"	25	1,313.93	32,848	25	1,194.86	29,872	25	1,419.47	35,487
6"	35	3,174.80	111,118	35	2,893.68	101,279	35	3,342.90	117,002
8"	29	5,784.48	167,750	29	5,279.50	153,105	29	5,998.25	173,949
10" & Above	-	9,582.36	-	-	8,757.43	-	-	9,790.64	-
<i>Subtotal: Municipal - Commercial</i>	2,549		\$ 797,110	2,549		\$ 724,765	2,549		\$ 870,858
<i>Subtotal: Minimum Charges</i>			\$ 44,289,262			\$ 41,715,179			\$ 51,632,523

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Fire Protection Charges									
Public (per Hydrant)	90,612	\$ 14.68	\$ 1,330,184	90,612	\$ 90.34	\$ 8,186,029	90,612	\$ 22.59	\$ 2,046,925
Private									
1" or Less	15,907	\$ 15.43	\$ 245,445	15,907	\$ 21.22	\$ 337,513	15,907	\$ 32.60	\$ 518,568
1 1/2"-3"	529	46.28	24,482	529	64.95	34,359	529	101.37	53,625
4"	45	152.25	6,851	45	213.18	9,593	45	326.98	14,714
6" or Greater	190	325.06	61,761	190	452.05	85,890	190	679.65	129,134
Subtotal: Fire Protection Charges			\$ 1,668,724			\$ 8,653,385			\$ 2,762,966
Volume Charge									
Residential	1,818,344	\$ 14.64	\$ 26,620,560	1,818,344	\$ 15.35	\$ 27,911,585	1,818,344	\$ 16.99	\$ 30,893,669
Residential - CAP	108,272	14.64	1,585,098	108,272	16.57	1,794,062	108,272	16.99	1,839,536
Residential - CAP - 50FPL	26,271	7.32	192,301	26,271	17.32	455,008	26,271	8.50	223,301
Commercial	2,046,642	13.80	28,243,658	2,046,642	17.32	35,447,837	2,046,642	18.79	38,456,400
Industrial	157,395	12.13	1,909,206	157,395	21.66	3,409,184	157,395	17.47	2,749,697
Health or Education	855,292	16.29	13,932,701	855,292	20.91	17,884,149	855,292	22.76	19,466,438
Private Fire System	8,988	39.05	350,967	8,988	28.77	258,574	8,988	32.73	294,165
Municipal - Residential	1,702	14.64	24,922	1,702	13.55	23,066	1,702	16.99	28,922
Municipal - Commercial	218,440	13.80	3,014,467	218,440	16.73	3,654,495	218,440	18.79	4,104,481
Subtotal: Volume Charge	5,241,345		\$ 75,873,880			\$ 90,837,960	5,241,345		\$ 98,056,611
Wholesale Revenues (Set by Contract)			\$ 3,661,855	857,599	\$ 14.35	\$ 12,306,546			\$ 4,341,220
Total: Base Rate Revenues			\$ 125,493,721			\$ 153,513,069			\$ 156,793,318
DSIC Revenues									
Residential			\$ 2,451,269			\$ 3,608,046			\$ 4,383,262
Residential - CAP			88,896			256,706			154,759
Commercial			2,246,086			3,795,230			4,268,514
Industrial			113,250			279,995			234,595
Health or Education			898,809			1,617,172			1,787,321
Private Fire System			34,475			54,445			75,765
Municipal - Residential			1,719			2,582			3,021
Municipal - Commercial			190,579			339,402			373,150
Public Fire			-			-			-
Total: DSIC Revenues			\$ 6,025,084			\$ 9,953,577			\$ 11,280,388
Other Revenues									
Other Revenues			2,171,887			2,171,887			2,171,887
Total: System Revenues			\$133,690,692			\$ 165,638,533			\$ 170,245,593
FPPTY Water System Revenue Requirements						\$ 170,227,158			\$ 170,227,158
Difference (1)						\$ (4,588,625)			\$ 18,435

(1) Note difference in COS rates is due to bad debt and different DSIC revenue recovery on COS rates.

	FY 2020	FY 2021	HTY	FTY	FPFTY
	<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	<i>Projected</i>	<i>Projected</i>
Units of Service					
<u>Number of Bills</u>					
Residential	772,422	768,864	758,074	758,074	741,720
Residential - CAP	30,810	32,449	37,174	38,674	55,028
Residential - CAP - 50FPL	-	6,798	10,324	11,141	11,141
Commercial	81,431	83,002	83,843	83,843	83,843
Industrial	492	380	371	371	371
Health or Education	5,688	5,520	5,266	5,266	5,266
Private Fire System	15,757	16,641	16,671	16,671	16,671
Municipal - Residential	635	340	243	243	243
Municipal - Commercial	1,787	2,362	2,549	2,549	2,549
Public Fire Hydrants	90,612	90,612	90,612	90,612	90,612
<i>Total</i>	999,634	1,006,968	1,005,127	1,007,443	1,007,444
<u>Billable Consumption (kgal)</u>					
Residential	1,951,157	1,833,447	1,766,983	1,850,529	1,818,344
Residential - CAP	74,938	73,168	80,155	76,087	108,272
Residential - CAP - 50FPL	-	19,062	26,271	26,271	26,271
Commercial	2,021,812	2,044,982	2,073,132	2,046,642	2,046,642
Industrial	172,720	195,583	103,883	157,395	157,395
Health or Education	832,774	902,028	831,073	855,292	855,292
Private Fire System	14,348	6,888	5,727	8,988	8,988
Municipal - Residential	1,952	1,581	1,574	1,702	1,702
Municipal - Commercial	195,754	249,695	209,870	218,440	218,440
<i>Total</i>	5,265,456	5,326,432	5,098,667	5,241,345	5,241,345
<u>Total Consumption (kgal) (1)</u>					
Residential	2,744,375	2,621,697	2,540,544	2,635,539	2,590,290
Residential - CAP	103,594	103,138	114,183	106,972	152,221
Residential - CAP - 50FPL	-	25,204	35,568	35,568	35,568
Commercial	2,628,340	2,674,754	2,676,992	2,660,029	2,660,029
Industrial	185,785	208,619	112,736	169,069	169,069
Health or Education	989,429	1,061,129	981,167	1,010,575	1,010,575
Private Fire System	15,404	7,975	6,856	10,078	10,078
Municipal - Residential	2,116	1,716	1,691	1,841	1,841
Municipal - Commercial	215,164	263,894	232,154	237,070	237,070
<i>Total</i>	6,884,207	6,968,126	6,701,891	6,866,741	6,866,741
<u>Wholesale & Contract Consumption</u>					
Aspinwall	64,174	114,114	155,301	111,196	111,196
Fox Chapel	671,023	628,708	622,966	640,899	640,899
Hampton	3,346	7	-	-	-
PAWC	-	1,650	2,100	1,250	1,250
RSRV - 10"	92,650	93,323	85,537	90,503	90,501
RSRV - 6"	13,316	13,219	14,723	13,753	13,753
Westview	2,692	2	-	-	-
<i>Total</i>	847,201	851,023	880,627	857,601	857,599

(1) Total consumption represents actual customer usage including the usage captured in minimum allowance.

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
 2025 and 2026 Water Revenue Requirements

PWSA Exh. HJS-19W-R

	2025 Revenue Requirements	2026 Revenue Requirements
Water System Revenue Requirements		
<u>Operating Expenses</u>		
<i>Direct Operating Expenses</i>		
Administrative Division		
Executive Director	\$ 2,515,727	\$ 2,674,218
Customer Service	3,041,965	3,259,928
Management Information Systems	5,215,375	5,550,565
Finance	8,248,562	8,758,994
Human Resources	2,141,243	2,268,342
Legal	3,187,938	3,385,720
Safety & Security	1,771,437	1,892,206
Public Affairs	1,598,988	1,699,077
Operations Division		
Environmental Compliance	1,715,959	1,821,700
Ops Capital Assets	-	-
Warehouse	426,371	460,159
Water Treatment Plant	30,467,749	34,393,839
Water Quality (Lab)	2,473,136	2,642,150
Water Distribution	19,290,991	20,663,146
Sewer Operations	-	-
Engineering & Construction		
Engineering & Construction	15,293,623	16,269,615
<i>Other Operating Expenses</i>		
Loss / (Gain) on ALCOSAN Billings	-	-
City Services	-	-
Non-City Water Payments	-	-
Covid-Related Expenses	-	-
<i>Total Operating Expenses</i>	<u>\$ 97,389,063</u>	<u>\$ 105,739,660</u>
<u>Debt Service</u>		
Existing Debt	\$ 47,087,719	\$ 47,779,899
Future Debt	33,928,282	45,551,620
<i>Subtotal: Debt Service</i>	<u>\$ 81,016,002</u>	<u>\$ 93,331,519</u>
<u>Capital Expenditures & Transfers</u>		
Internally Generated Funds / PAYGO	\$ 1,629,433	\$ 9,575,121
Internally Generated Funds / PAYGO (DSIC)	13,457,350	16,040,448
Other Transfers to Reserves	4,480,000	10,880,000
Bad Debt Expense	3,966,765	4,677,802
Hardship	88,320	88,320
Arrearage	97,988	97,988
<i>Subtotal: Capital Expenditures & Transfers</i>	<u>\$ 23,719,856</u>	<u>\$ 41,359,679</u>
Total: Water System Revenue Requirements	\$ 202,124,921	\$ 240,430,858
<i>Capital Costs to be Recovered through DSIC</i>	\$ (13,457,350)	\$ (16,040,448)
Total: Water System Revenue Requirement (Excl DSIC)	\$ 188,667,571	\$ 224,390,410

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Revenue Increase Needed for 2025 and 2026

PWSA Exh. HJS-20W-R

	<u>2024</u>	<u>2025</u>	<u>2026</u>
Revenue Requirement	\$ 158,946,780	\$ 188,667,571	\$ 224,390,410
Offsetting Misc Revenue	(2,171,887)	(2,215,325)	(2,259,631)
Net Rate Revenue Requirement	<u>\$ 156,774,893</u>	<u>\$ 186,452,246</u>	<u>\$ 222,130,779</u>
<i>Increase</i>		<i>18.93%</i>	<i>19.14%</i>
Revenue at Existing Rates + New Charges			
Existing Retail Rates	\$ 121,505,989	\$ 152,451,967	\$ 164,571,751
Wholesale	3,661,855	4,341,220	4,627,757
New Charges	-	-	17,293,418
Total	<u>\$ 125,167,844</u>	<u>\$ 156,793,187</u>	<u>\$ 186,492,926</u>
Net Rate Revenue Need	\$ 31,607,049	\$ 29,659,059	\$ 35,637,852
<i>Increase</i>		<i>18.92%</i>	<i>19.11%</i>
Offsetting New Charge Revenue			
Infrastructure Improvement Charge	\$ -	\$ 14,087,521	\$ 16,119,375
Customer Assistance Charge	-	3,205,897	3,740,213
Subtotal New Charge Revenue	<u>\$ -</u>	<u>\$ 17,293,418</u>	<u>\$ 19,859,588</u>
Incremental New Charge Revenue Applied	\$ -	\$ 17,293,418	\$ 2,566,170
Net Retail Base Rate Increase Need	\$ 31,607,049	\$ 12,365,641	\$ 33,071,682

Fixed Charge Build-Up - Test Year: 2025											
Water	Min. Usage <i>Proposed</i>	<i>Meters/Services</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS</i> <i>Rates</i>	<i>Adjustments</i>					
						Public Fire	<i>R. T. S.</i>	CAP-BDP	Proposed Rates		
Minimum Charge											
5/8"	0	\$ 7.75	\$ 2.64	\$ -	\$ 10.39	\$ 4.78	\$ 2.41	\$ -	\$ -	\$ 17.58	
3/4"	0	11.63	2.64	-	14.26	7.17	3.62	-	-	25.05	
1"	0	19.38	2.64	-	22.01	11.95	6.03	-	-	39.99	
1 1/2"	0	38.76	2.64	-	41.39	23.91	12.05	-	-	77.35	
2"	0	62.01	2.64	-	64.65	38.25	19.28	-	-	122.18	
3"	0	124.03	2.64	-	126.66	76.51	38.56	-	-	241.73	
4"	0	193.79	2.64	-	196.43	119.54	60.25	-	-	376.22	
6"	0	387.58	2.64	-	390.22	239.09	120.50	-	-	749.81	
8"	0	620.14	2.64	-	622.77	382.54	192.80	-	-	1,198.11	
10" & Above	0	891.44	2.64	-	894.08	549.90	277.15	-	-	1,721.13	
Unmetered	0	7.75	2.64	-	10.39	4.78	2.41	-	-	17.58	
Residential - CAP											
5/8"	0	\$ 7.75	\$ 2.64	\$ -	\$ 10.39	\$ 4.78	\$ 2.41	\$ (17.58)	\$ -	\$ -	
3/4"	0	11.63	2.64	-	14.26	7.17	3.62	(25.05)	-	-	
1"	0	19.38	2.64	-	22.01	11.95	6.03	(39.99)	-	-	
Unmetered	0	7.75	2.64	-	10.39	4.78	2.41	(17.58)	-	-	
Monthly Fire Protection											
<i>Public</i>											
Per Hydrant		\$ -	\$ -	\$ 107.44	\$ 107.44	\$ (80.58)	\$ -	\$ -	\$ -	\$ 26.86	
<i>Private</i>											
1" or Less		\$ 21.36	\$ 2.91	\$ 0.97	\$ 25.23		\$ 6.03	\$ -	\$ -	\$ 31.26	
1 1/2"-3"		68.37	2.91	5.98	77.25		19.28	-	-	96.53	
4"		213.64	2.91	36.99	253.54		60.25	-	-	313.79	
6" or Greater		427.28	2.91	107.44	537.63		120.50	-	-	658.13	

Determination of Proposed Rates for 2025								
2024 Adjusted Revenue Requirement	2025 Adjusted Revenue Requirement	Unrecoverable Wholesale	Fixed Charge Revenue	New Charges Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates	
Volume Charge (per kgal)								
Residential + CAP	\$ 60,542,139	\$ 72,003,389	\$ 216,956	\$ 13,855,037	\$ 6,826,442	\$ 51,538,866	2,778,167	\$ 18.56
Commercial + Municipal	61,876,023	73,589,790	221,736	5,961,110	7,421,287	60,429,130	2,897,159	20.86
Industrial	3,127,802	3,719,927	11,209	91,049	432,817	3,207,270	169,069	18.98
Health or Education	23,830,865	28,342,293	85,399	1,155,497	2,587,072	24,685,124	1,010,575	24.43
Municipal - Residential								
Municipal - Commercial								
Private Fire System	1,010,134	1,201,363		687,482	20,963	492,918	10,078	48.91
Public Fire	2,046,507	2,433,932		2,433,838		94	-	n/a
Wholesale	4,341,220	5,163,057	(535,300)	-		4,627,757	n/a	n/a
Totals	\$ 156,774,690	\$ 186,453,752	\$ -	24,184,014	17,288,581	144,981,158	6,865,049	\$ 21.12

Infrastructure Improvement Charge

	2025	2026	
<u>Allocated Debt Service</u>			
Existing PENNVEST	-	-	
Future PENNVEST	12,575,098	12,915,676	
Future WIFIA	1,732,366	3,457,828	
Total PENNVEST Costs	\$ 14,307,465	\$ 16,373,503	
Coverage Component	1.00	1.00	
Total Charge Recovery	\$ 14,307,465	\$ 16,373,503	
Units	6,866,741	6,866,741	
Infrastructure Improvement Charge Unit Rate	\$ 2.08	\$ 2.38	per kgal

Customer Assistance Charge

	2025	2026	
<u>Allocated Customer Assistance Program Costs</u>			
Forgone Revenue	\$ 2,747,550	\$ 3,259,049	
Operations	246,337	265,510	
Hardship	88,320	88,320	
Arrearage	97,988	128,000	
Total Charge Recovery	\$ 3,180,195	\$ 3,740,878	
Units (Less CAP & Private Fire units)	6,678,952	6,678,952	
Customer Assistance Charge Unit Rate	\$ 0.48	\$ 0.56	per kgal

	2023		2024		2025		2026		Percent Difference		
	FTY		FPFTY		Proposed		Proposed		2024	2025	2026
	Prior Tariff Rates		Proposed Rates		Rates		Rates				
Existing & Proposed Rates											
<u>Minimum Charge</u>											
5/8"	\$	26.52	\$	33.08	\$	17.58	\$	21.04	24.7%	-46.9%	19.7%
3/4"		46.47		55.63		25.05		29.97	19.7%	-55.0%	19.6%
1"		102.08		115.21		39.99		47.85	12.9%	-65.3%	19.7%
1 1/2"		201.85		227.98		77.35		92.55	12.9%	-66.1%	19.7%
2"		337.28		377.76		122.18		146.20	12.0%	-67.7%	19.7%
3"		766.42		839.89		241.73		289.25	9.6%	-71.2%	19.7%
4"		1,313.93		1,419.47		376.22		450.17	8.0%	-73.5%	19.7%
6"		3,174.80		3,342.90		749.81		897.20	5.3%	-77.6%	19.7%
8"		5,784.48		5,998.25		1,198.11		1,433.62	3.7%	-80.0%	19.7%
10" & Above		9,582.36		9,790.64		1,721.13		2,059.44	2.2%	-82.4%	19.7%
<u>Minimum Charge - CAP (1)</u>											
5/8"	\$	-	\$	-	\$	-	\$	-	0.0%	0.0%	0.0%
3/4"		-		-		-		-	0.0%	0.0%	0.0%
1"		-		-		-		-	0.0%	0.0%	0.0%
<u>Fire System Charges</u>											
Private											
1" or Less	\$	15.43	\$	32.60	\$	31.26	\$	37.40	111.3%	-4.1%	19.6%
1 1/2"-3"		46.28		101.37		96.53		115.50	119.0%	-4.8%	19.7%
4"		152.25		326.98		313.79		375.47	114.8%	-4.0%	19.7%
6" or Greater		325.06		679.65		658.13		787.50	109.1%	-3.2%	19.7%
Public											
Per Hydrant (2)	\$	14.68	\$	22.59	\$	26.86	\$	32.14	53.9%	18.9%	19.7%
<u>Volume Charge</u>											
Residential	\$	14.64	\$	16.99	\$	18.56	\$	22.21	16.1%	9.2%	19.7%
Residential - CAP		14.64		16.99		18.56		22.21	16.1%	9.2%	19.7%
Residential - CAP (<50% FPL)		7.32		8.50		9.28		11.11	16.1%	9.2%	19.7%
Commercial		13.80		18.79		20.86		24.96	36.2%	11.0%	19.7%
Industrial		12.13		17.47		18.98		22.71	44.0%	8.6%	19.7%
Health or Education		16.29		22.76		24.43		29.23	39.7%	7.3%	19.6%
Fire System		39.05		32.73		48.91		58.52	-16.2%	49.4%	19.6%
Municipal - Residential (2)		11.71		16.99		18.56		22.21	45.1%	9.2%	19.7%
Municipal - Commercial (2)		11.04		18.79		20.86		24.96	70.2%	11.0%	19.7%
Wholesale		10.89		14.35		15.49		18.53	31.8%	7.9%	19.7%
<u>Unmetered Charges (per Unit)</u>											
Residential	\$	70.44	\$	84.05	\$	91.82	\$	109.88	19.3%	9.2%	19.7%
Residential - CAP		43.95		50.97		74.24		88.84	16.0%	45.7%	19.7%
Commercial		82.92		108.24		121.88		145.84	30.5%	12.6%	19.7%
DSIC (Applies to all retail customers)		5.0%		7.5%		7.5%		7.5%	n/a	n/a	n/a
<u>Infrastructure Improvement Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	2.08	\$	2.38	0.0%	0.0%	14.4%
<u>Customer Assistance Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	0.48	\$	0.56	0.0%	0.0%	16.7%

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers.
(2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Fire Protection Charges									
Public (per Hydrant)	90,612	\$ 22.59	\$ 2,046,925	90,612	\$ 26.86	\$ 2,433,838	90,612	\$ 32.14	\$ 2,912,270
Private									
1" or Less	15,907	\$ 32.60	\$ 518,568	15,907	\$ 31.26	\$ 497,253	15,907	\$ 37.40	\$ 594,922
1 1/2"-3"	529	101.37	53,625	529	96.53	51,064	529	115.50	61,100
4"	45	326.98	14,714	45	313.79	14,121	45	375.47	16,896
6" or Greater	190	679.65	129,134	190	658.13	125,045	190	787.50	149,625
<i>Subtotal: Fire Protection Charges</i>			\$ 2,762,966			\$ 3,121,321			\$ 3,734,812
Volume Charge									
Residential	1,818,344	\$ 16.99	\$ 30,893,669	2,590,290	\$ 18.56	\$ 48,075,777	2,590,290	\$ 22.21	\$ 57,530,334
Residential - CAP	108,272	16.99	1,839,536	152,221	18.56	2,825,216	152,221	22.21	3,380,821
Residential - CAP - 50FPL	26,271	8.50	223,301	35,568	9.28	330,071	35,568	11.11	394,983
Commercial	2,046,642	18.79	38,456,400	2,660,029	20.86	55,488,198	2,660,029	24.96	66,394,316
Industrial	157,395	17.47	2,749,697	169,069	18.98	3,208,933	169,069	22.71	3,839,561
Health or Education	855,292	22.76	19,466,438	1,010,575	24.43	24,688,347	1,010,575	29.23	29,539,107
Private Fire System	8,988	32.73	294,165	10,078	48.91	492,932	10,078	58.52	589,784
Municipal - Residential	1,702	16.99	28,922	1,841	18.56	34,169	1,841	22.21	40,889
Municipal - Commercial	218,440	18.79	4,104,481	237,070	20.86	4,945,290	237,070	24.96	5,917,279
<i>Subtotal: Volume Charge</i>	5,241,345		\$ 98,056,611	6,866,741		\$ 140,088,932	6,866,741		\$ 167,627,074
Wholesale Revenues (Set by Contract)	857,599		\$ 4,341,220	857,599		\$ 4,627,757	857,599		\$ 5,349,789
Infrastructure Improvement Charge									
Residential	1,818,344	\$ -	\$ -	2,590,290	\$ 2.08	\$ 5,387,803	2,590,290	\$ 2.38	\$ 6,164,889
Residential - CAP	108,272	-	-	152,221	1.04	158,310	152,221	1.19	181,143
Residential - CAP - 50FPL	26,271	-	-	35,568	1.04	36,991	35,568	1.19	42,326
Commercial	2,046,642	-	-	2,660,029	2.08	5,532,860	2,660,029	2.38	6,330,868
Industrial	157,395	-	-	169,069	2.08	351,664	169,069	2.38	402,385
Health or Education	855,292	-	-	1,010,575	2.08	2,101,996	1,010,575	2.38	2,405,169
Private Fire System	8,988	-	-	10,078	2.08	20,963	10,078	2.38	23,986
Municipal - Residential	1,702	-	-	1,841	2.08	3,829	1,841	2.38	4,382
Municipal - Commercial	218,440	-	-	237,070	2.08	493,107	237,070	2.38	564,228
<i>Subtotal: Infrastructure Improvement Charge</i>	5,241,345		\$ -	6,866,741		\$ 14,087,521	6,866,741		\$ 16,119,375
Customer Assistance Charge									
Residential	1,818,344	\$ -	\$ -	2,590,290	\$ 0.48	\$ 1,243,339	2,590,290	\$ 0.56	\$ 1,450,562
Residential - CAP	108,272	-	-	152,221	-	-	152,221	-	-
Residential - CAP - 50FPL	26,271	-	-	35,568	-	-	35,568	-	-
Commercial	2,046,642	-	-	2,660,029	0.48	1,276,814	2,660,029	0.56	1,489,616
Industrial	157,395	-	-	169,069	0.48	81,153	169,069	0.56	94,679
Health or Education	855,292	-	-	1,010,575	0.48	485,076	1,010,575	0.56	565,922
Private Fire System	8,988	-	-	10,078	0.48	4,838	10,078	0.56	5,644
Municipal - Residential	1,702	-	-	1,841	0.48	884	1,841	0.56	1,031
Municipal - Commercial	218,440	-	-	237,070	0.48	113,794	237,070	0.56	132,759
<i>Subtotal: Customer Assistance Charge</i>	5,241,345		\$ -	6,866,741		\$ 3,205,897	6,866,741		\$ 3,740,213
Total: Base Rate Revenues			\$ 156,793,318			\$ 186,492,926			\$ 222,134,704
DSIC Revenues									
Residential			\$ 4,383,262			\$ 5,164,002	0.075		\$ 6,155,687
Residential - CAP			154,759			251,361			300,025
Commercial			4,268,514			5,100,789			6,078,785
Industrial			234,595			279,960			333,418
Health or Education			1,787,321			2,132,319			2,541,962
Private Fire System			75,765			90,466			108,147
Municipal - Residential			3,021			3,311			3,945
Municipal - Commercial			373,150			435,142			518,480
Public Fire			-			-			-
Total: DSIC Revenues			\$ 11,280,388			\$ 13,457,350			\$ 16,040,448
Other Revenues									
Other Revenues			2,171,887			2,215,325			2,259,631
Total: System Revenues			\$170,245,593			\$202,165,601			\$240,434,783
Water System Revenue Requirements			\$170,227,158			\$202,124,921			\$240,430,858
Difference			\$ 18,435			\$ 40,680			\$ 3,925

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-25W-R

FPFTY 2024 COS & Rate Design Model

Typical Bill Comparison

	FTY 2023	FPFTY 2024	2025	2026
Customer Impacts				
<u>Residential - 5/8" / 3 Kgal</u>				
Water Base Rates	\$ 55.80	\$ 67.06	\$ 73.26	\$ 87.67
New Water Charges	-	-	7.68	8.82
Water DSIC	2.79	5.03	6.07	7.24
Total Monthly Bill	\$ 58.59	\$ 72.09	\$ 87.01	\$ 103.73
\$ Change		\$ 13.50	\$ 14.92	\$ 16.72
% Change		<i>23.0%</i>	<i>20.7%</i>	<i>19.2%</i>
<u>Commercial - 1" / 13kgal</u>				
Water Base Rates	\$ 212.48	\$ 265.53	\$ 311.17	\$ 372.33
New Water Charges	-	-	33.28	38.22
Water DSIC	10.62	19.91	25.83	30.79
Total Monthly Bill	\$ 223.10	\$ 285.44	\$ 370.28	\$ 441.34
\$ Change		\$ 62.34	\$ 84.84	\$ 71.06
% Change		<i>27.9%</i>	<i>29.7%</i>	<i>19.2%</i>
<u>Industrial - 4" / 680kgal</u>				
Water Base Rates	\$ 8,713.23	\$ 12,076.17	\$ 13,282.62	\$ 15,892.97
New Water Charges	-	-	1,740.80	1,999.20
Water DSIC	435.66	905.71	1,126.76	1,341.91
Total Monthly Bill	\$ 9,148.89	\$ 12,981.88	\$ 16,150.18	\$ 19,234.08
\$ Change		\$ 3,832.99	\$ 3,168.29	\$ 3,083.91
% Change		<i>41.9%</i>	<i>24.4%</i>	<i>19.1%</i>
<u>Health or Education - 2" / 50kgal</u>				
Water Base Rates	\$ 874.85	\$ 1,128.84	\$ 1,343.68	\$ 1,607.70
New Water Charges	-	-	128.00	147.00
Water DSIC	43.74	84.66	110.38	131.60
Total Monthly Bill	\$ 918.59	\$ 1,213.50	\$ 1,582.06	\$ 1,886.30
\$ Change		\$ 294.91	\$ 368.55	\$ 304.25
% Change		<i>32.1%</i>	<i>30.4%</i>	<i>19.2%</i>

Exhibits
HJS-1WW-R to
24WW-R

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 FPFTY Wastewater Conveyance Revenue Requirements

PWSA Exh. HJS-1WW-R

	2024 FPFTY Revenue Requirements
Revenue Requirements	
<u>Operating Expenses</u>	
<i>Direct Operating Expenses</i>	
Administrative Division	
Executive Director	\$ 460,536
Customer Service	3,397,366
Management Information Systems	1,050,629
Finance	1,503,985
Human Resources	336,194
Legal	581,854
Safety & Security	323,105
Public Affairs	262,606
Operations Division	
Environmental Compliance	1,507,555
Ops Capital Assets	-
Warehouse	77,654
Water Treatment Plant	-
Water Quality (Lab)	-
Water Distribution	-
Sewer Operations	5,387,047
Engineering & Construction	
Engineering & Construction	5,623,537
<i>Other Operating Expenses</i>	
Loss / (Gain) on ALCOSAN Billings	2,066,814
Covid-Related Expenses	74,691
<i>Total Operating Expenses</i>	\$ 22,653,575
<u>Debt Service</u>	
Existing Debt	\$ 14,635,683
Future Debt	2,563,968
<i>Subtotal: Debt Service</i>	\$ 17,199,651
<u>Capital Expenditures & Transfers</u>	
Internally Generated Funds / PAYGO	\$ -
Internally Generated Funds / PAYGO (DSIC)	3,756,676
Other Transfers to Reserves	250,000
Bad Debt Expense	1,076,914
Arrearage	142,012
Gradualism - Stormwater	9,500,000
<i>Subtotal: Capital Expenditures & Transfers</i>	\$ 14,725,602
Total: Wastewater Conveyance System Revenue Requirements	\$ 54,578,829
<i>Capital Costs to be Recovered through DSIC</i>	\$ (3,756,676)
Total: Wastewater Conveyance System Base Rate Revenue Requirement	\$ 50,822,152

Wastewater Conveyance Operating Costs	FY 2024 FPFTY	Allocation	Wastewater Conveyance Functional Categories			
			Collection & Conveyance	Meters	Billing	Admin Support
<u>Operating Expenses</u>						
<i>Direct Operating Expenses</i>						
Administrative Division						
Executive Director	\$ 460,536	WW-D				100.0%
Customer Service	3,397,366	WW-E	34.2%	65.8%		
Management Information Systems	1,050,629	WW-D				100.0%
Finance	1,503,985	WW-D				100.0%
Human Resources	336,194	WW-D				100.0%
Legal	581,854	WW-D				100.0%
Safety & Security	323,105	WW-D				100.0%
Public Affairs	262,606	WW-D				100.0%
Operations Division						
Environmental Compliance	1,507,555	WW-D				100.0%
Warehouse	-	WW-D				100.0%
Ops Capital Assets	77,654	WW-D				100.0%
Water Treatment Plant	-	n/a				
Water Quality (Lab)	-	n/a				
Water Distribution	-	n/a				
Sewer Operations	5,387,047	WW-A	100.0%			
Engineering & Construction Division						
Engineering & Construction	5,623,537	WW-A	100.0%			
<i>Subtotal: Direct Operating Expenses</i>	\$ 20,512,070					
<i>Other Operating Expenses</i>						
Loss / (Gain) on ALCOSAN Billings	2,066,814	WW-D				100.0%
Covid-Related Expenses	74,691	WW-D				100.0%
<i>Subtotal: Other Operating Expenses</i>	\$ 2,141,506					
Total: Operating Expenses	\$ 22,653,575					

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 Assignment to Functional Categories

PWSA Exh. HJS-2WW-R

Wastewater Conveyance Operating Costs	FY 2024 FPFTY	Allocation	Wastewater Conveyance Functional Categories			
			Collection & Conveyance	Meters	Billing	Admin Support
<u>Operating Expenses</u>						
<i>Direct Operating Expenses</i>						
Administrative Division						
Executive Director	\$ 460,536	WW-D	\$ -	\$ -	\$ -	\$ 460,536
Customer Service	3,397,366	WW-E	-	1,161,960	2,235,406	-
Management Information Systems	1,050,629	WW-D	-	-	-	1,050,629
Finance	1,503,985	WW-D	-	-	-	1,503,985
Human Resources	336,194	WW-D	-	-	-	336,194
Legal	581,854	WW-D	-	-	-	581,854
Safety & Security	323,105	WW-D	-	-	-	323,105
Public Affairs	262,606	WW-D	-	-	-	262,606
Operations Division						
Environmental Compliance	1,507,555	WW-D	-	-	-	1,507,555
Warehouse	-	WW-D	-	-	-	-
Ops Capital Assets	77,654	WW-D	-	-	-	77,654
Water Treatment Plant	-	n/a	-	-	-	-
Water Quality (Lab)	-	n/a	-	-	-	-
Water Distribution	-	n/a	-	-	-	-
Sewer Operations	5,387,047	WW-A	5,387,047	-	-	-
Engineering & Construction Division						
Engineering & Construction	5,623,537	WW-A	5,623,537	-	-	-
<i>Subtotal: Direct Operating Expenses</i>	<u>\$ 20,512,070</u>		<u>\$ 5,387,047</u>	<u>\$ 1,161,960</u>	<u>\$ 2,235,406</u>	<u>\$ 6,104,120</u>
<i>Other Operating Expenses</i>						
Loss / (Gain) on ALCOSAN Billings	2,066,814	WW-D	-	-	-	2,066,814
Covid-Related Expenses	74,691	WW-D	-	-	-	74,691
<i>Subtotal: Other Operating Expenses</i>	<u>\$ 2,141,506</u>		<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 2,066,814</u>
Total: Wastewater Conveyance Operating Costs	\$ 22,653,575		\$11,010,584	\$ 1,161,960	\$ 2,235,406	\$ 8,245,625
Allocation Percentage			48.60%	5.13%	9.87%	36.40%

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Assignment to Functional Categories

PWSA Exh. HJS-2WW-R

Allocated Wastewater Conveyance Assets			Wastewater Conveyance Functional Categories				
System Fixed Assets	Allocated Costs	Allocation	Collection & Conveyance	Meters	Billing	Admin Support	Readiness-to-Serve
Structures and Improvements - Source of Supply and Pumping	-	n/a					
Structures and Improvements - Water Treatment	-	n/a					
Structures and Improvements - Transmission and Distribution Plant	687,981	WW-A	100.00%				
Pumping Equipment	944,958	WW-A	100.00%				
Water Treatment Equipment	-	n/a					
Distribution Reservoirs and Standpipes	-	n/a					
Transmission and Distribution Mains	-	n/a					
Meters and Meter Installations	-	n/a					
Fire Hydrants	-	n/a					
Office Furniture and Equipment	344,216	WW-D				100.00%	
Office Furniture and Equipment - Computer Hardware	-	n/a					
Transportation Equipment	1,245,292	WW-D				100.00%	
Tools, Shop and Garage Equipment	7,831	WW-D				100.00%	
Laboratory Equipment	-	n/a					
Collection Sewers - Gravity	169,512,610	WW-A	100.00%				
Manholes	10,917,412	WW-A	100.00%				
Wastewater Plant	4,342,979	WW-A	100.00%				
Power Operated Equipment	38,414	WW-D				100.00%	
Total	188,041,693		\$ 186,405,941	\$ -	\$ -	\$ 1,635,752	\$ -

Allocation Factors for Capital Costs	99.13%	0.00%	0.00%	0.87%	0.00%
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Allocation of Capital Costs		Collection & Conveyance	Meters	Billing	Admin Support	Readiness-to-Serve
Debt Service	\$ 17,199,651	\$ 17,050,034	\$ -	\$ -	\$ 149,618	\$ -
Rate-Funded Capital	-	-	-	-	-	-
Other Transfers to Reserves	250,000	247,825	-	-	2,175	-
Arrearage	142,012	140,776	-	-	1,235	-
Total: Allocated Capital Costs	\$ 17,591,663	\$ 17,438,635	\$ -	\$ -	\$ 153,028	\$ -

Pittsburgh Water and Sewer Authority

FPPTY 2024 COS & Rate Design Model

Allocation to Cost Categories

PWSA Exh. HJS-3WW-R

		FY 2024	Allocation	Wastewater Conveyance Cost Drivers			
		<i>FPPTY</i>		<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>
Wastewater Conveyance Revenue Requirements							
<u>Functional Categories</u>							
Collection & Conveyance	\$	28,225,978	WW-AA	100.00%			
Meters		1,161,960	WW-BB		100.00%		
Billing		2,235,406	WW-CC			100.00%	
Admin Support		8,398,653	WW-DD	89.26%	3.67%	7.07%	
Infiltration & Inflow Costs		223,242	WW-EE	33.00%		67.00%	
<i>Total: Wastewater Conveyance Revenue Requirements</i>	\$	40,245,238					
		FY 2024	Allocation	<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>
		<i>FPPTY</i>					
Wastewater Conveyance Revenue Requirements							
<u>Functional Categories</u>							
Collection & Conveyance	\$	28,225,978	WW-AA	\$ 28,225,978	\$ -	\$ -	\$ -
Meters		1,161,960	WW-BB	-	1,161,960	-	-
Billing		2,235,406	WW-CC	-	-	2,235,406	-
Admin Support		8,398,653	WW-DD	7,496,367	308,598	593,688	-
Infiltration & Inflow Costs		223,242	WW-EE	73,670	-	149,572	-
<i>Total: Wastewater Conveyance Revenue Requirements</i>	\$	40,245,238		\$ 35,796,015	\$ 1,470,558	\$ 2,978,666	\$ -
Costs to Recover from Wastewater Conveyance Charges		\$ 40,245,238		\$ 35,796,015	\$ 1,470,558	\$ 2,978,666	\$ -
				88.9%	3.7%	7.4%	0.0%

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Allocation Factor Summary

PWSA Exh. HJS-4WW-R

Cost Functionalization: Wastewater Conveyance					
<i>Code</i>	<i>Description</i>	<i>Coll. & Convey.</i>	<i>Meters</i>	<i>Billing</i>	<i>Admin Support</i>
WW-A	Collection & Conveyance Only	100.00%			
WW-B	Meters Only		100.00%		
WW-C	Billing Only			100.00%	
WW-D	Admin Support Only				100.00%
WW-E	Customer Service		34.20%	65.80%	

Allocation to Cost Drivers: Wastewater Conveyance					
<i>Code</i>	<i>Description</i>	<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>
WW-AA	Volume	100.00%			
WW-BB	Customer - Meters		100.00%		
WW-CC	Customer - Billing			100.00%	
WW-DD	Admin Support (Composite)	89.26%	3.67%	7.07%	
WW-EE	Infiltration & Inflow Costs	33.00%		67.00%	
WW-FF	Readiness-to-Serve				0.00%

Factor Derivations - Allocation to Functional Categories & Cost Components						
Code(s)	Description	Calculations				
W-I	Customer Service	2024 Customer Service Budget	FPFTY	Meter	Billing	
WW-E	- This factor allocates the 2024 customer service budget between meter- and billing-related costs.	Salaries	\$ 5,157,435	28.60%	71.40%	
		Benefits	1,815,642	28.60%	71.40%	
		Computer & Peripherals	-	100.00%	0.00%	
		Annual Software Support	251,722	50.00%	50.00%	
		Customer CC Fees	36,200	0.00%	100.00%	
		Postage	471,117	0.00%	100.00%	
		Equip Rental	1,746	100.00%	0.00%	
		Billing Contract	228,960	0.00%	100.00%	
		Consultants	47,700	20.00%	80.00%	
		Meter Services	799,148	100.00%	0.00%	
		Prof Service Other	478,967	20.00%	80.00%	
		Water Liens	-	50.00%	50.00%	
		Computer Software Supplies	84,800	100.00%	0.00%	
		GIS Plotter Xerox	636	100.00%	0.00%	
		Office Supplies	2,544	50.00%	50.00%	
		TE Items	7,685	50.00%	50.00%	
		Capital Asset Reclass	-	0.00%	0.00%	
		Customer Refund CSM	(530,000)	0.00%	100.00%	
		Customer Refund AP	530,000	0.00%	100.00%	
		Education & Outreach	5,300	0.00%	100.00%	
		One Call	25,440	0.00%	100.00%	
		Publication Subscription	3,816	0.00%	100.00%	
		Non.City Water Reimburse	158,788	100.00%	0.00%	
		Total	\$ 9,577,647	\$ 3,275,727	\$ 6,301,919	
		<i>Allocation Factors</i>		<i>34.20%</i>	<i>65.80%</i>	

Code	Description	Breakdown	
W-D	Water Pipe Inventory	Distribution	35,490,728 63.0%
	- Allocate costs between transmission and distribution functional categories. Assumes Pipes less than or equal to 16" are Distribution-related.	Transmission	20,804,915 37.0%
		Total	56,295,642 100.0%

Code	Description	Breakdown	
W-K	Water Pipe Inventory with Service Lines	Distribution	35,490,728 58.83%
	Allocate Water Distribution costs between Transmission, Distribution, and Service Lines	Transmission	20,804,915 34.49%
	*No size records: assumption is all are 1"	Service Lines	4,029,007 6.68%
		Total	60,324,649 100.00%

Inch-Foot Analysis		
Diameter (in)	Linear Feet	Inch-Feet
0.75	799	599
1	1,314	1,314
1.5	983	1,474
2	11,004	22,009
2.5	16	39
3	268	803
4	116,991	467,963
6	2,144,789	12,868,735
8	1,181,921	9,455,372
10	81,965	819,651
12	619,567	7,434,805
14	1,296	18,147
15	15,500	232,496
16	260,458	4,167,320
18	468	8,425
20	209,715	4,194,304
24	85,229	2,045,495
28	104	2,911
30	116,456	3,493,670
36	83,180	2,994,494
42	11,013	462,562
42.5	13,261	563,591
48	16,706	801,908
50	23,263	1,163,137
50.25	12,001	603,043
60	54,606	3,276,383
66	1,492	98,501
72	3,626	261,064

Factor Derivations - Allocation to Functional Categories & Cost Components		
Code(s)	Description	Calculations

W-J	Engineering & Construction	<table style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2"><u>2024 Water CIP Costs</u></td> <td style="text-align: right;"><u>\$\$ Amount</u></td> <td style="text-align: right;"><u>Allocation</u></td> </tr> <tr> <td></td> <td>Treatment</td> <td style="text-align: right;">\$ 26,885,665</td> <td style="text-align: right;">9.65%</td> </tr> <tr> <td>- This factor uses the 2024 Water CIP costs to allocate Engineering & Construction costs to the various functional categories.</td> <td>Storage</td> <td style="text-align: right;">115,127,475</td> <td style="text-align: right;">41.33%</td> </tr> <tr> <td></td> <td>Trans. & Distr.</td> <td style="text-align: right;">125,439,446</td> <td style="text-align: right;">45.03%</td> </tr> <tr> <td></td> <td>Admin</td> <td style="text-align: right;">11,101,650</td> <td style="text-align: right;">3.99%</td> </tr> <tr> <td></td> <td><u>Total Water CIP</u></td> <td style="text-align: right;"><u>\$ 278,554,236</u></td> <td style="text-align: right;"><u>100.00%</u></td> </tr> </table>	<u>2024 Water CIP Costs</u>		<u>\$\$ Amount</u>	<u>Allocation</u>		Treatment	\$ 26,885,665	9.65%	- This factor uses the 2024 Water CIP costs to allocate Engineering & Construction costs to the various functional categories.	Storage	115,127,475	41.33%		Trans. & Distr.	125,439,446	45.03%		Admin	11,101,650	3.99%		<u>Total Water CIP</u>	<u>\$ 278,554,236</u>	<u>100.00%</u>
<u>2024 Water CIP Costs</u>		<u>\$\$ Amount</u>	<u>Allocation</u>																							
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W-BB	Maximum Day	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Plant Production Data</th> </tr> <tr> <td>2020-2022 Avg Plant Production</td> <td style="text-align: right;">63.88 mgd</td> </tr> <tr> <td>2020-2022 Avg. Peak Day</td> <td style="text-align: right;">89.85 mgd</td> </tr> <tr> <td>Peak Hour Factor (1.6)</td> <td style="text-align: right;">102.21 mgd</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>Base</td> <td style="text-align: right;">57.74%</td> </tr> <tr> <td>Maximum Day</td> <td style="text-align: right;">40.66%</td> </tr> <tr> <td>Fire Protection</td> <td style="text-align: right;">1.60%</td> </tr> </table> <p style="text-align: right; margin-top: 5px;">0.710955365</p>	Plant Production Data		2020-2022 Avg Plant Production	63.88 mgd	2020-2022 Avg. Peak Day	89.85 mgd	Peak Hour Factor (1.6)	102.21 mgd			Base	57.74%	Maximum Day	40.66%	Fire Protection	1.60%
Plant Production Data																		
2020-2022 Avg Plant Production	63.88 mgd																	
2020-2022 Avg. Peak Day	89.85 mgd																	
Peak Hour Factor (1.6)	102.21 mgd																	
Base	57.74%																	
Maximum Day	40.66%																	
Fire Protection	1.60%																	

W-CC	Peak Hour	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">Plant Production Data</th> </tr> <tr> <td>2020-2022 Avg Plant Production</td> <td style="text-align: right;">63.88 mgd</td> </tr> <tr> <td>2020-2022 Avg. Peak Day</td> <td style="text-align: right;">89.85 mgd</td> </tr> <tr> <td>Peak Hour Factor (1.6)</td> <td style="text-align: right;">102.21 mgd</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>Peak Hour / Avg</td> <td style="text-align: right;">54.05%</td> </tr> <tr> <td>Max Day (Plug)</td> <td style="text-align: right;">25.41%</td> </tr> <tr> <td>Peak Hr / Peak Day</td> <td style="text-align: right;">12.09%</td> </tr> <tr> <td>Fire Protection</td> <td style="text-align: right;">8.45%</td> </tr> </table>	Plant Production Data		2020-2022 Avg Plant Production	63.88 mgd	2020-2022 Avg. Peak Day	89.85 mgd	Peak Hour Factor (1.6)	102.21 mgd			Peak Hour / Avg	54.05%	Max Day (Plug)	25.41%	Peak Hr / Peak Day	12.09%	Fire Protection	8.45%
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Max Day (Plug)	25.41%																			
Peak Hr / Peak Day	12.09%																			
Fire Protection	8.45%																			

Equivalency Flow Ratios	Equivalency Ratios				
<p>- Used to escalate metering and readiness-to-serve costs, these ratios are industry standard and obtained from the American Waterworks Association</p>		<i>Flow</i>		<i>Fire Flow</i>	Fire Equip
	5/8"	1.00	1" or Less	2.50	1.00
	3/4"	1.50	1 1/2"-3"	8.00	6.19
	1"	2.50	4"	25.00	38.32
	1 1/2"	5.00	6" or Greater	50.00	111.31
	2"	8.00			
	3"	16.00			
	4"	25.00			
	6"	50.00			
	8"	80.00			
	10"	115.00			
	Unmetered	1.00			

Pittsburgh Water and Sewer Authority

FPPTY 2024 COS & Rate Design Model

Wastewater Conveyance Units of Service

PWSA Exh. HJS-6WW-R

	<u>Collection Factor</u>	FY 2024 Consumption	Allocated Consumption	Average Day	Equivalent Meters	Total Bills
Retail Units of Service						
Residential (1)	100.0%	3,415,730	3,415,730	9,358	1,062,056	1,006,062
Residential - CAP (1)	100.0%	258,808	258,808	709	96,319	95,382
Commercial (1)	100.0%	2,964,032	2,964,032	8,121	410,991	102,150
Industrial	100.0%	177,980	177,980	488	6,528	408
Health or Education	100.0%	1,014,670	1,014,670	2,780	76,631	5,269
Municipal - Residential	100.0%	1,908	1,908	5	465	399
Municipal - Commercial	100.0%	234,199	234,199	642	17,177	2,736
NRG	100.0%	15,986	15,986	-	-	12
Total: Wastewater Conveyance Units of Service		8,083,312	8,083,312	22,102	1,670,166	1,212,418

(1) Includes unmetered units and equivalent usage.

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
Wastewater Conveyance Unit Cost of Service

PWSA Exh. HJS-7WW-R

	FY 2024	Unit Costs				Total
		<i>Volume</i>	<i>Meter</i>	<i>Billing</i>	<i>Readiness-to-Serve</i>	
Development of Unit Costs of Service	<i>FPFTY</i>					
<u>Units of Service</u>						
Total System Units		8,083,312	1,670,166	1,212,418	1,670,166	
Units		<i>kgal</i>	<i>Eq. Cost Meters</i>	<i>Total Bills</i>	<i>Eq. Flow Meters</i>	
<u>Revenue Requirements</u>						
Collection & Conveyance	\$ 28,225,978	\$ 28,225,978	\$ -	\$ -	\$ -	\$ 28,225,978
Meters	1,161,960	-	1,161,960	-	-	1,161,960
Billing	2,235,406	-	-	2,235,406	-	2,235,406
Admin Support	8,398,653	7,496,367	308,598	593,688	-	8,398,653
Infiltration & Inflow Costs	223,242	73,670	-	149,572	-	223,242
Readiness-to-Serve (Debt Service)	-	-	-	-	-	-
<i>Total: Revenue Requirements</i>	\$ 40,245,238	\$ 35,796,015	\$ 1,470,558	\$ 2,978,666	\$ -	\$ 40,245,238
Revenue Requirement Unit Costs (\$/unit)		\$ 4.4284	\$ 0.8805	\$ 2.4568	\$ -	
<u>Revenue Offsets</u>						
Wastewater Miscellaneous Revenue	(696,014)	(619,068)	(25,432)	(51,514)	-	(696,014)
<i>Total: Revenue Offsets</i>	\$ (696,014)	\$ (619,068)	\$ (25,432)	\$ (51,514)	\$ -	\$ (696,014)
Offset Unit Costs (\$/unit)		\$ (0.0766)	\$ (0.0152)	\$ (0.0425)	\$ -	
Total Unit Costs (\$/unit)		\$ 4.35	\$ 0.87	\$ 2.41	\$ -	
Total: Costs of Service		\$ 35,176,947	\$ 1,445,126	\$ 2,927,152	\$ -	\$ 39,549,224

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Cost Distribution to Customer Classes

PWSA Exh. HJS-8WW-R

	Unit Costs				Total
	Volume	Meter	Billing	Readiness-to-Serve	
Customer Class Cost of Service					
<u>Residential</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	3,415,730	1,062,056	1,006,062	1,062,056	
Cost of Service	\$ 14,864,570	\$ 918,953	\$ 2,428,945	\$ -	\$ 18,212,468
<u>Residential - CAP</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	258,808	96,319	95,382	96,319	
Cost of Service	\$ 1,126,280	\$ 83,341	\$ 230,282	\$ -	\$ 1,439,903
<u>Commercial</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	2,964,032	410,991	102,150	410,991	
Cost of Service	\$ 12,898,870	\$ 355,614	\$ 246,622	\$ -	\$ 13,501,105
<u>Industrial</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	177,980	6,528	408	6,528	
Cost of Service	\$ 774,533	\$ 5,648	\$ 985	\$ -	\$ 781,166
<u>Health or Education</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	1,014,670	76,631	5,269	76,631	
Cost of Service	\$ 4,415,638	\$ 66,305	\$ 12,721	\$ -	\$ 4,494,664
<u>Municipal - Residential</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	1,908	465	399	465	
Cost of Service	\$ 8,303	\$ 402	\$ 963	\$ -	\$ 9,668
<u>Municipal - Commercial</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	234,199	17,177	2,736	17,177	
Cost of Service	\$ 1,019,186	\$ 14,863	\$ 6,606	\$ -	\$ 1,040,654
<u>NRG</u>					
Unit Costs (\$/unit)	\$ 4.352	\$ 0.865	\$ 2.414	\$ -	
Units of Service	15,986				
Cost of Service	\$ 69,568	\$ -	\$ -	\$ -	\$ 69,568
Total: Wastewater Cost of Service	\$ 35,176,947	\$ 1,445,126	\$ 2,927,123	\$ -	\$ 39,549,195

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
 Adjustments to Allocated Cost of Service

PWSA Exh. HJS-9WW-R

COS Adjustments		Allocation Method	Residential	Residential - CAP	Commercial	Industrial	Health or Education	Municipal - Residential	Municipal - Commercial	NRG (Contract)	Total
<u>Adjustments to Cost of Service</u>											
Wholesale/Contract Adjustment	Unadj. COS		46.1%	3.6%	34.2%	2.0%	11.4%	0.0%	2.6%		100.0%
Add: Bad Debt Expense	Class Contribution		85.2%		12.7%	0.2%	1.9%		0.1%		100.0%
BDP Forgone Revenue	Unadj. COS		47.9%		35.5%	2.1%	11.8%	0.0%	2.7%		100.0%
Gradualism - Residential (1)	Unadj. COS						100.0%				100.0%
Gradualism - Industrial (2)	Unadj. COS		48.9%		36.2%		12.1%	0.0%	2.8%		100.0%
Gradualism - Stormwater (3)	Unadj. COS		47.9%		35.5%	2.1%	11.8%	0.0%	2.7%		100.0%
Cost of Service by Class											
Allocated Cost of Service (Unadjusted)			\$ 18,212,468	\$ 1,439,903	\$ 13,501,105	\$ 781,166	\$ 4,494,664	\$ 9,668	\$ 1,040,654	\$ 69,568	\$ 39,549,195
% of COS			46.1%	3.6%	34.1%	2.0%	11.4%	0.0%	2.6%	0.2%	99.8%
<u>Adjustments to Cost of Service</u>											
	Adjustment										
Wholesale/Contract Adjustment	\$ 4,489	\$ 2,071	\$ 164	\$ 1,535	\$ 89	\$ 511	\$ 1	\$ 118	\$ (4,489)	\$ -	
Add: Bad Debt Expense	1,076,914	917,330	-	136,709	2,001	19,982	-	891	-	1,076,914	
BDP Forgone Revenue	811,914	388,724	(811,914)	288,166	16,673	95,933	206	22,212	-	0	
Gradualism - Residential (1)	520,000	(520,000)	-	-	-	520,000	-	-	-	-	
Gradualism - Industrial (2)	3,000	1,466	-	1,087	(3,000)	362	1	84	-	0	
Gradualism - Stormwater (3)	9,500,000	4,548,362	-	3,371,751	195,087	1,122,493	2,415	259,892	-	9,500,000	
Total: Adjusted Cost of Service			\$ 23,550,422	\$ 628,152	\$ 17,300,353	\$ 992,016	\$ 6,253,945	\$ 12,291	\$ 1,323,850	\$ 65,079	\$ 50,126,109
% of COS			47.0%	1.3%	34.5%	2.0%	12.5%	0.0%	2.6%		100.0%

- (1) Gradualism adjustment to Residential as Health & Education subsidy is phased out
- (2) Gradualism adjusted such that class increase does not exceed 1.5x overall wastewater system increase
- (3) Transfer from Stormwater to Wastewater such that new Stormwater fee is phased in

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-10WW-R

FPFTY 2024 COS & Rate Design Model

Forgone Revenue Cost of the Bill Discount Program

Units

5/8"
3/4"
1"
Unmetered

0.0%
0.0%
0.0%
0.0%

Bills	CAP Usage	CAP - 50FPL Usage
94,312	161,366	31,665
680	656	82
390	217	184
12	n/a	n/a
<u>95,394</u>	<u>162,239</u>	<u>31,931</u>

Forgone Revenue Cost

Fixed Charges
Volume Charges
Total Forgone Revenue Cost

Revenue At Full Rates	Revenue at CAP Rates	Difference
\$ 711,651	\$ -	\$ 711,651
<u>200,527</u>	<u>100,263</u>	<u>100,263</u>
912,178	100,263	811,914

Volume Discount

50.0%

	Min. Usage <i>Existing</i>	COS Rate Build-Up - Test Year: 2024							<i>Proposed Rates</i>
		<i>Meter</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS Rates</i>	<i>Adjustments</i>			
						<i>R.T.S</i>	<i>CAP-BDP</i>		
Wastewater Conveyance									
<u>Minimum Charge</u>									
5/8"	1	\$ 0.87	\$ 2.41	\$ 3.06	\$ 6.34	\$ 1.03	\$ -	\$ 7.37	
3/4"	2	1.30	2.41	6.11	9.83	1.54	-	11.37	
1"	5	2.16	2.41	15.29	19.86	2.57	-	22.44	
1 1/2"	10	4.33	2.41	30.57	37.31	5.15	-	42.46	
2"	17	6.92	2.41	51.97	61.31	8.24	-	69.55	
3"	40	13.84	2.41	122.29	138.54	16.48	-	155.02	
4"	70	21.63	2.41	214.00	238.05	25.75	-	263.79	
6"	175	43.26	2.41	535.00	580.68	51.49	-	632.17	
8"	325	69.22	2.41	993.57	1,065.21	82.39	-	1,147.59	
10" & Above	548	99.50	2.41	1,675.32	1,777.24	118.43	-	1,895.67	
Unmetered	1	0.87	2.41	3.06	6.34	1.03	-	7.37	
<u>Residential - CAP</u>									
5/8"	1	\$ 0.87	\$ 2.41	\$ 3.06	\$ 6.34	\$ 1.03	(7.37)	\$ -	
3/4"	2	1.30	2.41	6.11	9.83	1.54	(11.37)	-	
1"	5	2.16	2.41	15.29	19.86	2.57	(22.44)	-	
Unmetered	1	0.87	2.41	3.06	6.34	1.03	(7.37)	-	

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Volume Charge Calculation

Unadjusted COS-Based Rates					
	Unadjusted Revenue Requirement	Fixed Charge Revenue	Total Vol Revenue Requirement	Billed Volume	Proposed Rates
<u>Volume Charge (per kgal)</u>					
Residential	\$ 18,212,468	\$ 6,844,495	\$ 11,367,973	2,407,557	\$ 4.72
Residential - CAP	1,439,903	506,609	933,294	194,206	4.81
Commercial	13,501,105	3,477,864	10,023,241	2,306,945	4.34
Industrial	781,166	69,635	711,531	167,004	4.26
Health or Education	4,494,664	740,077	3,754,587	858,874	4.37
Municipal - Residential	9,668	3,062	6,606	1,763	3.75
Municipal - Commercial	1,040,654	156,625	884,029	218,108	4.05
<i>Totals</i>	\$ 39,479,627	\$ 11,798,366	\$ 27,681,261	6,154,458	4.50

Determination of Proposed Rates					
	Adjusted Revenue Requirement	Fixed Charge Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates
<u>Volume Charge (per kgal)</u>					
Residential + CAP + City Res	\$ 24,190,865	\$ 7,945,066	\$ 16,245,798	2,587,561	6.28
Commercial + City Com	18,624,204	4,075,635	14,548,569	2,525,053	5.77
Industrial	992,016	76,357	915,659	167,004	5.49
Health or Education	6,253,945	818,996	5,434,950	858,874	6.33
Municipal - Commercial					
Municipal - Residential					
<i>Totals</i>	50,061,030	12,916,054	37,144,976	6,138,492	\$ 6.05

Class Increase	Ratio to Total Increase (1)
7.7%	1.19
7.0%	1.07
9.3%	1.43
0.0%	0.00
<hr/>	<hr/>
6.5%	1.00

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Proposed Rates

	2023 FTY Prior Tariff Rates	2024 FPFTY Proposed Rates	Percent Difference	Dollar Difference
Existing & Proposed Rates				
<u>Minimum Charge</u>				
5/8"	\$ 7.32	\$ 7.37	0.7%	\$ 0.05
3/4"	11.70	11.37	-2.8%	(0.33)
1"	24.27	22.44	-7.5%	(1.83)
1 1/2"	46.19	42.46	-8.1%	(3.73)
2"	76.29	69.55	-8.8%	(6.74)
3"	173.03	155.02	-10.4%	(18.01)
4"	297.52	263.79	-11.3%	(33.73)
6"	725.62	632.17	-12.9%	(93.45)
8"	1,330.48	1,147.59	-13.7%	(182.89)
10" & Above	2,218.44	1,895.67	-14.5%	(322.77)
<u>Minimum Charge - CAP (1)</u>				
5/8"	\$ -	\$ -	0.0%	\$ -
3/4"	-	-	0.0%	-
1"	-	-	0.0%	-
<u>Volume Charge</u>				
Residential	\$ 5.81	\$ 6.28	8.1%	\$ 0.47
Residential - CAP	5.81	6.28	8.1%	0.47
Residential - CAP (<50% FPL)	2.91	3.14	8.1%	0.24
Commercial	5.28	5.77	9.3%	0.49
Industrial	5.05	5.49	8.7%	0.44
Health or Education	6.38	6.33	-0.8%	(0.05)
Municipal - Residential (2)	4.65	6.28	35.1%	1.63
Municipal - Commercial (2)	4.22	5.77	36.6%	1.55
<u>Unmetered Charges (per Unit)</u>				
Residential	\$ 24.75	\$ 26.21	5.9%	\$ 1.46
Residential - CAP	17.43	18.84	8.1%	1.41
Commercial	28.44	30.45	7.1%	2.01
DSIC (Applies to all retail customers)	5.0%	7.5%	n/a	n/a

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers in all years.

(2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

	FPFTY Revenue at Existing Rates	FPFTY Indicated COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 21,940,695	\$ 18,212,468	-17.0%	\$ (3,728,227)
Residential - CAP	1,035,580	1,439,903	39.0%	404,323
Commercial	16,474,903	13,501,105	-18.1%	(2,973,798)
Industrial	930,249	781,166	-16.0%	(149,083)
Health or Education	6,403,078	4,494,664	-29.8%	(1,908,413)
Municipal - Residential	13,834	9,668	-30.1%	(4,166)
Municipal - Commercial	1,346,083	1,040,654	-22.7%	(305,429)
NRG Contract	65,079	69,568	6.9%	4,489
Total: Base Rate Revenues	\$ 48,209,500	\$ 39,549,195	-18.0%	\$ (8,660,305)

	FPFTY Indicated COS by Customer Class	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 18,212,468	\$ 23,550,422	29.3%	\$ 5,337,954
Residential - CAP	1,439,903	628,152	-56.4%	(811,751)
Commercial	13,501,105	17,300,353	28.1%	3,799,248
Industrial	781,166	992,016	27.0%	210,851
Health or Education	4,494,664	6,253,945	39.1%	1,759,281
Municipal - Residential	9,668	12,291	27.1%	2,623
Municipal - Commercial	1,040,654	1,323,850	27.2%	283,196
NRG Contract	69,568	65,079	-6.5%	(4,489)
Total: Base Rate Revenues	\$ 39,549,195	\$ 50,126,109	26.7%	\$ 10,576,914

	FPFTY Revenue at Existing Rates	FPFTY Adjusted COS by Customer Class	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 21,940,695	\$ 23,550,422	7.3%	\$ 1,609,727
Residential - CAP	1,035,580	628,152	-39.3%	(407,428)
Commercial	16,474,903	17,300,353	5.0%	825,450
Industrial	930,249	992,016	6.6%	61,768
Health or Education	6,403,078	6,253,945	-2.3%	(149,132)
Municipal - Residential	13,834	12,291	-11.2%	(1,543)
Municipal - Commercial	1,346,083	1,323,850	-1.7%	(22,233)
NRG Contract	65,079	65,079	0.0%	-
Total: Base Rate Revenues	\$ 48,209,500	\$ 50,126,109	4.0%	\$ 1,916,609

	FPFTY Revenue at Existing Rates	FPFTY Revenue at Proposed Rates	Percent Difference	Dollar Difference
Base Rate Revenues				
Residential	\$ 21,940,695	\$ 23,060,981	5.1%	\$ 1,120,287
Residential - CAP	1,035,580	1,119,353	8.1%	83,773
Commercial	16,474,903	17,212,390	4.5%	737,487
Industrial	930,249	993,208	6.8%	62,959
Health or Education	6,403,078	6,255,670	-2.3%	(147,407)
Municipal - Residential	13,834	14,615	5.6%	781
Municipal - Commercial	1,346,083	1,432,803	6.4%	86,720
NRG Contract	65,079	65,079	0.0%	-
Total: Base Rate Revenues	\$ 48,209,500	\$ 50,154,099	4.0%	\$ 1,944,599

	Unadjusted COS (1)		Revenue at Existing Rates		Revenue at Proposed Rates		Proposed Increase	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Base Rate Revenues								
Residential	\$ 18,212,468	46.1%	\$ 21,940,695	45.5%	\$ 23,060,981	46.0%	\$ 1,120,287	5.1%
Residential - CAP	1,439,903	3.6%	1,035,580	2.1%	1,119,353	2.2%	83,773	8.1%
Commercial	13,501,105	34.1%	16,474,903	34.2%	17,212,390	34.3%	737,487	4.5%
Industrial	781,166	2.0%	930,249	1.9%	993,208	2.0%	62,959	6.8%
Health or Education	4,494,664	11.4%	6,403,078	13.3%	6,255,670	12.5%	(147,407)	-2.3%
Municipal - Residential	9,668	0.0%	13,834	0.0%	14,615	0.0%	781	5.6%
Municipal - Commercial	1,040,654	2.6%	1,346,083	2.8%	1,432,803	2.9%	86,720	6.4%
Wholesale & Bulk	69,568	0.2%	65,079	0.1%	65,079	0.1%	-	0.0%
Subtotal: Base Rate Revenues	\$ 39,549,195	100.0%	\$ 48,209,500	100.0%	\$ 50,154,099	100.0%	\$ 1,944,599	4.0%
DSIC Revenues								
Residential	n/a	n/a	\$ 1,097,035	45.6%	\$ 1,729,574	46.0%	\$ 632,539	
Residential - CAP	n/a	n/a	51,779	2.2%	83,951	2.2%	32,172	
Commercial	n/a	n/a	823,745	34.2%	1,290,929	34.4%	467,184	
Industrial	n/a	n/a	46,512	1.9%	74,491	2.0%	27,978	
Health or Education	n/a	n/a	320,154	13.3%	469,175	12.5%	149,021	
Municipal - Residential	n/a	n/a	692	0.0%	1,096	0.0%	404	
Municipal - Commercial	n/a	n/a	67,304	2.8%	107,460	2.9%	40,156	
Subtotal: DSIC Revenues	n/a	n/a	\$ 2,407,221	100.0%	\$ 3,756,676	100.0%	\$ 1,349,455	
Total: User Charge Revenues	\$ 39,549,195		\$ 50,616,721		\$ 53,910,775		\$ 3,294,054	6.5%
Other Revenues								
Miscellaneous Revenues	696,014		696,014		696,014		-	0.0%
Total: Wastewater Conveyance Revenues	\$ 40,245,209		\$ 51,312,735		\$ 54,606,789		\$ 3,294,054	6.4%

(1) Difference between COS & proposed base rate revenue is attributed to BDE, stormwater gradualism, and rounding.

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Typical Bill Comparison

PWSA Exh. HJS-15WW-R

	Customer Usage		FTY Existing Rates		FPFTY Proposed Rates	Percent Difference	Dollar Difference
Customer Impacts (1)							
<u>Residential</u>							
	5/8"	1 kgal	\$ 7.69	\$	7.92	3.1%	\$ 0.24
	5/8"	3 kgal	19.89		21.42	7.7%	1.54
	5/8"	5 kgal	32.09		34.93	8.8%	2.84
	5/8"	7 kgal	44.29		48.43	9.3%	4.14
	5/8"	12 kgal	74.79		82.18	9.9%	7.39
	1"	20 kgal	116.99		125.39	7.2%	8.40
<u>Commercial</u>							
	5/8"	3 kgal	\$ 18.77	\$	20.33	8.3%	\$ 1.55
	5/8"	5 kgal	29.86		32.73	9.6%	2.87
	5/8"	12 kgal	68.67		76.15	10.9%	7.48
	1"	13 kgal	69.84		73.75	5.6%	3.91
	2"	80 kgal	429.38		465.54	8.4%	36.16
	4"	160 kgal	811.36		841.82	3.8%	30.47
<u>Industrial</u>							
	1"	30 kgal	\$ 158.05	\$	171.67	8.6%	\$ 13.62
	1"	60 kgal	317.12		348.72	10.0%	31.60
	2"	100 kgal	520.21		564.61	8.5%	44.40
	4"	680 kgal	3,546.92		3,883.64	9.5%	336.72
	6"	400 kgal	1,954.96		2,007.48	2.7%	52.51
	8"	800 kgal	3,915.69		4,036.99	3.1%	121.30
<u>Health or Education</u>							
	5/8"	5 kgal	\$ 34.48	\$	35.14	1.9%	\$ 0.66
	5/8"	10 kgal	67.98		69.17	1.7%	1.19
	1"	40 kgal	259.95		262.29	0.9%	2.34
	2"	50 kgal	301.17		299.32	-0.6%	(1.85)
	4"	200 kgal	1,183.27		1,168.19	-1.3%	(15.07)
	6"	650 kgal	3,943.93		3,911.84	-0.8%	(32.09)

(1) Customer bills at existing rates include a 5% DSIC and proposed rates include a 7.5% DSIC.

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Volume Charge									
Residential	2,395,569	\$ 5.81	\$ 13,918,255	2,395,569	\$ 4.72	\$ 11,307,085	2,395,569	\$ 6.28	\$ 15,044,173
Residential - CAP	162,239	5.81	942,611	162,239	4.81	780,372	162,239	6.28	1,018,864
Residential - CAP - 50FPL	31,931	2.91	92,760	31,931	4.34	138,580	31,931	3.14	100,263
Commercial	2,306,897	5.28	12,180,418	2,306,897	4.34	10,011,934	2,306,897	5.77	13,310,798
Industrial	167,004	5.05	843,369	167,004	4.26	711,436	167,004	5.49	916,850
Health or Education	858,874	6.38	5,479,618	858,874	4.37	3,753,281	858,874	6.33	5,436,675
Municipal - Residential	1,763	5.81	10,243	1,763	3.75	6,612	1,763	6.28	11,072
Municipal - Commercial	218,108	5.28	1,151,611	218,108	4.05	883,338	218,108	5.77	1,258,484
Subtotal: Volume Charge	6,142,386		\$ 34,618,885			\$ 27,592,638	6,142,386		\$ 37,097,178
Wholesale and Contract Revenues			\$ 65,079			\$ 69,568			\$ 65,079
Total: Base Rate Revenues			\$ 48,209,500			\$ 39,480,424			\$ 50,154,099
DSIC Revenues									
Residential			1,097,035			\$ 1,361,368			\$ 1,729,574
Residential - CAP			51,779			96,518			83,951
Commercial			823,745			1,011,735			1,290,929
Industrial			46,512			58,580			74,491
Health or Education			320,154			337,002			469,175
Municipal - Residential			692			726			1,096
Municipal - Commercial			67,304			77,997			107,460
Total: DSIC Revenues			\$ 2,407,221			\$ 2,943,926			\$ 3,756,676
Other Revenues									
Other Revenues			696,014			696,014			696,014
Total: System Revenues			\$ 51,312,735			\$ 43,120,364			\$ 54,606,789
FPPTY Wastewater Conveyance Revenue Requirements						\$ 54,578,829			\$ 54,578,829
Difference						\$ (11,458,465)			\$ 27,960

(1) Note difference in COS rates is combination of bad debt, DSIC, and Stormwater gradualism.

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Projected Units of Service

PWSA Exh. HJS-17WW-R

	FY 2020 <i>Actual</i>	FY 2021 <i>Actual</i>	HTY FY 2022 <i>Actual</i>	FTY FY 2023 <i>Projected</i>	FPFTY FY 2024 <i>Projected</i>
Units of Service					
<u>Number of Bills</u>					
Residential	1,035,309	1,033,432	1,029,504	1,029,504	1,006,062
Residential - CAP	43,155	53,677	64,440	71,940	95,382
Commercial	99,481	101,018	102,150	102,150	102,150
Industrial	524	416	408	408	408
Health or Education	5,688	5,520	5,269	5,269	5,269
Municipal	2,579	2,940	3,135	3,135	3,135
<i>Total</i>	<u>1,186,736</u>	<u>1,197,003</u>	<u>1,204,906</u>	<u>1,212,406</u>	<u>1,212,406</u>
<u>Billable Consumption (kgal)</u>					
Residential	2,592,137	2,435,500	2,303,751	2,443,796	2,395,569
Residential - CAP	110,800	136,746	146,068	145,943	194,170
Commercial	2,293,724	2,318,856	2,308,112	2,306,897	2,306,897
Industrial	184,338	206,245	110,428	167,004	167,004
Health or Education	832,652	911,462	832,509	858,874	858,874
Municipal	200,073	248,852	210,688	219,871	219,871
<i>Total</i>	<u>6,213,724</u>	<u>6,257,661</u>	<u>5,911,557</u>	<u>6,142,386</u>	<u>6,142,386</u>
<u>Total Consumption (kgal) (1)</u>					
Residential	3,628,227	3,463,346	3,312,153	3,467,909	3,403,742
Residential - CAP	149,128	173,561	201,247	194,606	258,772
Commercial	2,947,520	2,989,247	2,955,185	2,963,984	2,963,984
Industrial	195,819	217,775	120,345	177,980	177,980
Health or Education	989,429	1,071,055	983,525	1,014,670	1,014,670
Municipal	212,065	263,122	233,133	236,107	236,107
<i>Total</i>	<u>8,122,187</u>	<u>8,178,107</u>	<u>7,805,587</u>	<u>8,055,254</u>	<u>8,055,254</u>
<u>Wholesale & Contract Consumption</u>					
NRG	109,255	15,986	15,794	15,794	15,794

(1) Total consumption represents actual customer usage including the usage captured in minimum allowance.

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-18WW-R

FPPTY 2024 COS & Rate Design Model

2025 and 2026 Wastewater Conveyance Revenue Requirements

	2025	2026
	Revenue Requirements	Revenue Requirements
Revenue Requirements		
<u>Operating Expenses</u>		
<i>Direct Operating Expenses</i>		
Administrative Division		
Executive Director	\$ 484,779	\$ 515,321
Customer Service	3,637,780	3,902,919
Management Information Systems	1,005,000	1,069,591
Finance	1,589,494	1,687,854
Human Resources	412,617	437,108
Legal	614,314	652,427
Safety & Security	341,355	364,627
Public Affairs	308,124	327,411
Operations Division		
Environmental Compliance	1,593,390	1,691,579
Ops Capital Assets	-	-
Warehouse	82,162	88,672
Water Treatment Plant	-	-
Water Quality (Lab)	-	-
Water Distribution	-	-
Sewer Operations	6,593,741	8,169,281
Engineering & Construction		
Engineering & Construction	5,795,235	6,149,812
<i>Other Operating Expenses</i>		
Loss / (Gain) on ALCOSAN Billings	2,400,861	2,771,926
City Services	-	-
Non-City Water Payments	-	-
<i>Total Operating Expenses</i>	<u>\$ 24,858,853</u>	<u>\$ 27,828,529</u>
<u>Debt Service</u>		
Existing Debt	\$ 14,804,837	\$ 15,022,465
Future Debt	5,304,097	6,925,693
<i>Subtotal: Debt Service</i>	<u>\$ 20,108,934</u>	<u>\$ 21,948,158</u>
<u>Capital Expenditures & Transfers</u>		
Internally Generated Funds / PAYGO	\$ 161,291	\$ 1,407,658
Internally Generated Funds / PAYGO (DSIC)	4,230,754	4,886,604
Other Transfers to Reserves	1,750,000	4,250,000
Bad Debt Expense	1,270,340	1,498,046
DWSL	250,000	250,000
Hardship	128,000	128,000
Arrearage	142,012	142,012
<i>Subtotal: Capital Expenditures & Transfers</i>	<u>\$ 7,932,397</u>	<u>\$ 12,562,321</u>
Total: Wastewater Conveyance System Revenue Requirements	\$ 52,900,184	\$ 62,339,007
<i>Capital Costs to be Recovered through DSIC</i>	\$ (4,230,754)	\$ (4,886,604)
Total: Wastewater Conveyance System Base Rate Revenue Requirement	\$ 48,669,430	\$ 57,452,403

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Revenue Increase Needed for 2025 and 2026

PWSA Exh. HJS-19WW-R

	<u>2024</u>	<u>2025</u>	<u>2026</u>
Revenue Requirement	\$ 41,322,152	\$ 48,669,430	\$ 57,452,403
Stormwater Gradualism	9,500,000	8,500,000	8,500,000
Offsetting Misc Revenue	(696,014)	(709,934)	(724,133)
Contract Revenue	(65,079)	(65,405)	(65,731)
Net Rate Revenue Requirement	\$ 50,061,059	\$ 56,394,091	\$ 65,162,539
<i>Increase</i>		<i>12.65%</i>	<i>15.55%</i>
Revenue at Existing Rates + New Charges			
Existing Retail Rates	\$ 48,046,585	\$ 50,089,019	\$ 52,152,081
New Charges	-	-	4,257,973
Total	\$ 48,046,585	\$ 50,089,019	\$ 56,410,055
Net Rate Revenue Need	\$ 2,014,474	\$ 6,305,072	\$ 8,752,484
<i>Increase</i>		<i>12.59%</i>	<i>15.52%</i>
Offsetting New Charge Revenue			
Infrastructure Improvement Charge	\$ -	\$ 2,932,571	\$ 3,011,830
Customer Assistance Charge	-	1,325,402	1,559,296
Subtotal New Charge Revenue	\$ -	\$ 4,257,973	\$ 4,571,126
Incremental New Charge Revenue Applied	\$ -	\$ 4,257,973	\$ 313,153
Net Retail Base Rate Increase Need	\$ 2,014,474	\$ 2,047,098	\$ 8,439,331

Pittsburgh Water and Sewer Authority
 FPPTY 2024 COS & Rate Design Model
 2025 Minimum Charge Calculation

PWSA Exh. HJS-20WW-R

		COS Rate Build-Up - Test Year: 2025						
Wastewater Conveyance	Min. Usage	<i>Meter</i>	<i>Billing</i>	<i>Usage</i>	<i>Total COS Rates</i>	<i>Adjustments</i>		<i>Proposed Rates</i>
	<i>Proposed</i>					<i>R.T.S</i>	<i>CAP-BDP</i>	
<u>Minimum Charge</u>								
5/8"	0	\$ 0.90	\$ 2.51	\$ -	\$ 3.41	\$ 0.51	\$ -	\$ 3.93
3/4"	0	1.35	2.51	-	3.86	0.77	-	4.63
1"	0	2.25	2.51	-	4.76	1.28	-	6.05
1 1/2"	0	4.50	2.51	-	7.02	2.57	-	9.58
2"	0	7.21	2.51	-	9.72	4.11	-	13.82
3"	0	14.41	2.51	-	16.92	8.21	-	25.13
4"	0	22.52	2.51	-	25.03	12.83	-	37.86
6"	0	45.03	2.51	-	47.54	25.66	-	73.20
8"	0	72.05	2.51	-	74.56	41.06	-	115.62
10" & Above	0	103.57	2.51	-	106.08	59.02	-	165.10
Unmetered	0	0.90	2.51	-	3.41	0.51	-	3.93
<u>Residential - CAP</u>								
5/8"	0	\$ 0.90	\$ 2.51	\$ -	\$ 3.41	\$ 0.51	(3.93)	\$ -
3/4"	0	1.35	2.51	-	3.86	0.77	(4.63)	-
1"	0	2.25	2.51	-	4.76	1.28	(6.05)	-
Unmetered	0	0.90	2.51	-	3.41	0.51	(3.93)	-

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 2025 Volume Charge Calculation

PWSA Exh. HJS-21WW-R

Determination of Proposed Rates							
	2024 Adjusted Revenue Requirement	2025 Adjusted Revenue Requirement	Fixed Charge Revenue	New Charges Revenue	Total Volumetric Rev Req	Equivalent Volume (for Ratemaking)	Proposed Rates
<u>Volume Charge (per kgal)</u>							
Residential + CAP	\$ 24,190,865	\$ 27,251,352	\$ 4,034,412	\$ 1,885,894	\$ 21,331,047	3,658,998	\$ 5.83
Commercial + Municipal	18,624,204	20,980,430	869,013	1,728,049	18,383,367	3,198,243	5.75
Industrial	992,016	1,117,520	10,254	96,109	1,011,157	177,980	5.69
Health or Education	6,253,945	7,045,158	121,572	547,922	6,375,664	1,014,670	6.29
Municipal - Metered							
Municipal - Unmetered							
<i>Totals</i>	50,061,030	56,394,460	5,035,251	4,257,973	47,101,236	8,049,890	\$ 5.85

Infrastructure Improvement Charge

Allocated Debt Service

	<u>2025</u>	<u>2026</u>
Existing PENNVEST	\$ -	\$ -
Future PENNVEST	2,966,541	3,046,886
Future WIFIA	-	-
Total PENNVEST Costs	\$ 2,966,541	\$ 3,046,886
Coverage Component	1.00	1.00
Total Charge Recovery	\$ 2,966,541	\$ 3,046,886
Units	8,055,254	8,055,254
Infrastructure Improvement Charge Unit Rate	\$ 0.37	\$ 0.38
	per kgal	per kgal

Incorporated Unit Rate \$ **0.37** \$ **0.38** per Kgal

Customer Assistance Charge

Allocated Customer Assistance Program Costs

Forgone Revenue	\$ 993,241	\$ 1,171,076
Operations	81,517	87,862
Hardship	128,000	128,000
Arrearage	142,012	142,012
Total Charge Recovery	\$ 1,344,770	\$ 1,528,950
Units (Less CAP units)	7,796,482	7,796,482
Customer Assistance Charge Unit Rate	\$ 0.17	\$ 0.20
	per kgal	per kgal

Incorporated Unit Rate \$ **0.17** \$ **0.20** per Kgal

	2023		2024		2025		2026		Percent Difference		
	FTY		FPFTY		Proposed		Proposed		2024	2025	2026
	Prior Tariff Rates		Proposed Rates		Rates		Rates				
Existing & Proposed Rates											
<u>Minimum Charge</u>											
5/8"	\$	7.32	\$	7.37	\$	3.93	\$	4.57	0.7%	-46.7%	16.3%
3/4"		11.70		11.37		4.63		5.38	-2.8%	-59.3%	16.2%
1"		24.27		22.44		6.05		7.03	-7.5%	-73.0%	16.2%
1 1/2"		46.19		42.46		9.58		11.13	-8.1%	-77.4%	16.2%
2"		76.29		69.55		13.82		16.06	-8.8%	-80.1%	16.2%
3"		173.03		155.02		25.13		29.20	-10.4%	-83.8%	16.2%
4"		297.52		263.79		37.86		43.99	-11.3%	-85.6%	16.2%
6"		725.62		632.17		73.20		85.05	-12.9%	-88.4%	16.2%
8"		1,330.48		1,147.59		115.62		134.33	-13.7%	-89.9%	16.2%
10" & Above		2,218.44		1,895.67		165.10		191.82	-14.5%	-91.3%	16.2%
<u>Minimum Charge - CAP (1)</u>											
5/8"	\$	-	\$	-	\$	-	\$	-	0.0%	0.0%	0.0%
3/4"		-		-		-		-	0.0%	0.0%	0.0%
1"		-		-		-		-	0.0%	0.0%	0.0%
<u>Volume Charge</u>											
Residential	\$	5.81	\$	6.28	\$	5.83	\$	6.77	8.1%	-7.2%	16.1%
Residential - CAP		5.81		6.28		5.83		6.77	8.1%	-7.2%	16.1%
Residential - CAP - 50FPL		2.91		3.14		2.92		3.39	8.1%	-7.2%	16.1%
Commercial		5.28		5.77		5.75		6.68	9.3%	-0.3%	16.2%
Industrial		5.05		5.49		5.69		6.61	8.7%	3.6%	16.2%
Health or Education		6.38		6.33		6.29		7.31	-0.8%	-0.6%	16.2%
Municipal - Residential (2)		4.65		6.28		5.83		6.77	35.1%	-7.2%	16.1%
Municipal - Commercial (2)		4.22		5.77		5.75		6.68	36.6%	-0.3%	16.2%
<u>Unmetered Charges (per Unit)</u>											
Residential	\$	24.75	\$	26.21	\$	27.25	\$	31.65	5.9%	4.0%	16.1%
Residential - CAP		17.43		18.84		23.32		27.08	8.1%	23.8%	16.1%
Commercial		28.44		30.45		32.68		37.97	7.1%	7.3%	16.2%
<u>Infrastructure Improvement Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	0.37	\$	0.38	0.0%	0.0%	2.7%
<u>Customer Assistance Charge</u>											
All Volume (per Kgal)		n/a		n/a	\$	0.17	\$	0.20	0.0%	0.0%	17.6%
DSIC (Applies to all retail customers)		5.0%		7.5%		7.5%		7.5%			

(1) Proposed 100% discount on Minimum Charge for CAP-BDP customers.

(2) Municipal Rates were at 80% in 2023 and are at 100% in 2024 per agreement.

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenues									
<u>Minimum Charges</u>									
Residential									
5/8"	945,171	\$ 7.37	\$ 6,965,910	945,171	\$ 3.93	\$ 3,714,522	945,171	\$ 4.57	\$ 4,319,431
3/4"	31,308	11.37	355,972	31,308	4.63	144,956	31,308	5.38	168,437
1"	24,933	22.44	559,497	24,933	6.05	150,845	24,933	7.03	175,279
1 1/2"	546	42.46	23,183	546	9.58	5,231	546	11.13	6,077
2"	108	69.55	7,511	108	13.82	1,493	108	16.06	1,734
Unmetered	3,996	26.21	104,735	3,996	27.25	108,891	3,996	31.65	126,473
<i>Subtotal: Residential</i>	1,006,062		\$ 8,016,808	1,006,062		\$ 4,125,937	1,006,062		\$ 4,797,432
Residential - CAP									
5/8"	77,884	\$ -	\$ -	77,884	\$ -	\$ -	77,884	\$ -	\$ -
3/4"	632	-	-	632	-	-	632	-	-
1"	342	-	-	342	-	-	342	-	-
Unmetered	12	18.84	226	12	23.32	280	12	27.08	325
<i>Subtotal: Residential - CAP</i>	78,870		\$ 226	78,870		\$ 280	78,870		\$ 325
Commercial									
5/8"	44,741	\$ 7.37	\$ 329,741	44,741	\$ 3.93	\$ 175,832	44,741	\$ 4.57	\$ 204,466
3/4"	9,787	11.37	111,278	9,787	4.63	45,314	9,787	5.38	52,654
1"	20,095	22.44	450,932	20,095	6.05	121,575	20,095	7.03	141,268
1 1/2"	10,506	42.46	446,085	10,506	9.58	100,647	10,506	11.13	116,932
2"	10,736	69.55	746,689	10,736	13.82	148,372	10,736	16.06	172,420
3"	2,797	155.02	433,591	2,797	25.13	70,289	2,797	29.20	81,672
4"	2,316	263.79	610,938	2,316	37.86	87,684	2,316	43.99	101,881
6"	1,085	632.17	685,904	1,085	73.20	79,422	1,085	85.05	92,279
8"	75	1,147.59	86,069	75	115.62	8,672	75	134.33	10,075
10" & Above	-	1,895.67	-	-	165.10	-	-	191.82	-
Unmetered	12	30.45	365	12	32.68	392	12	37.97	456
<i>Subtotal: Commercial</i>	102,150		\$ 3,901,592	102,150		\$ 838,198	102,150		\$ 974,103
Industrial									
5/8"	84	\$ 7.37	\$ 619	84	\$ 3.93	\$ 330	84	\$ 4.57	\$ 384
3/4"	12	11.37	136	12	4.63	56	12	5.38	65
1"	69	22.44	1,548	69	6.05	417	69	7.03	485
1 1/2"	-	42.46	-	-	9.58	-	-	11.13	-
2"	85	69.55	5,912	85	13.82	1,175	85	16.06	1,365
3"	33	155.02	5,116	33	25.13	829	33	29.20	964
4"	77	263.79	20,312	77	37.86	2,915	77	43.99	3,387
6"	24	632.17	15,172	24	73.20	1,757	24	85.05	2,041
8"	24	1,147.59	27,542	24	115.62	2,775	24	134.33	3,224
10" & Above	-	1,895.67	-	-	165.10	-	-	191.82	-
<i>Subtotal: Industrial</i>	408		\$ 76,357	408		\$ 10,254	408		\$ 11,915
Health or Education									
5/8"	359	\$ 7.37	\$ 2,646	359	\$ 3.93	\$ 1,411	359	\$ 4.57	\$ 1,641
3/4"	96	11.37	1,092	96	4.63	444	96	5.38	516
1"	239	22.44	5,363	239	6.05	1,446	239	7.03	1,680
1 1/2"	755	42.46	32,057	755	9.58	7,233	755	11.13	8,403
2"	1,559	69.55	108,428	1,559	13.82	21,545	1,559	16.06	25,038
3"	1,048	155.02	162,461	1,048	25.13	26,336	1,048	29.20	30,602
4"	800	263.79	211,032	800	37.86	30,288	800	43.99	35,192
6"	373	632.17	235,799	373	73.20	27,304	373	85.05	31,724
8"	21	1,147.59	24,099	21	115.62	2,428	21	134.33	2,821
10" & Above	19	1,895.67	36,018	19	165.10	3,137	19	191.82	3,645
<i>Subtotal: Health or Education</i>	5,269		\$ 818,996	5,269		\$ 121,572	5,269		\$ 141,261
Municipal - Residential									
5/8"	375	\$ 7.37	\$ 2,764	375	\$ 3.93	\$ 1,474	375	\$ 4.57	\$ 1,714
3/4"	-	11.37	-	-	4.63	-	-	5.38	-
1"	12	22.44	269	12	6.05	73	12	7.03	84
1 1/2"	12	42.46	510	12	9.58	115	12	11.13	134
<i>Subtotal: Municipal - Residential</i>	399		\$ 3,543	399		\$ 1,661	399		\$ 1,932
Municipal - Commercial									
5/8"	803	\$ 7.37	\$ 5,918	803	\$ 3.93	\$ 3,156	803	\$ 4.57	\$ 3,670
3/4"	89	11.37	1,012	89	4.63	412	89	5.38	479
1"	565	22.44	12,679	565	6.05	3,418	565	7.03	3,972
1 1/2"	409	42.46	17,366	409	9.58	3,918	409	11.13	4,552
2"	602	69.55	41,869	602	13.82	8,320	602	16.06	9,668
3"	167	155.02	25,888	167	25.13	4,197	167	29.20	4,876
4"	25	263.79	6,595	25	37.86	947	25	43.99	1,100
6"	47	632.17	29,712	47	73.20	3,440	47	85.05	3,997
8"	29	1,147.59	33,280	29	115.62	3,353	29	134.33	3,896
10" & Above	-	1,895.67	-	-	165.10	-	-	191.82	-
<i>Subtotal: Municipal - Commercial</i>	2,736		\$ 174,319	2,736		\$ 31,161	2,736		\$ 36,210
<i>Subtotal: Minimum Charges</i>			\$ 12,991,842			\$ 5,129,063			\$ 5,963,177

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Volume Charge									
Residential	2,395,569	\$ 6.28	\$ 15,044,173	3,403,742	\$ 5.83	\$ 19,843,818	3,403,742	\$ 6.77	\$ 23,043,336
Residential - CAP	162,239	6.28	1,018,864	215,859	5.83	1,258,460	215,859	6.77	1,461,367
Residential - CAP - 50FPL	31,931	3.14	100,263	42,913	2.92	125,090	42,913	3.39	145,259
Commercial	2,306,897	5.77	13,310,798	2,963,984	5.75	17,042,907	2,963,984	6.68	19,799,413
Industrial	167,004	5.49	916,850	177,980	5.69	1,012,706	177,980	6.61	1,176,447
Health or Education	858,874	6.33	5,436,675	1,014,670	6.29	6,382,272	1,014,670	7.31	7,417,235
Municipal - Residential	1,763	6.28	11,072	1,908	5.83	11,123	1,908	6.77	12,916
Municipal - Commercial	218,108	5.77	1,258,484	234,199	5.75	1,346,643	234,199	6.68	1,564,447
Subtotal: Volume Charge	6,142,386		\$ 37,097,178	8,055,254		\$ 47,023,019			\$ 54,620,421
Wholesale and Contract Revenues			\$ 65,079			\$ 65,405			\$ 65,731
Infrastructure Improvement Charge									
Residential	2,395,569	\$ -	\$ -	3,403,742	\$ 0.37	\$ 1,259,385	3,403,742	\$ 0.38	\$ 1,293,422
Residential - CAP	162,239	-	-	215,859	0.19	39,934	215,859	0.19	41,013
Residential - CAP - 50FPL	31,931	-	-	42,913	0.19	7,939	42,913	0.19	8,153
Commercial	2,306,897	-	-	2,963,984	0.37	1,096,674	2,963,984	0.38	1,126,314
Industrial	167,004	-	-	177,980	0.37	65,853	177,980	0.38	67,632
Health or Education	858,874	-	-	1,014,670	0.37	375,428	1,014,670	0.38	385,574
Municipal - Residential	1,763	-	-	1,908	0.37	706	1,908	0.38	725
Municipal - Commercial	218,108	-	-	234,199	0.37	86,654	234,199	0.38	88,996
Subtotal: Infrastructure Improvement Charge	6,142,386		\$ -	8,055,254		\$ 2,932,571			\$ 3,011,830
Customer Assistance Charge									
Residential	2,395,569	\$ -	\$ -	3,403,742	\$ 0.17	\$ 578,636	3,403,742	\$ 0.20	\$ 680,748
Residential - CAP	162,239	-	-	215,859	-	-	215,859	-	-
Residential - CAP - 50FPL	31,931	-	-	42,913	-	-	42,913	-	-
Commercial	2,306,897	-	-	2,963,984	0.17	503,877	2,963,984	0.20	592,797
Industrial	167,004	-	-	177,980	0.17	30,257	177,980	0.20	35,596
Health or Education	858,874	-	-	1,014,670	0.17	172,494	1,014,670	0.20	202,934
Municipal - Residential	1,763	-	-	1,908	0.17	324	1,908	0.20	382
Municipal - Commercial	218,108	-	-	234,199	0.17	39,814	234,199	0.20	46,840
Subtotal: Customer Assistance Charge	6,142,386		\$ -	8,055,254		\$ 1,325,402			\$ 1,559,296
Total: Base Rate Revenues			\$ 50,154,099			\$ 56,475,459			\$ 65,220,456
DSIC Revenues									
Residential			\$ 1,729,574			\$ 1,935,583			\$ 2,236,120
Residential - CAP			83,951			107,378			124,209
Commercial			1,290,929			1,461,124			1,686,947
Industrial			74,491			83,930			96,869
Health or Education			469,175			528,882			611,025
Municipal - Residential			1,096			1,036			1,197
Municipal - Commercial			107,460			112,820			130,237
Total: DSIC Revenues			\$ 3,756,676			\$ 4,230,754			\$ 4,886,604
Other Revenues									
Other Revenues			696,014			709,934			724,133
Total: System Revenues			\$ 54,606,789			\$ 61,416,148			\$ 70,831,194
FPFTY Wastewater Conveyance Revenue Requirements						\$ 61,400,184	\$ 70,839,007		
Difference						\$ 15,964	\$ (7,814)		

(1) Note difference in COS rates is combination of bad debt and DSIC.

Pittsburgh Water and Sewer Authority

PWSA Exh. HJS-24WW-R

FPFTY 2024 COS & Rate Design Model

Typical Bill Comparison

	FTY 2023	FPFTY 2024	2025	2026
Customer Impacts				
<u>Residential - 5/8" / 3 Kgal</u>				
Sewer Base Rates	\$ 18.94	\$ 19.93	\$ 21.42	\$ 24.88
New Sewer Charges	-	-	1.62	1.74
Sewer DSIC	0.95	1.49	1.73	2.00
Total Monthly Bill	\$ 19.89	\$ 21.42	\$ 24.77	\$ 28.62
\$ Change		\$ 1.54	\$ 3.34	\$ 3.85
% Change		<i>7.7%</i>	<i>15.6%</i>	<i>15.5%</i>
<u>Commercial - 1" / 13kgal</u>				
Sewer Base Rates	\$ 66.51	\$ 68.60	\$ 80.80	\$ 93.87
New Sewer Charges	-	-	7.02	7.54
Sewer DSIC	3.33	5.15	6.59	7.61
Total Monthly Bill	\$ 69.84	\$ 73.75	\$ 94.41	\$ 109.02
\$ Change		\$ 3.91	\$ 20.66	\$ 14.61
% Change		<i>5.6%</i>	<i>28.0%</i>	<i>15.5%</i>
<u>Industrial - 4" / 680kgal</u>				
Sewer Base Rates	\$ 3,378.02	\$ 3,612.69	\$ 3,907.06	\$ 4,538.79
New Sewer Charges	-	-	367.20	394.40
Sewer DSIC	168.90	270.95	320.57	369.99
Total Monthly Bill	\$ 3,546.92	\$ 3,883.64	\$ 4,594.83	\$ 5,303.18
\$ Change		\$ 336.72	\$ 711.19	\$ 708.35
% Change		<i>9.5%</i>	<i>18.3%</i>	<i>15.4%</i>
<u>Health or Education - 2" / 50kgal</u>				
Sewer Base Rates	\$ 286.83	\$ 278.44	\$ 328.32	\$ 381.56
New Sewer Charges	-	-	27.00	29.00
Sewer DSIC	14.34	20.88	26.65	30.79
Total Monthly Bill	\$ 301.17	\$ 299.32	\$ 381.97	\$ 441.35
\$ Change		\$ (1.85)	\$ 82.65	\$ 59.38
% Change		<i>-0.6%</i>	<i>27.6%</i>	<i>15.5%</i>

Exhibits

HJS-1SW-R to 13SW-R

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 FPFTY Stormwater Revenue Requirements

PWSA Exh. HJS-1SW-R

	2024 FPFTY Revenue Requirements
Stormwater Revenue Requirements	
<u>Operating Expenses</u>	
<i>Direct Operating Expenses</i>	
Administrative Division	
Executive Director	\$ 486,323
Customer Service	3,336,593
Management Information Systems	1,109,457
Finance	1,588,198
Human Resources	355,019
Legal	614,434
Safety & Security	341,197
Public Affairs	277,310
Operations Division	
Environmental Compliance	1,507,555
Ops Capital Assets	-
Warehouse	82,002
Water Treatment Plant	-
Water Quality (Lab)	-
Water Distribution	-
Sewer Operations	5,970,047
Engineering & Construction Division	
Engineering & Construction	5,741,630
<i>Subtotal: Direct Operating Expenses</i>	<u>\$ 21,409,766</u>
<i>Other Operating Expenses</i>	
Loss / (Gain) on ALCOSAN Billings	\$ -
<i>Subtotal: Other Operating Expenses</i>	<u>\$ -</u>
<i>Subtotal: Operating Expenses</i>	\$ 21,409,766
<u>Debt Service</u>	
Existing Debt	14,635,683
Proposed Debt	2,099,203
<i>Subtotal: Debt Service</i>	<u>\$ 16,734,886</u>
<u>Capital Expenditures & Transfers</u>	
Internally Generated Funds / PAYGO	\$ -
Internally Generated Funds / PAYGO - DSIC	-
Other Transfers to Reserves	110,000
Bad Debt Expense	1,530,158
Stormwater Credit Program Cost	185,167
<i>Subtotal: Capital Expenditures & Transfers</i>	<u>\$ 1,640,158</u>
Total: Stormwater Revenue Requirements	\$ 39,969,976
<i>Capital Costs to be Recovered through DSIC</i>	-
Total: Stormwater System Base Rate Revenue Requirement	\$ 39,969,976

Pittsburgh Water and Sewer Authority

FPFTY 2024 COS & Rate Design Model

Net Revenue Requirements

PWSA Exh. HJS-2SW-R

FY 2024

Proposed

Determination of Revenue Requirement

Operating Expenses \$ 21,409,766

Debt Service

Existing \$ 14,635,683

Proposed 2,099,203

Subtotal: Debt Service \$ 16,734,886

Other Capital Costs

Internally Generated Funds / PAYGO \$ -

Internally Generated Funds / PAYGO - DSIC -

Other Transfers to Reserves 110,000

Bad Debt Expense (1) 1,530,158

Stormwater Credit Program Cost (1) 185,167

Subtotal: Other Capital Costs \$ 1,825,325

Total: Revenue Requirements **\$ 39,969,976**

Revenue Offsets

Allocated Offsets \$ (698,179)

Less: Gradualism Adjustment (9,500,000)

Total: Net Revenue Requirements for Ratemaking **\$ 29,771,797**

(1) Varies based on level of revenue requirement and fee.

Pittsburgh Water and Sewer Authority

FPPTY 2024 COS & Rate Design Model

Stormwater Units of Service

PWSA Exh. HJS-3SW-R

Units of Service

<u>Billable Units - Non Stormwater Only</u>	<u>Parcels</u>	<u>Equivalencies</u>	<u>Equivalent Units</u>
Residential Rate (per ERU)			
Tier 1	11,231	0.5	5,615
Tier 2	58,537	1.0	58,537
Tier 3	12,782	2.0	25,564
Other	-	1.0	-
<i>Subtotal: Residential Units</i>	<u>82,550</u>		<u>89,716</u>
Residential - CAP			
Tier 1	1,457	0.5	729
Tier 2	5,658	1.0	5,658
Tier 3	669	2.0	1,338
Other	-	1.0	-
<i>Subtotal: Residential - CAP Units</i>	<u>7,784</u>		<u>7,725</u>
Commercial	15,670	1.0	71,110
Industrial	76	1.0	1,512
Health or Education	1,049	1.0	11,595
Municipal	967	1.0	6,021
Other	22,464	1.0	28,126
<i>Subtotal: Billable Units - Non Stormwater Only</i>	<u>130,560</u>		<u>215,805</u>
<u>Stormwater Only</u>			
Residential - SW Only			
Tier 1	407	0.5	204
Tier 2	599	1.0	599
Tier 3	121	2.0	242
Other	-	1.0	-
<i>Subtotal: Residential - SW Only</i>	<u>1,127</u>		<u>1,045</u>
Non-Residential	10,730	1.0	32,026
<i>Subtotal: Stormwater Only</i>	<u>11,857</u>		<u>33,071</u>
<i>Total: Billable Units</i>	142,417		248,876

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Stormwater COS by Customer Class

PWSA Exh. HJS-4SW-R

	FY 2024
Unit Cost Determination	COS
Stormwater Revenue Requirements	\$ 39,969,976
Less: Allocated Offsets	(698,179)
<i>Net Stormwater Revenue Requirements</i>	<u>\$ 39,271,797</u>
Stormwater ERUs	<u>248,876</u>
Annual Stormwater Cost per ERU	\$ 157.80

Customer Class Cost of Service	ERUs	Full COS Rate		COS by Class	% by Class
		Unit Rate	Unit Rate (Monthly)		
Residential	90,761	\$ 157.80	\$ 13.15	\$ 14,321,781	36.5%
Residential - CAP	7,725	157.80	13.15	1,218,979	3.1%
Commercial	103,136	157.80	13.15	16,274,514	41.4%
Industrial	1,512	157.80	13.15	238,589	0.6%
Health or Education	11,595	157.80	13.15	1,829,652	4.7%
Municipal	6,021	157.80	13.15	950,094	2.4%
Other	28,126	157.80	13.15	4,438,188	11.3%
	<u>248,876</u>			<u>\$ 39,271,797</u>	<u>100.0%</u>

Pittsburgh Water and Sewer Authority
FPPTY 2024 COS & Rate Design Model
 Adjustments to Cost of Service - Stormwater

PWSA Exh. HJS-5SW-R

COS Adjustments	Allocation Method	Residential	Residential - CAP	Commercial	Industrial	Health or Education	Municipal	Other	Total
		Adjustments to Cost of Service							
Gradualism - Between WW/Storm	Unadj. COS	36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Add: Bad Debt Expense	Unadj. COS	36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Add: Bad Debt Expense (SWO)	Unadj. COS (Weighted by SWO)	2.9%	0.2%	66.4%	1.0%	7.5%	3.9%	18.1%	100.0%
Add: Cost of Credits and Incentives	Unadj. COS	36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
BDP Forgone Revenue	Unadj. COS	37.6%		42.8%	0.6%	4.8%	2.5%	11.7%	100.0%
Cost of Service by Class									
Allocated Cost of Service (Unadjusted)		\$ 14,321,781	\$ 1,218,979	\$ 16,274,514	\$ 238,589	\$ 1,829,652	\$ 950,094	\$ 4,438,188	\$ 39,271,797
Exclude: Bad Debt & Credit Program		(625,551)	(53,243)	(710,843)	(10,421)	(79,916)	(41,498)	(193,852)	(1,715,325)
Net Cost of Service (1)		\$ 13,696,230	\$ 1,165,736	\$ 15,563,672	\$ 228,167	\$ 1,749,736	\$ 908,595	\$ 4,244,336	\$ 37,556,473
% of COS		36.5%	3.1%	41.4%	0.6%	4.7%	2.4%	11.3%	100.0%
Adjustments to Cost of Service									
Gradualism - Between WW/Storm	Adjustment	\$ (9,500,000)							
Add: Bad Debt Expense (NSWO)		570,367							
Add: Bad Debt Expense (SWO)		959,791							
Add: Cost of Credits and Incentives		185,167							
BDP Forgone Revenue		806,518							
Total: Adjusted Cost of Service		\$10,838,762	\$ 90,173	\$12,922,252	\$ 189,444	\$ 1,452,776	\$ 754,391	\$ 3,524,000	\$ 29,771,797
% of COS		36.4%	0.3%	43.4%	0.6%	4.9%	2.5%	11.8%	100.0%

(1) Net Cost of Service excludes Bad Debt Expense and Cost of Credits and Incentives since these costs vary based on the amount of the Stormwater fee.

Pittsburgh Water and Sewer Authority
 FPFTY 2024 COS & Rate Design Model
 Stormwater Rate Design

PWSA Exh. HJS-6SW-R

Unit Cost for Ratemaking

FY 2024

Net Stormwater Revenue Requirements	\$ 29,771,797
Add: Cost of BDP Forgone Revenue	806,518
Net Costs to Recover for Ratemaking	<u>\$ 30,578,315</u>
Stormwater ERUs	248,876
Annual Stormwater Cost per ERU for Ratemaking	\$ 122.87
Monthly Stormwater Charge per ERU	\$ 10.24

Monthly Stormwater Rates

	Units	Proposed Rate (\$/ERU)	Revenues	Class COS	Difference (\$)	Difference (%)
<u>Residential</u>						
Tier 1	11,638	\$ 5.12	\$ 715,039			
Tier 2	59,136	10.24	7,266,632			
Tier 3	12,903	20.48	3,171,041			
Other	-	10.24	-			
<i>Subtotal: Residential</i>	<u>83,677</u>		<u>11,152,712</u>	\$ 10,838,762	\$ 313,950	2.8%
<u>Residential - CAP</u>						
Tier 1	1,457	\$ 0.77	\$ 13,463			
Tier 2	5,658	1.54	104,560			
Tier 3	669	3.07	24,646			
Other	-	1.54	-			
<i>Subtotal: Residential - CAP</i>	<u>7,784</u>		<u>142,668</u>	\$ 90,173	\$ 52,496	36.8%
<u>Non-Residential</u>						
Commercial	103,136	\$ 10.24	\$ 12,673,352			
Industrial	1,512	10.24	185,795			
Health or Education	11,595	10.24	1,424,794			
Municipal	6,021	10.24	739,860			
Other	28,126	10.24	3,456,123			
<i>Subtotal: Non-Residential</i>	<u>150,390</u>		<u>18,479,923</u>	\$ 18,842,863	\$ (362,940)	-2.0%
<i>Total Stormwater</i>	<u>241,851</u>		<u>29,775,303</u>	\$ 29,771,797	\$ 3,506	0.0%

85%
85%
85%
85%

	Unadjusted COS		Revenue at Existing Rates		Revenue at Proposed Rates		Proposed Increase	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Base Rate Revenues								
Residential	\$ 14,321,781	36.5%	\$ 8,659,298	37.5%	\$ 11,152,712	37.5%	\$ 2,493,414	28.8%
Residential - CAP	1,218,979	3.1%	111,233	0.5%	142,668	0.5%	31,436	28.3%
Commercial	16,274,514	41.4%	9,839,174	42.6%	12,673,352	42.6%	2,834,177	28.8%
Industrial	238,589	0.6%	144,245	0.6%	185,795	0.6%	41,550	28.8%
Health or Education	1,829,652	4.7%	1,106,163	4.8%	1,424,794	4.8%	318,631	28.8%
Municipal	950,094	2.4%	574,403	2.5%	739,860	2.5%	165,457	28.8%
Other	4,438,188	11.3%	2,683,220	11.6%	3,456,123	11.6%	772,902	28.8%
Subtotal: Base Rate Revenues	\$ 39,271,797	100.0%	\$ 23,117,736	100.0%	\$ 29,775,303	100.0%	\$ 6,657,567	28.8%
DSIC Revenues								
Residential	n/a	n/a	\$ -	0.0%	\$ -	0.0%	-	0.0%
Residential - CAP	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Commercial	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Industrial	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Health or Education	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Municipal	n/a	n/a	-	0.0%	-	0.0%	-	0.0%
Subtotal: DSIC revenues	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%	\$ -	0.0%
Total: User Charge Revenues	\$ 39,271,797		\$ 23,117,736		\$ 29,775,303		\$ 6,657,567	100.0%
Other Revenues	698,179		698,179		698,179		-	0.0%
Total: Stormwater Conveyance Revenues	\$ 39,969,976		\$ 23,815,916		\$ 30,473,483		\$ 6,657,567	100.0%

	2024 Revenue @ Existing Rates			2024 Revenue @ COS Rates			2024 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenue									
<u>Non-Stormwater Only</u>									
Residential									
Tier 1	11,231	\$ 3.98	\$ 536,393	11,231	\$ 6.57	\$ 886,107	11,231	\$ 5.12	\$ 690,033
Tier 2	58,537	7.95	5,584,430	58,537	13.15	9,236,942	58,537	10.24	7,193,027
Tier 3	12,782	15.90	2,438,806	12,782	26.30	4,033,913	12,782	20.48	3,141,304
Other	-	7.95	-	-	13.15	-	-	10.24	-
<i>Subtotal: Residential</i>	82,550		\$ 8,559,628	82,550		\$ 14,156,962	82,550		\$ 11,024,364
Residential - CAP									
Tier 1	1,457	\$ 0.60	\$ 10,490	1,457	\$ 6.57	\$ 114,955	1,457	\$ 0.77	\$ 13,463
Tier 2	5,658	1.20	81,475	5,658	13.15	892,813	5,658	1.54	104,560
Tier 3	669	2.40	19,267	669	26.30	211,132	669	3.07	24,646
Other	-	1.20	-	-	13.15	-	-	1.54	-
<i>Subtotal: Residential - CAP</i>	7,784		\$ 111,233	7,784		\$ 1,218,900	7,784		\$ 142,668
Non-Residential									
Commercial	71,110	\$ 7.95	\$ 6,783,894	71,110	\$ 13.15	\$ 11,220,919	71,110	\$ 10.24	\$ 8,737,997
Industrial	1,512	7.95	144,245	1,512	13.15	238,589	1,512	10.24	185,795
Health or Education	11,595	7.95	1,106,163	11,595	13.15	1,829,652	11,595	10.24	1,424,794
Municipal	6,021	7.95	574,403	6,021	13.15	950,094	6,021	10.24	739,860
Other	28,126	7.95	2,683,220	28,126	13.15	4,438,188	28,126	10.24	3,456,123
<i>Subtotal: Non-Residential</i>	118,364		\$ 11,291,926			\$ 18,677,442	118,364		\$ 14,544,568
<i>Subtotal: Non-Stormwater Only</i>			\$ 19,962,786			\$ 34,053,304			\$ 25,711,600
<u>Stormwater Only</u>									
Residential - SW Only									
Tier 1	407	\$ 3.98	\$ 19,438	407	\$ 6.57	\$ 32,112	407	\$ 5.12	\$ 25,006
Tier 2	599	7.95	57,145	599	13.15	94,520	599	10.24	73,605
Tier 3	121	15.90	23,087	121	26.30	38,187	121	20.48	29,737
Other	-	7.95	-	-	13.15	-	-	10.24	-
<i>Subtotal: Residential - SW Only</i>	1,127		\$ 99,670	1,127		\$ 164,819	1,127		\$ 128,348
Non-Residential	32,026	7.95	3,055,280	32,026	13.15	5,053,595	32,026	10.24	3,935,355
<i>Subtotal: Stormwater Only</i>			\$ 3,154,950			\$ 5,218,414			\$ 4,063,703
Stormwater User Charge Revenue			\$ 23,117,736			\$ 39,271,718			\$ 29,775,303
DSIC Revenues									
Residential			\$ -			\$ -			\$ -
Non-Residential			-			-			-
<i>Subtotal: DSIC Revenues</i>			\$ -			\$ -			\$ -
Other Revenues									
Other Revenues			698,179			698,179			698,179
Total: System Revenues			\$ 23,815,916			\$ 39,969,897			\$ 30,473,483
FPPTY Stormwater Revenue Requirements						\$ 39,969,976			\$ 30,469,976
Difference						\$ (79)			\$ 3,506

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 2025 and 2026 Stormwater Revenue Requirements

PWSA Exh. HJS-9SW-R

	2025	2026
	Revenue	Revenue
Stormwater Revenue Requirements	Requirements	Requirements
<u>Operating Expenses</u>		
<i>Direct Operating Expenses</i>		
Administrative Division		
Executive Director	\$ 511,924	\$ 544,175
Customer Service	3,577,353	3,843,982
Management Information Systems	1,061,273	1,129,481
Finance	1,678,494	1,782,362
Human Resources	435,720	461,583
Legal	648,711	688,958
Safety & Security	360,469	385,044
Public Affairs	325,377	345,744
Operations Division		
Environmental Compliance	1,593,390	1,691,579
Ops Capital Assets	-	-
Warehouse	86,762	93,637
Water Treatment Plant	-	-
Water Quality (Lab)	-	-
Water Distribution	-	-
Sewer Operations	7,211,721	8,824,340
Engineering & Construction Division		
Engineering & Construction	5,902,574	6,264,330
<i>Subtotal: Direct Operating Expenses</i>	<u>\$ 23,393,768</u>	<u>\$ 26,055,215</u>
<i>Other Operating Expenses</i>		
Loss / (Gain) on ALCOSAN Billings	\$ -	\$ -
City Services	-	-
Non-City Water Payments	-	-
<i>Subtotal: Other Operating Expenses</i>	<u>\$ -</u>	<u>\$ -</u>
<i>Subtotal: Operating Expenses</i>	<u>\$ 23,393,768</u>	<u>\$ 26,055,215</u>
<u>Debt Service</u>		
Existing Debt	14,804,837	15,022,465
Proposed Debt	4,247,298	5,268,314
<i>Subtotal: Debt Service</i>	<u>\$ 19,052,135</u>	<u>\$ 20,290,779</u>
<u>Capital Expenditures & Transfers</u>		
Internally Generated Funds / PAYGO	\$ 209,276	\$ 1,017,221
Internally Generated Funds / PAYGO - DSIC	-	-
Other Transfers to Reserves	770,000	1,870,000
Bad Debt Expense	1,804,992	2,128,534
Stormwater Credit Program Cost	211,535	240,597
<i>Subtotal: Capital Expenditures & Transfers</i>	<u>\$ 2,784,267</u>	<u>\$ 5,015,754</u>
Total: Stormwater Revenue Requirements	\$ 45,441,706	\$ 51,602,345

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Revenue Increase Needed for 2025 and 2026

PWSA Exh. HJS-10SW-R

	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>
Revenue Requirement	\$ 39,969,976	\$ 45,441,706	\$ 51,602,345
Stormwater Gradualism	(9,500,000)	(8,500,000)	(8,500,000)
Offsetting Misc Revenue	(698,179)	(712,143)	(726,386)
Net Rate Revenue Requirement	<u>\$ 29,771,797</u>	<u>\$ 36,229,563</u>	<u>\$ 42,375,960</u>
<i>Increase</i>		<i>21.69%</i>	<i>16.97%</i>
Revenue at Existing Rates	\$ 23,303,779	\$ 29,775,303	\$ 36,227,069
Net Rate Revenue Need	\$ 6,468,018	\$ 6,454,260	\$ 6,148,891
<i>Increase</i>	<i>27.76%</i>	<i>21.68%</i>	<i>16.97%</i>
Offsetting New Charge Revenue			
Infrastructure Improvement Charge	\$ -	\$ -	\$ -
Customer Assistance Charge	\$ -	\$ 1,041,772	\$ 1,215,401
Subtotal New Charge Revenue	<u>\$ -</u>	<u>\$ 1,041,772</u>	<u>\$ 1,215,401</u>
Incremental Revenue Applied	\$ -	\$ 1,041,772	\$ 173,629
Net Retail Base Rate Increase Nee	\$ 6,468,018	\$ 5,412,488	\$ 5,975,262
<i>Increase</i>		<i>18.18%</i>	<i>16.98%</i>

Unit Cost for Ratemaking	FY 2025	FY 2026
Net Stormwater Revenue Requirements	\$ 36,229,563	\$ 42,375,960
Add: Cost of BDP Forgone Revenue	-	-
Less: Cost of CAP Program (Recovered thru New Charge)	(80,976)	(87,278)
Net Costs to Recover for Ratemaking	\$ 36,148,588	\$ 42,288,682
 Stormwater ERUs	 248,876	 248,876
Annual Stormwater Cost per ERU for Ratemaking	\$ 145.25	\$ 169.92
Monthly Stormwater Charge per ERU	\$ 12.10	\$ 14.16

Monthly Stormwater Rates

	Units	Proposed Rate (\$/ERU)	Revenues
<u>Residential</u>			
Tier 1	11,638	\$ 6.05	\$ 844,919
Tier 2	59,136	12.10	8,586,547
Tier 3	12,903	24.21	3,748,580
Other	-	12.10	-
<i>Subtotal: Residential</i>	<u>83,677</u>		<u>13,180,046</u>
 <u>Residential - CAP</u>			
Tier 1	1,457	\$ 0.91	\$ 15,910
Tier 2	5,658	1.82	123,571
Tier 3	669	3.63	29,142
Other	-	1.82	-
<i>Subtotal: Residential - CAP</i>	<u>7,784</u>		<u>168,623</u>
 <u>Non-Residential</u>			
Commercial	103,136	\$ 12.10	\$ 14,975,347
Industrial	1,512	12.10	219,542
Health or Education	11,595	12.10	1,683,594
Municipal	6,021	12.10	874,249
Other	28,126	12.10	4,083,895
<i>Subtotal: Non-Residential</i>	<u>150,390</u>		<u>21,836,628</u>
 <i>Total Stormwater</i>	 <u>241,851</u>		 <u>35,185,296</u>

Customer Assistance Charge

<u>Allocated Customer Assistance Program Costs</u>			
Forgone Revenue	\$ 953,055	\$ 1,114,350	
Operations	80,976	87,278	
Total Charge Recovery	\$ 1,034,031	\$ 1,201,628	
Units (Less CAP units)	241,151	241,151	
Customer Assistance Charge Unit Rate	\$ 0.36	\$ 0.42	
	per ERU / Mo	per ERU / Mo	
 <u>Incorporated New Charge Unit Rate</u>			
Tier 1	\$ 0.18	\$ 0.21	
Tier 2	0.36	0.42	
Tier 3	0.72	0.84	
All Other	0.36	0.42	

	2024 Revenue @ Proposed Rates			2025 Revenue @ Proposed Rates			2026 Revenue @ Proposed Rates		
	Units	Rates	Revenue	Units	Rates	Revenue	Units	Rates	Revenue
Base Rate Revenue									
<u>Non-Stormwater Only</u>									
Residential									
Tier 1	11,231	\$ 5.12	\$ 690,033	11,231	\$ 6.05	\$ 815,371	11,231	\$ 7.08	\$ 953,512
Tier 2	58,537	10.24	7,193,027	58,537	12.10	8,499,572	58,537	14.15	9,939,583
Tier 3	12,782	20.48	3,141,304	12,782	24.21	3,713,427	12,782	28.30	4,340,767
Other	-	10.24	-	-	12.10	-	-	14.15	-
<i>Subtotal: Residential</i>	82,550		\$ 11,024,364	82,550		\$ 13,028,370	82,550		\$ 15,233,862
Residential - CAP									
Tier 1	1,457	\$ 0.77	\$ 13,463	1,457	\$ 0.91	\$ 15,910	1,457	\$ 1.06	\$ 18,533
Tier 2	5,658	1.54	104,560	5,658	1.82	123,571	5,658	2.13	144,618
Tier 3	669	3.07	24,646	669	3.63	29,142	669	4.25	34,119
Other	-	1.54	-	-	1.82	-	-	2.13	-
<i>Subtotal: Residential - CAP</i>	7,784		\$ 142,668	7,784		\$ 168,623	7,784		\$ 197,271
Non-Residential									
Commercial	71,110	\$ 10.24	\$ 8,737,997	71,110	\$ 12.10	\$ 10,325,172	71,110	\$ 14.15	\$ 12,074,478
Industrial	1,512	10.24	185,795	1,512	12.10	219,542	1,512	14.15	256,738
Health or Education	11,595	10.24	1,424,794	11,595	12.10	1,683,594	11,595	14.15	1,968,831
Municipal	6,021	10.24	739,860	6,021	12.10	874,249	6,021	14.15	1,022,366
Other	28,126	10.24	3,456,123	28,126	12.10	4,083,895	28,126	14.15	4,775,795
<i>Subtotal: Non-Residential</i>	118,364		\$ 14,544,568	118,364		\$ 17,186,453			\$ 20,098,207
<i>Subtotal: Non-Stormwater Only</i>			\$ 25,711,600			\$ 30,383,445			\$ 35,529,339
<u>Stormwater Only</u>									
Residential - SW Only									
Tier 1	407	\$ 5.12	\$ 25,006	407	\$ 6.05	\$ 29,548	407	\$ 7.08	\$ 34,554
Tier 2	599	10.24	73,605	599	12.10	86,975	599	14.15	101,710
Tier 3	121	20.48	29,737	121	24.21	35,153	121	28.30	41,092
Other	-	10.24	-	-	12.10	-	-	14.15	-
<i>Subtotal: Residential - SW Only</i>	1,127		\$ 128,348	1,127		\$ 151,676	1,127		\$ 177,356
Non-Residential	32,026	10.24	\$ 3,935,355	32,026	12.10	4,650,175	32,026	14.15	5,438,015
<i>Subtotal: Stormwater Only</i>			\$ 4,063,703			\$ 4,801,851			\$ 5,615,371
<u>Customer Assistance Charge</u>									
Residential	90,761	\$ -	\$ -	90,761	\$ 0.36	\$ 392,088	90,761	\$ 0.42	\$ 457,435
Residential - CAP	7,725	-	-	7,725	-	-	7,725	-	-
Commercial	103,136	-	-	103,136	0.36	445,548	103,136	0.42	519,805
Industrial	1,512	-	-	1,512	0.36	6,532	1,512	0.42	7,620
Health or Education	11,595	-	-	11,595	0.36	50,090	11,595	0.42	58,439
Municipal	6,021	-	-	6,021	0.36	26,011	6,021	0.42	30,346
Other	28,126	-	-	28,126	0.36	121,504	28,126	0.42	141,755
<i>Subtotal: Customer Assistance Charge</i>	248,876		\$ -	248,876		\$ 1,041,772			\$ 1,215,401
Stormwater User Charge Revenue			\$ 29,775,303			\$ 36,227,069			\$ 42,360,111
DSIC Revenues									
Residential			\$ -			\$ -			\$ -
Non-Residential			-			-			-
<i>Subtotal: DSIC Revenues</i>			\$ -			\$ -			\$ -
Other Revenues									
Other Revenues			698,179			712,143			726,386
Total: System Revenues			\$ 30,473,483			\$ 36,939,212			\$ 43,086,497
FPFTY Stormwater Revenue Requirements			\$ -			\$ 36,941,706			\$ 43,102,345
Difference						\$ (2,495)			\$ (15,848)

Pittsburgh Water and Sewer Authority
FPFTY 2024 COS & Rate Design Model
 Typical Bill Comparison

PWSA Exh. HJS-13SW-R

	FTY 2023	FPFTY 2024	2025	2026
Customer Impacts				
<u>Residential - 1 ERU</u>				
Stormwater Base Rates	\$ 7.95	\$ 10.24	\$ 12.10	\$ 14.15
New Stormwater Charges	-	-	0.36	0.42
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 7.95	\$ 10.24	\$ 12.46	\$ 14.57
\$ Change		\$ 2.29	\$ 2.22	\$ 2.11
% Change		28.8%	21.7%	16.9%
<u>Commercial - 8 ERU</u>				
Stormwater Base Rates	\$ 63.60	\$ 81.92	\$ 96.80	\$ 113.20
New Stormwater Charges	-	-	2.88	3.36
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 63.60	\$ 81.92	\$ 99.68	\$ 116.56
\$ Change		\$ 18.32	\$ 17.76	\$ 16.88
% Change		28.8%	21.7%	16.9%
<u>Industrial - 30 ERU</u>				
Stormwater Base Rates	\$ 238.50	\$ 307.20	\$ 363.00	\$ 424.50
New Stormwater Charges	-	-	10.80	12.60
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 238.50	\$ 307.20	\$ 373.80	\$ 437.10
\$ Change		\$ 68.70	\$ 66.60	\$ 63.30
% Change		28.8%	21.7%	16.9%
<u>Health or Education - 32 ERU</u>				
Stormwater Base Rates	\$ 254.40	\$ 327.68	\$ 387.20	\$ 452.80
New Stormwater Charges	-	-	11.52	13.44
Stormwater DSIC	-	-	-	-
Total Monthly Bill	\$ 254.40	\$ 327.68	\$ 398.72	\$ 466.24
\$ Change		\$ 73.28	\$ 71.04	\$ 67.52
% Change		28.8%	21.7%	16.9%

VERIFICATION

I, Harold J. Smith, hereby state that: (1) I am a Vice President of Raftelis Financial Consultants, Inc.; (2) I have been retained by The Pittsburgh Water and Sewer Authority (“PWSA”) and am authority to present rebuttal testimony on its behalf; (3) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 09/05/2023 | 1:33 PM PDT

DocuSigned by:
Harold J. Smith
30708602E08B446.....

Harold J. Smith, Vice President
Raftelis Financial Consultants, Inc.

Consultant to:
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REBUTTAL TESTIMONY OF

KEITH READLING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

STORMWATER CHARGE

September 8, 2023

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TABLE OF EXHIBITS

Exhibit KR-3	River Development Corporation's Response to PWSA-I-6
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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Keith Readling. My business address is 807 E Main Street, Suite 6-050,
4 Durham, NC 27701.

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I provided Direct Testimony on May 9, 2023. (PWSA St. No. 8).

7 **Q. WHAT TOPICS DID YOU ADDRESS IN DIRECT TESTIMONY?**

8 A. I addressed PWSA’s stormwater program revenue requirements, the identification of
9 impervious area, stormwater rate structure, stormwater billing and stormwater credit
10 program.

11 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

12 A. The purpose of my Rebuttal Testimony is to respond to certain issues related to
13 stormwater charges that were raised in the Direct Testimony submitted by Michael J.
14 McNamara and Eric M. Callocchia on behalf of the Pittsburgh School District (“School
15 District”) (School District St. Nos. 1 and 2, respectively); the Direct Testimony submitted
16 by Robert Strauss and Cheryl McAbee on behalf of River Development Corporation
17 (“River Development” or “RDC”) (RDC St. Nos. 1 and 2, respectively); and the Direct
18 Testimony of Harry S. Geller on behalf of Pittsburgh United’s Our Water Table
19 (“Pittsburgh United”) (Pittsburgh United St. 1). Other stormwater issues raised by these
20 witnesses will be addressed in Rebuttal Testimony submitted by William J. Pickering and
21 Tony Igwe, respectively. (PWSA St. Nos. 1-R and 5-R).

22 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

1 A. Yes. I am sponsoring Exhibit KR-3, which is the response of River Development to
2 discovery propounded by PWSA at I-6.

3 **II. RESPONSE TO SCHOOL DISTRICT**

4 **Q. PLEASE RESPOND TO THE SCHOOL DISTRICT’S WITNESS MICHAEL J.**
5 **MCNAMARA’S STATEMENT THAT PWSA HAS NOT INSTALLED ANY**
6 **METERS OR OTHER DEVICES ON THE SCHOOL DISTRICT’S PROPERTIES**
7 **TO MEASURE THE ACTUAL AMOUNT OF STORMWATER RUNOFF.**
8 **(SCHOOL DISTRICT ST. NO. 1 AT 13).**

9 A. By its nature, stormwater service is a non-metered utility service. The Commission
10 recognized this in approving PWSA’s stormwater tariff, which permits charges to
11 customers for stormwater service based on the number of equivalent residential units
12 (“ERUs”) of impervious area found on a property, as well as by approving PWSA’s
13 Stormwater Compliance Plan.

14 In fact, the School District’s other witness, Eric M. Callocchia, explicitly
15 acknowledged in his Direct Testimony that he is not aware of any entity that meters
16 stormwater service for the purpose of billing customers because doing so would be “too
17 difficult, if not impossible...” (School District St. No. 2 at 23). As I explained in my
18 Direct Testimony, impervious surface area is the most commonly used metric across the
19 United States to charge for costs related to stormwater service. (PWSA St. No. 8 at 7).
20 PWSA’s stormwater charge is properly based on a property’s impervious area, as
21 previously approved by the Commission.

22 **Q. WHAT DOES SCHOOL DISTRICT WITNESS MR. CALLOCCHIA ARGUE**
23 **REGARDING COST OF SERVICE ALLOCATION FOR STORMWATER?**

24 A. Mr. Callocchia argues that rather than calculating a system-wide stormwater rate per
25 ERU and applying it to all stormwater customers, PWSA should instead distribute all
26 adjustments except gradualism based on class contribution, which he argues would better

1 reflect cost causation. Doing so would increase the residential charge per ERU and
2 decrease the non-residential charge per ERU. (School District St. No. 2 at 12-17).

3 **Q. DO YOU AGREE WITH MR. CALLOCCHIA’S POSITION ON COST**
4 **ALLOCATION?**

5 A. No, I do not. Cost allocations for stormwater are not done by class. Impervious area
6 among different classes of property creates similar runoff and places similar demand on
7 PWSA’s system. It is not industry practice to do intraclass allocations for stormwater
8 service.

9 **Q. WHAT IS MR. CALLOCCHIA’S POSITION REGARDING THE STRUCTURE**
10 **OF PWSA’S STORMWATER RATES?**

11 A. Mr. Callocchia argues that, since PWSA considers a tiered rate structure for residential
12 customers to be “equitable,” PWSA should define what it means by intra-class equity and
13 investigate whether a tiered rate structure for non-residential customers would be more
14 equitable than charging per ERU. (School District St. No. 2 at 18-21). Additionally, Mr.
15 Callocchia claims that for non-residential customers, PWSA should round the number of
16 ERUs up or down to the nearest half ERU for billing purposes. (School District St. No. 2
17 at 20-21).

18 **Q. WHEN PWSA SAYS THAT ITS STORMWATER RATE STRUCTURE IS**
19 **“EQUITABLE,” WHAT DOES THE AUTHORITY MEAN BY THAT?**

20 A. In this context, “equitable” means that the stormwater charge is commensurate with the
21 demand for service. While stormwater is a non-metered service, we use impervious area
22 as a surrogate for measuring the demand a parcel places on PWSA and its system for
23 stormwater management. This is more equitable than the previous approach in which
24 stormwater costs were included within wastewater rates, since wastewater rates are based
25 on water consumption, and water consumption has no relationship to the demand for

1 stormwater management service. Of note, as Mr. Igwe’s Rebuttal Testimony explains,
 2 stormwater costs need to be recovered by PWSA, and if they are not recovered through a
 3 separate stormwater charge, PWSA would have to return to the inequitable approach of
 4 recovering them through wastewater rates.

5 **Q. DID PWSA CONSIDER OTHER APPROACHES TO ITS STORMWATER RATE**
 6 **STRUCTURE, SUCH AS A TIERED RATE STRUCTURE FOR NON-**
 7 **RESIDENTIAL CUSTOMERS, AS MR. CALLOCCHIA SUGGESTS?**

8 A. Yes. PWSA carefully considered its stormwater rate structure as established in its
 9 previous rate case. PWSA determined that a three-tiered rate structure for residential
 10 customers is appropriate because the range of impervious area on those properties is
 11 fairly narrow, with more than 96% of the residential properties having less than 4,000
 12 square feet of impervious area. This type of tiered approach for residential customers is
 13 the industry standard and made sense given the characteristics of residential properties in
 14 PWSA’s service territory. I am aware that courts in other states have endorsed the use of
 15 impervious area as the basis for calculating stormwater charges or measuring stormwater
 16 runoff.¹

17 For non-residential customers, each ERU of impervious area (1,650 square feet) is
 18 a step up in the stormwater charge. These bills have effectively been parsed out based on
 19 impervious area in increments of 1,650 square feet.

20 **Q. DO YOU AGREE WITH MR. CALLOCCHIA’S POSITION REGARDING**
 21 **ROUNDING ERUS FOR NON-RESIDENTIAL CUSTOMERS?**

22 A. No, I do not. First, by arguing that PWSA should round to the nearest half ERU, Mr.
 23 Callocchia is effectively arguing that PWSA should charge by smaller units of 825 square

¹ See *Maryland Department of the Environment v. Anacostia Riverkeeper*, 447 Md. 88 (2016); *Tukwila School District No. 406 v. City of Tukwila*, 140 Wash. App. 735, 167 P3d 1167, 1172 (2007); *City of Lewistown v. Gladu*, 40 A.3d 964 (2012).

1 feet, as opposed to 1,650 square feet as is the current approach. This is inadvisable, as
 2 the smaller unit makes it harder to accurately bill. This will impose additional costs on
 3 PWSA and is not consistent with the quality of data.

4 Second, while Mr. Callocchia argues that PWSA should round up and down,
 5 PWSA only rounds up because this results in more accurate bills. Impervious area is
 6 captured by humans who are most likely to under-capture. Mapping of impervious area
 7 results in boundaries being clipped in a way that also underestimates impervious area,
 8 and small or skinny slivers of impervious area may be ignored in the tally of impervious
 9 area if their polygonal area falls below a minimum mapping unit. Further, if PWSA were
 10 to round up and down as Mr. Callocchia argues, I estimate that this would result in a 4%
 11 revenue decrease for PWSA. At the end of the day, this will lead to another rate increase
 12 and will ultimately cost the School District more money in stormwater charges than
 13 under PWSA's current practice. As such, Mr. Callocchia's argument regarding rounding
 14 must be rejected.

15 **Q. DOES MR. CALLOCCHIA ACCEPT THE USE OF IMPERVIOUS AREA AS**
 16 **THE BASIS FOR PWSA'S STORMWATER CHARGE?**

17 A. No, he does not. Mr. Callocchia argues that metrics such as an Intensity of Development
 18 Factor ("IDF") and Equivalent Hydraulic Area ("EHA") consider both pervious and
 19 impervious area of a parcel, and may provide a more equitable stormwater rate than an
 20 ERU calculation based only on impervious area. (School District St. No. 2 at 21-23).

21 **Q. WHY IS PWSA'S STORMWATER CHARGE BASED ON IMPERVIOUS AREA,**
 22 **RATHER THAN ON IDF OR EHA AS MR. CALLOCCHIA SUGGESTS?**

23 A. Using IDF would be similar to calculating a percentage of impervious area, and
 24 employing EHA will result in a similar approach to using impervious area. These
 25 methods would result in similar numbers but would be overly complicated and more

1 expensive for PWSA to implement. Impervious area is the more straightforward and
 2 transparent approach that is most commonly used throughout the United States and
 3 results in charges that are commensurate with demand for stormwater service.

4 **Q. IN YOUR OPINION, WOULD BASING PWSA’S STORMWATER CHARGE ON**
 5 **IDF OR EHA RESULT IN A MORE EQUITABLE STORMWATER RATE?**

6 A. No. These methods would not result in charges that are any more equitable than
 7 impervious area. Additionally, these methods would only primarily benefit properties
 8 with 100% impervious area. The School District’s properties tend to have green space,
 9 so these methods would not have Mr. Callocchia’s desired effect of reducing the School
 10 District’s stormwater bills.

11 **Q. WHAT DOES MR. CALLOCCHIA RECOMMEND REGARDING PWSA’S**
 12 **STORMWATER CREDIT PROGRAM?**

13 A. Mr. Callocchia argues that PWSA should identify simple credit mechanisms that can
 14 mitigate the financial impact of the stormwater charges. For example, he claims that the
 15 School District should be eligible for a 10% to 20% credit for educating students on the
 16 importance of stormwater management. (School District St. No. 2 at 27).

17 **Q. HOW DO YOU RESPOND REGARDING STORMWATER CREDITS?**

18 A. I do not agree with Mr. Callocchia’s specific proposal. The purpose of the stormwater
 19 credit program is not to simply give a discount on stormwater charges. Rather, the
 20 purpose is to recognize when customers take tangible steps to reduce an appreciable
 21 amount of stormwater runoff that reduces the demand on PWSA’s stormwater system.
 22 While PWSA supports educating students about the importance of stormwater
 23 management, PWSA must consider the costs of the credits it implements and ensure that
 24 the credit is provided in exchange for a measurable benefit to the system. PWSA’s

1 current tariffed requirements to receive a credit are sufficiently accessible and do not
2 require any modification beyond the changes proposed in PWSA's rate filing.

3 While some places offer the types of educational credits that Mr. Callocchia
4 describes, I am not aware of any *regulated* stormwater utility that offers such credits.
5 The bar is higher for regulated utilities that cannot simply implement credits as a "policy
6 decision" or due to political pressures. PWSA views stormwater credits as a refinement in
7 the computation of demand for service to recognize when a customer takes tangible steps
8 to reduce runoff. While it may be beneficial to society to educate students about
9 stormwater, it does not directly reduce stormwater runoff. To receive a credit requires
10 that a customer actually reduce runoff, and thus reduce demand on the system.

11 **III. RESPONSE TO PITTSBURGH UNITED**

12 **Q. PLEASE SUMMARIZE PITTSBURGH UNITED WITNESS GELLER'S**
13 **TESTIMONY REGARDING THE STORMWATER CREDIT PROGRAM.**

14 A. Mr. Geller claims that PWSA does not provide sufficient ways for low-income customers
15 to adopt "green stormwater mitigation" measures. He argues that PWSA should be
16 required to allocate \$100,000 annually to allow low-income customers to install green
17 mitigation measures at no cost. (Pittsburgh United St. 1 at 47).

18 **Q. HOW DO YOU RESPOND?**

19 A. An overarching goal of PWSA's stormwater credit program is to strike a balance between
20 recognizing customers' actions that meaningfully reduce stormwater runoff while also
21 imposing a minimal administrative burden on PWSA and its ratepayers. Mr. Geller's
22 recommendation would essentially require PWSA to administer a grant program for
23 stormwater mitigation measures. This would inherently increase the complexity and
24 costs of administering the credit program (and thus costs to other ratepayers).

1 Additionally, this proposal would essentially require that PWSA pay for the reduced
 2 runoff associated with such measures *twice* – once by providing the grant to fund the
 3 mitigation measure, and once more by providing a credit.

4 Mr. Geller’s proposal is also addressed in Ms. Mechling’s Rebuttal Testimony
 5 (PWSA St. No. 6-R).

6 **IV. RESPONSE TO RIVER DEVELOPMENT CORPORATION**

7 **Q. DOES RIVER DEVELOPMENT ACCEPT THE USE OF HARD OR**
 8 **IMPERVIOUS AREA FOR THE CALCULATION OF STORMWATER**
 9 **CHARGES?**

10 A. No. Dr. Strauss testifies that the surface area of parking lots and roofs is “not reasonably
 11 related to specific or general benefits of stormwater mitigation.” (RDC St. No. 1 at 11).
 12 In his view, the impervious area is not related to the amount of stormwater runoff on a
 13 property. Dr. Strauss also discusses the horizontal design of the roof of the building on
 14 the RDC property and states that it is used to assist in cooling in the summer and
 15 retaining heat in the winter. He further testifies that wide variations occurred in
 16 precipitation throughout Pittsburgh in recent years, bringing into question the
 17 equitableness of PWSA’s stormwater charges. Finally, he believes that measuring an
 18 area without regard to water runoff caused by the slope of the terrain leads to inaccurate
 19 designations of responsibility for stormwater runoff. (RDC St. No. 1 at 11-12).

20 In addition, testifying for River Development, Dr. McAbee opines that the use of
 21 impervious area is an “inefficient and impractical method of calculating stormwater
 22 runoff.” (RDC St. No. 2 at 4). Claiming that the use of square feet of impervious surface
 23 is “too imprecise,” Dr. McAbee testifies that stormwater calculations should be “based on
 24 formulas including the number of smokestacks, the number of violations for exceeding
 25 air and water emissions, the number of actual exceedances etc.” (RDC St. No. 2 at 5).

1 **Q. WHAT DOES RIVER DEVELOPMENT RECOMMEND WITH RESPECT TO**
 2 **USE OF A METHOD OTHER THAN THE IMPERVIOUS AREA METHOD?**

3 A. Dr. Strauss does not offer an alternative method other than impervious area that should be
 4 used as a basis for PWSA’s stormwater charges. In fact, in response to discovery
 5 provided on September 7, 2023 to PWSA-I-6, Dr. Strauss indicated that he has not
 6 finalized his reasons for asserting that the impervious area of a property is unrelated to the
 7 management of stormwater runoff. This response, which demonstrates the shortcomings
 8 of Dr. Strauss’ testimony, is attached as Exhibit KR-3. And, Dr. McAbee recommends
 9 that PWSA and intervenors in this proceeding should jointly create an equitable formula
 10 based on “science.” (RDC St. No. 2 at 11, 15). It is not clear from the testimony of either
 11 witness what alternative method River Development is proposing that the Commission
 12 should adopt for PWSA’s calculation of stormwater charges.

13 **Q. PLEASE RESPOND TO RIVER DEVELOPMENT’S CRITICISMS OF USING**
 14 **IMPERVIOUS AREA AS A BASIS FOR STORMWATER CHARGES.**

15 A. The use of impervious area has been contemplated by PWSA and discussed with
 16 stakeholders over a number of years. Further, it is an appropriate method to use for
 17 calculating stormwater charges because impervious area is a hard surface that prevents or
 18 significantly impedes precipitation or snowmelt from soaking into the ground. When
 19 precipitation falls on an impervious area, it runs off the property rather than being
 20 absorbed into the ground. Impervious surfaces include areas such as rooftops and paved
 21 areas, which the River Development witnesses acknowledge exists on its property. As to
 22 the other factors suggested by River Development for use in calculating stormwater
 23 charges, PWSA recognizes that a number of characteristics of a property can affect the
 24 actual amount of stormwater runoff, but they are difficult to measure, and it is not
 25 feasible to visit and assess these properties to consider such nuances. Rate structures for

1 stormwater management do not typically consider factors that came with the land itself.
2 Further, the design of the roof, while it is used by RDC to assist in cooling in the summer
3 and retaining heat in the winter, does not affect the management of stormwater runoff.

4 **Q. WHY IS IMPERVIOUS AREA IMPORTANT TO THE DEVELOPMENT OF A**
5 **STORMWATER CHARGE?**

6 A. As I explained in my Direct Testimony, impervious surface area is the most commonly
7 used metric across the United States to charge for costs related to stormwater services
8 like flood control and water quality management. Of note, according to a recent Black
9 and Veatch Stormwater Utility Survey, 92% of entities charging a stormwater rate use
10 this method.² Impervious surfaces, like sidewalks, rooftops and driveways, prevent or
11 significantly impede water's ability to infiltrate into the ground. Therefore, the more
12 impervious area on a property, the more runoff the property generates and the greater the
13 demand for the utility's stormwater services. I see no reason to use a different method, as
14 suggested by Dr. McAbee, for Pittsburgh than is used for other communities, including
15 those she discusses as being agricultural communities. Her testimony relating to the
16 development of a formula based on "science" and recommending the inclusion of the
17 number of smokestacks, violations for exceeding air and water emissions, and the number
18 of actual exceedances is not persuasive because those factors do not relate to stormwater
19 runoff. While many considerations could be included in the calculation of a stormwater
20 charge, PWSA has opted to implement the industry standard, which the Commission has
21 approved. Basing the stormwater charges on the amount of impervious area on a

² https://www.wichita.edu/academics/fairmount_college_of_liberal_arts_and_sciences/hugowall/efc/news/meramec-funding-source-pages/stormwater-fee.php.

1 property is simple to calculate, transparent, and results in the imposition of equitable
 2 charges across PWSA’s customer base.

3 **Q. DOES RIVER DEVELOPMENT RAISE ANY OTHER ISSUES ABOUT PWSA’S**
 4 **STORMWATER CHARGES THAT YOU WISH TO ADDRESS?**

5 A. Yes. Through the Direct Testimony of Dr. McAbee, River Development alleges that
 6 because PWSA’s stormwater charge for residential customers has a three-tier rating
 7 system and has a one-tier rating system for nonresidential customers, the charge is
 8 unreasonable and discriminatory. (RDC St. No. 2 at 9-11).

9 **Q. DO YOU AGREE?**

10 A. No. As I explain above in response to a similar assertion made by Mr. Callocchia on
 11 behalf of the School District, the range of impervious area is fairly narrow for residential
 12 customers, which makes the use of a three-tiered approach reasonable. What that means
 13 is that residential customers fall into one of three buckets, depending on the range of
 14 impervious area that is on their property. Residential customers with 400 square feet to
 15 less than 1,015 square feet of impervious area pay a “Tier 1” stormwater charge in 2023
 16 that is based on 0.5 Equivalent Residential Units (“ERUs”), or currently \$3.98 per month.
 17 For property with 1,015 square feet of impervious area but less than 2,710 square feet of
 18 impervious area, residential customers pay a “Tier 2” stormwater charge in 2023 that is
 19 based on 1 ERU, or currently \$7.95 per month. Residential customers with impervious
 20 area greater than or equal to 2,710 square feet pay a stormwater charge that is based on 2
 21 ERUs, or currently \$15.90 per month. This approach acknowledges variability in
 22 demand but also limits the administrative burden of maintaining, calculating,
 23 communicating, and providing customer service for individualized charges for the
 24 majority of parcels.

1 However, due to a much wider range of impervious areas on nonresidential
2 properties, a tiered approach for nonresidential properties is not feasible due to the
3 number of tiers that would be needed. Importantly, “tier” is term of convenience and is
4 not intended to convey differences in rate structure. It simply means that without the
5 three tiers that are used for residential customers, PWSA uses an infinite number of units
6 for nonresidential properties. Stated differently, instead of using a tiered approach, all
7 nonresidential customers in 2023 pay the monthly amount of \$7.95 per ERU, which is the
8 same rate that is paid by residential customers in the “Tier 2” category, using 1 ERU. In
9 this way, nonresidential customers have unlimited tiers, as their charges are equitably
10 based on a simple calculation using their precise number of ERUs.

11 PWSA witness Igwe testifies in his Rebuttal Testimony that River Development’s
12 property contains 202,589 square feet, or 123 ERUs. (PWSA St. No. 5 at 17). The
13 current monthly stormwater charge billed to River Development is \$977.85, which is 123
14 ERUs multiplied by \$7.95 per ERU. Given the wide variation among nonresidential
15 customers, and the significant amount of impervious area that is on River Development’s
16 property, it is difficult to understand how a tiered approach for nonresidential customers
17 would benefit River Development. Requiring nonresidential customers to pay only for
18 the exact amount of their impervious areas is an equitable approach since it avoids a
19 situation where a nonresidential customer’s impervious area falls at the low end of a
20 much larger range than is used for residential customers but pays the same rate that is
21 charged to a nonresidential customer whose impervious area falls in the higher end of the
22 range. Also, it is likely that River Development’s rate would not change with the use of

1 tiers since it would still be based on the amount of impervious area. PWSA's approach is
2 precise and produces a reasonable result.

3 As to Dr. McAbee's claims regarding discrimination between residential and
4 nonresidential customers, I am advised by counsel that variations in the treatment of
5 different customer classes is unlawful under the Public Utility Code only if it is
6 unreasonable.³ Here, because PWSA has chosen a method for residential customers that
7 is simple to explain and implement, it is reasonable due to the range of fairly narrow
8 range of impervious area, and results in the same charge for any customer class with 1
9 ERU of impervious area. By contrast, given the wide range of impervious area among
10 nonresidential customers, PWSA's approach properly calculates the stormwater charges
11 on the basis of each customer's specific amount of impervious area.

12 **V. CONCLUSION**

13 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

14 **A.** Yes. However, I reserve the right to supplement it, as appropriate.

³ 66 Pa. C.S. § 1304.

PWSA Exhibit KR-3

Respondent:

Cheryl R. McAbee, President, River Development Corporation

Date: September 7, 2023

8. Refer to RDC St. No. 1 at 12. Have you compared the annual precipitation over a 5- or 10-year period throughout the Pittsburgh area? If so, please provide the results.

RESPONSE:

Robert Strauss – Dr. Robert Strauss has not developed the requested precipitation results.

9. Refer to RDC St. No. 1 at 12. Please explain the assertion that the slope of terrain skews the measurement of impervious surface area and how that affects the number of ERUs on which the RDC stormwater fee is based.

RESPONSE:

Robert Strauss – Dr. Robert Strauss has not developed the requested terrain but will supply such at a later date.

VERIFICATION

I, Keith Readling, hereby state that: (1) I am the Executive Vice President, Raftelis Financial Consultants, Consultant to The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 09/08/2023 | 8:58 AM EDT

DocuSigned by:
Keith Readling
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Keith Readling
Executive Vice President
Raftelis Financial Consultants

Consultant to:
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

REBUTTAL TESTIMONY OF

CHRISTINE M. FAY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039921 (Stormwater)

Topics:

Revenue Requirement Recommendations of Other Parties

Capital Markets and Rating Considerations

Peer Review of Financial Metrics

September 8, 2023

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TABLE OF EXHIBITS

CF-10	Moody’s Investors Service, 29 May 2023: Pittsburgh Water & Sewer Authority, PA, Update to credit opinion following outlook revised to positive
CF-11	S&P Global Ratings, May 17, 2023: Summary: Pittsburgh Water and Sewer Authority; Water/Sewer
CF-12	Moody’s Investors Service, 12 June 2023: Water and Sewer Utilities – US Medians – Steady revenue growth, strong coverage and robust liquidity boost sector
CF-13	S&P Global Ratings, February 24, 2022: U.S. Municipal Water and Sewer Sector Medians Held Strong In 2021

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. Christine M. Fay. I am a Senior Managing Director and Partner with Public Resources
4 Advisory Group, Inc. (“PRAG”).

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes, I submitted Direct Testimony, PWSA St. No. 9 on May 9, 2023, which accompanied
7 the rate filing.

8 **Q. WHAT IS YOUR ROLE WITH THE PWSA?**

9 A. My firm, PRAG, is the Registered Municipal Advisor to the PWSA and as a Municipal
10 Advisor Representative, I provide the PWSA fiduciary advice and recommendations
11 related to the issuance of municipal securities.

12 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

13 A. The purpose of my Rebuttal Testimony is to respond to certain portions of the direct
14 testimony submitted by the Bureau of Investigation and Enforcement (“I&E”), the Office
15 of Consumer Advocate (“OCA”) and the Office of Small Business Advocate (“OSBA”)
16 (collectively the “Intervenors” or the “Parties”). Specifically, my Rebuttal Testimony will
17 respond to the various revenue requirement recommendations, address the financial
18 metrics implications, review credit rating and capital markets considerations and benefits
19 of a Multi-Year Rate Plan (“MYRP”).

20 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

21 A. My Rebuttal Testimony responds to the testimony and the approach that the Intervenors
22 have taken to assess the reasonableness of the PWSA’s rate request and the specific
23 recommendations of Mr. Spadaccio, the witnesses for I&E, Mr. Mugrace, the witness for
24 the OCA and Mr. Higgins, the witness for the OSBA.

1 It provides further evidence that their recommendations should not be adopted and
2 PWSA should be awarded all or substantially all of the rate increase it has requested and
3 the PUC should approve the Authority's request for a MYRP.

4 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

5 A. Yes. I am sponsoring the following exhibits:

- 6 • **Exh. CF-10:** Moody's Investors Service, 29 May 2023: Pittsburgh Water &
7 Sewer Authority, PA, Update to credit opinion following outlook revised to
8 positive
- 9 • **Exh. CF-11:** S&P Global Ratings, May 17, 2023: Summary: Pittsburgh Water
10 and Sewer Authority; Water/Sewer
- 11 • **Exh. CF-12:** Moody's Investors Service, 12 June 2023: Water and Sewer Utilities
12 – US Medians – Steady revenue growth, strong coverage and robust liquidity
13 boost sector
- 14 • **Exh. CF-13:** S&P Global Ratings, February 24, 2022: U.S. Municipal Water and
15 Sewer Sector Medians Held Strong In 2021

16 **II. REVENUE REQUIREMENT RECOMMENDATIONS OF OTHER PARTIES**

17 **Q. CAN YOU SUMMARIZE THE TESTIMONY OF THE OPPOSING PARTIES**
18 **REGARDING THE RECOMMENDED REVENUE REQUIREMENT AND**
19 **RESULTING FINANCIAL METRICS?**

20 A. Mr. Spadaccio claims that I&E's proposed revenue of \$195.76 million (which is a \$6.9
21 million decrease to current rates) results in senior debt service coverage of 1.70x and total
22 debt service coverage of 1.11x. (I&E St No. 1 (Spadaccio) at 18) which he believed are
23 levels that will allow "PWSA to at least maintain, if not provide support for the
24 consideration to improve, its credit rating." This conclusion is fundamentally incorrect,
25 in fact a total debt service of 1.11x is only slightly higher than the Authority's rate

1 covenant that requires a minimum total coverage of 1.10x leaving the Authority only a
2 slight margin before being in violation of a bond covenant with its investors which would
3 be very alarming to the rating agencies. Further, Mr. Spadaccio recommends a revenue
4 requirement that is \$6.9 million less than existing rates which if approved by the
5 Commission would come with scrutiny from the rating agencies about the Authority's
6 ability to maintain utility operations and fund its capital plan with reduced rates during a
7 time of elevated inflation. The financial metrics included in Mr. Spadaccio's testimony
8 were only able to be achieved by significantly cutting allowed operating expenses and
9 capital costs which would also attract scrutiny from the rating agencies and jeopardize the
10 Authority's continued financial progress. I understand that there were mistakes in the
11 I&E calculation and as summarized in the table below the corrected debt service
12 coverage calculations are at a reduced level to the ones provided in Mr. Spadaccio's
13 testimony and are in direct violation to the Authority's rate covenant which would have
14 serious consequences to the Authority's credit rating and could jeopardize its access to
15 the bond market.

16 Mr. Mugrace claims that the OCA's \$239.067 million recommended revenue requirement
17 (OCA St. 1 (Mugrace) at 10, 24), would produce a debt service coverage ratio of 1.65x
18 on PWSA's senior debt and 1.21x on total debt, however after the adjustment to
19 \$234.249 million to account for uncollectible revenues and reduced DSIC and unadjusted
20 operating expenses all in coverage drops to 1.05x which is in direct violation of the
21 Authority's rate covenant and drops DCOH to an unacceptable level of 203. OSBA's
22 recommendation produces similar results. Further the Intervenors who discuss it are also
23 recommending against approving a MYRP.

1 The table below shows that each of the Intervenor are proposing rate increases which do
 2 not permit PWSA to meet its annual rate covenant or its Additional Bonds Test (“ABT”)
 3 because the “Total Coverage” is less than 1.10x.

4

FPFTY	Recommended Revenue Requirement and Financial Metrics					
	PWSA 2023	PWSA FPFTY	I&E FPFTY	I&E (Corrected) FPFTY	OCA (Adjusted) FPFTY	OSBA FPFTY
Total Revenues	\$208.811M	\$255.319M	\$201.912M	\$230.999M	\$239.067M	\$242.041M
Total Revenues (after uncollectibles)	\$202.659M	\$249.17M	\$195.76M*	\$224.847M	\$234.249M	\$235.889M
Change from Existing Rates	\$-	\$46.507M	(\$6.898M)	\$22.187M	\$31.590M	\$33.230M
Change from Requested Rate Increase	\$-	\$-	(\$53.406M)	(\$24.319M)	(\$14.921M)	(\$13.278M)
Debt Service Coverage						
Senior (1.25 Requirement)	1.45x	1.65x	0.90x	1.31x	1.44x	1.46x
Total (1.10 Requirement)	1.13x	1.21x	0.6x	0.95x	1.05x	1.07x
Days Cash on Hand	283	247	102	181	203	211
Days Cash on Hand with ALCOSAN	160	145	60	106	119	123

5

6 **Q. DO YOU AGREE WITH THE APPROACH THE INTERVENORS HAVE**
 7 **TAKEN TO EVALUATE THE NEEDS OF THE UTILITY?**

8 A. No. While the Intervenor would undoubtedly support granting a for-profit utility
 9 company a rate increase that includes a “rate of return” that would permit the firm to
 10 maintain and attract capital, they have opposed the Authority from obtaining an adequate
 11 “rate of return for reinvestment” back into the system. For municipal utilities, the rate of
 12 return for reinvestment means generating debt service coverage and liquidity (cash on
 13 hand). Debt service coverage above 1x gives the municipal entity the cash it needs to pay

1 items that are not included in the coverage calculation (annual operating expenses less
2 annual debt service) as well as provides the Authority with funds to improve flexibility,
3 reduce risk, reduce adding to its already high debt load by having pay-go funds, the
4 ability to react quickly to unanticipated opportunities and challenges, improve its credit
5 position, lower its cost of doing business, etc. For these reasons, the PUC should be
6 striving to grant rates that will provide coverage levels and liquidity at levels consistent
7 with similar municipal systems.

8 Additionally, the intervenors do not account for the financial resources needed for the
9 Authority to pass an ABT in order to access the capital market. The annual operating
10 revenue level needed to satisfy the ABT can be seen as the absolute minimum amount
11 that can be awarded as capital market access is essential to the Authority's ability to fund
12 its capital plan. As demonstrated by Mr. Barca's Rebuttal Testimony, PWSA St. No. 2-R,
13 I&E, OCA and OSBA recommended revenues requirements with proposed operating
14 expenses fail this test. It is important to caution here that if the rating agencies perceive a
15 lack of market access and inability to issue additional debt to maintain its facilities there
16 would likely be significant negative credit implications.

17 **Q. WHAT WERE THE MAJOR FACTORS THAT CONTRIBUTED TO PWSA**
18 **COMING UNDER PUC SUPERVISION AND WHAT WAS THE EXPECTATION**
19 **FOR A SUCCESSFUL OUTCOME?**

20 A. The major factors that contributed to the PWSA's past financial, operational and health
21 and safety issues were related the lack of investment in operations, maintenance, capital
22 and inadequate management caused by the lack of will to generate sufficient revenue for
23 reinvestment into the system. Inadequate investment resulted in equipment failures,
24 water quality and safety issues, a general public concern about the Authority's utility
25 systems and various problems with billing that ranged from errors or inaccuracies to

1 delays in rendering bills. A successful outcome to the market, rating agencies and
 2 Authority is based on the expectation that the PUC would fully support and facilitate
 3 PWSA's reinvestment into the system.

4 **Q. IN YOUR OPINION, ARE THE RECOMMENDATIONS OF THE**
 5 **INTERVENING PARTIES CONSISTENT WITH THESE EXPECTATIONS FOR**
 6 **PUC SUPERVISION?**

7 A. No. I&E is proposing to significantly reduce PWSA's allowed operating and capital
 8 expense budget based on historical average calculations taking into account the
 9 differences between the established budget and actual spending which enables
 10 Intervenors to propose reducing the corresponding proposed rate increase. This is not a
 11 valid approach. The Intervenors are ignoring the fact that in a financial and operating
 12 turnaround situation, it takes time to ramp up spending and operational improvements.
 13 Per Mr. Barca's Rebuttal Testimony, PWSA St. No. 2, I&E is proposing a \$6.9 million
 14 **decrease** from PWSA's existing revenues for the FPFTY (\$22.187 million increase on an
 15 adjusted for error basis). Even on an adjusted basis this is \$24.3 million less than the
 16 Authority's requested rate increase and deficient in meeting the minimum debt service
 17 coverage requirements pursuant to the rate covenant for the Authority's outstanding
 18 bonds. OCA's proposal is \$14.9 million less than the Authority's requested rate increase
 19 and OSBA is \$13.3 million less and both violate the Authority's required rate covenant.
 20 The Intervenors consistent objection to the level of proposed rate increase in each filing
 21 situation has had the effect of disrupting PWSA's planning and implementation of
 22 operational, maintenance, regulatory and supervisory improvements. Also, as outlined in
 23 Mr. Barca's Rebuttal Testimony, PWSA St. No. 2-R, none of the opposing Parties
 24 seriously considered the ABT when determining their overall revenue requirement
 25 recommendation. Following the Intervenors revenue recommendations would require

1 PWSA to substantially cut its operating budget to a point that would seriously threaten
2 PWSA's ability to continue to provide safe and reliable services in order to achieve
3 sufficient net operating revenue to meet the ABT. The Intervenor's recommendations have
4 the effect of undermining PWSA management's effort to maintain financial health in
5 order to continue its efforts to modernize its system and improve safety, reliability, and
6 professional business processes. It is of utmost importance to understand that the Parties'
7 approach is in direct conflict with what is expected from the rating agencies from the
8 Commission's oversight – that PUC would support and facilitate PWSA's efforts to
9 generate sufficient resources that will be reinvested into the system to enable PWSA to
10 make financial and operational improvements.

11 **Q. WHAT IF THE INTERVENORS ARE WRONG AND OPERATING EXPENSES**
12 **ARE SIGNIFICANTLY HIGHER THAN THE INTERVENORS CLAIM?**

13 A. The answer is critical operations would not be funded, maintenance would not be
14 accomplished, certain proposed capital projects would have to be cancelled and/or
15 delayed, additional regulatory efforts would be disrupted, and the operational level of
16 service would be reduced. The Authority would also not be able to demonstrate
17 resources available to meet its ABT or its Annual Rate Covenant so it would be
18 precluded from accessing the capital markets to issue debt and would require the
19 Authority to proceed with an emergency rate filing with the PUC which would have long-
20 term negative effects for PWSA and the PUC. These factors most certainly would lead to
21 a credit rating downgrade and increased borrowing costs for the Authority.

22 **Q. WHAT IF THE INTERVENORS ARE RIGHT AND PWSA'S OPERATIONAL**
23 **EXPENSES ARE MUCH LOWER THAN BUDGETED IN THE FPFTY?**

24 A. The fact is that the Authority has no shareholders and every dollar of revenue collected
25 from ratepayers is used to benefit the system, which ultimately benefits ratepayers. If the

1 expenditures projected in PWSA’s operating budget do not entirely materialize the
 2 Authority will have more funds to reduce its debt, build its reserves, accelerate the timing
 3 for regulatory projects, improve the quality and levels of service and other operational
 4 goals and lower its cost of doing business, among others. The Intervenors are not taking
 5 in account that PWSA is a municipal utility and all of the revenue that it raises stays in
 6 the utility to be invested into the system.

7 **Q. WHAT DO YOU CONCLUDE RELATIVE TO THE OPPOSING PARTIES**
 8 **REVENUE REQUIREMENT RECOMMENDATIONS?**

9 A. The Commission should reject any implications that the debt service coverages and days
 10 of cash produced by the Intervenors’ proposed rate increase are reasonable levels. In fact,
 11 to be comparable to its peer companies and comparably rated credits, even the levels
 12 proposed by PWSA are too low; the Authority could justify earning much higher
 13 financial metrics. I fear that a substantial reduction in PWSA’s request in the face of
 14 these efforts will not be viewed favorably by the rating agencies or the investment
 15 community.

16
 17 **III. CAPITAL MARKETS AND RATING CONSIDERATIONS**

18 **Q. WHAT IS THE APPROPRIATE RATE OF RETURN FOR REINVESTMENT**
 19 **INTO THE SYSTEM?**

20 A. Currently, an appropriate, reasonable and justifiable level of reinvestment into the utility
 21 is a total debt service coverage level (not senior securities only) of 1.50x, which is
 22 calculated as revenues of the Authority less operating expense divided by annual debt
 23 service on all Authority debt.

1 **Q. WHY IS A REINVESTMENT RATE OF 1.50X TOTAL DEBT SERVICE**
 2 **COVERAGE AN APPROPRIATE RATE?**

3 A. This level is validated by comparing all-in coverage levels to the credit agencies’ rating
 4 methodology and medians and comparison metrics of other municipal utility peer
 5 comparisons as detailed in my testimony that follows.

6 **Q. HOW DOES AN ALL-IN DEBT SERVICE COVERAGE OF 1.50X COMPARE**
 7 **TO MOODY’S RATING AGENCIES CRITERIA?**

8 A. The table below that Mr. Spadaccio used in his testimony supports a rate of return for
 9 reinvestment of 1.50x coverage level of total debt service. The table below is a summary
 10 of Moody’s Investors Service Rating Methodology, US Municipal Utility Revenue Debt
 11 that was included as Exhibit CF-6 to my original testimony PWSA St. No. 9 showing the
 12 “total debt service” coverage subfactor that is part of Moody’s Financial Strength Factor,
 13 which is part of Moody’s Scorecard methodology for water and sewer utilities. The table
 14 illustrates that annual debt service coverage of 1.50x generates an “A” level financial
 15 “score.” PWSA is currently rated A3 by Moody’s which falls in the lower level of the
 16 “A” category rating tier, so maintaining coverage at or near 1.5x is consistent with
 17 maintaining the Authority’s existing Moody’s credit rating and all in debt service
 18 coverage less than 1.25x will pressure the Authority’s Moody’s A3 rating.

<u>Rating Category Score</u>	<u>Total Debt Service Coverage</u>
Aaa	Greater than 2.00x
Aa	Greater than 1.70x but less than or equal to 2.00x
A	Greater than 1.25x but less than or equal to 1.70x
Baa	Greater than 1.00x but less than or equal to 1.25x
Ba	Greater than 0.70x but less than or equal to 1.00x
B and Below	Equal to or less than 0.70x

1 **Q. HOW DOES AN ALL-IN DEBT SERVICE COVERAGE OF 1.50X COMPARE**
 2 **TO S&P’S RATING AGENCIES SCORECARD?**

3 A. S&P outlines their assessment of debt coverage in U.S. Public Finance: U.S. Municipal
 4 Water, Sewer, And Solid Waste Utilities: Methodology and Assumptions, dated April 14,
 5 2022 (Exhibit CF-7) , with the following scale below:

<u>Score</u>	<u>Initial Assessment</u>	<u>“All-in” Coverage</u>
1	Extremely Strong	1.60 or above
2	Very Strong	1.40 to 1.60x
3	Strong	1.20 to 1.40x
4	Adequate	1.10x to 1.20x
5	Vulnerable	1.00x to 1.10x
6	Highly Vulnerable	Below 1.00x

6 The Standard & Poor’s publication presented by Mr. Spadaccio (I&E St. No. 1 at 16)
 7 dated September 15, 2008 is almost fifteen (15) years old, no longer used and is
 8 inconsistent with S&P’s current rating criteria. The report presented by S&P in 2008 has
 9 been updated several times, most recently with the above-cited criteria from 2022. The
 10 Authority’s proposed rates are expected to result in all-in coverage of 1.21x allowing
 11 them to meet the lower bound of the range considered “Strong” coverage but just above
 12 all-in coverage levels considered “Adequate” assessment, or coverage score of “4” in FY
 13 2024. An all-in coverage of 1.50x would equate to a score of “2” or “Very Strong” in this
 14 respective rating factor.

15 **Q. HOW DOES AN ALL-IN DEBT SERVICE COVERAGE OF 1.50X FOR PWSA**
 16 **COMPARE TO S&P’S MEDIANS?**

17 A. S&P publishes their own respective water and sewer median report on a biennial basis
 18 with the most recent report introduced on February 24, 2022 titled U.S. Municipal Water
 19 and Sewer Sector Medians Held Strong. The full report is provided as PWSA Exhibit

1 CF-13. As can be seen within S&P median report and as summarized below, the
 2 justifiable all-in debt service coverage of 1.50x is at the “A-” category of median, which
 3 is two notches below what the Authority currently S&P rating of A+. For an A+ credit,
 4 such as the Authority, S&P medians all in debt service coverage is 1.8x.

S&P	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-
All-In Debt Service Coverage	2.4x	2.4x	2.2x	2.0x	1.8x	1.6x	1.5x	1.2x	1.2x	1.1x

5 **Q. HOW DOES AN ALL-IN DEBT SERVICE COVERAGE OF 1.50X FOR PWSA**
 6 **COMPARE TO MOODY’S MEDIANS?**

7 A. As can be seen in PWSA Exhibit CF-12: Moody’s Investors Service, 12 June 2023:
 8 Water and Sewer Utilities – US Medians - Steady revenue growth, strong coverage and
 9 robust liquidity boost sector, and discussed further within my Rebuttal Testimony, the
 10 median for all-in (total) debt service coverage is 1.8x for “A” rated municipal water and
 11 sewer utilities and associated days cash on hand is 412 days.

12 **Moody’s Medians for Combined Water and Sewer Utilities**

Rating Category	Aaa	Aa	A	Baa	Ba
All-In Debt Service Coverage	3.7x	2.5x	1.8x	1.8x	NA

Rating Category	Aaa	Aa	A	Baa	Ba
Days Cash on Hand	901	538	412	155	NA

13
 14
 15 The 2023 median report is based on 2021 data. Some highlights of the 2023 report include:

- 16 - **Revenue grew in fiscal 2021, bolstered by independent rate-setting ability and**
 17 **essentiality of services.** Sector wide, more than half of water and sewer utilities we
 18 rate had revenue growth of about 3.5% or greater in fiscal 2021.

1 - **Operating and maintenance (O&M) costs grew slightly slower than revenue.**

2 Most utilities had O&M costs rise by about 3.5% or less in fiscal 2021 versus the
3 prior year.

4 - **Net revenue improved sector wide.** Net revenue rose by at least 2% for most
5 utilities in fiscal 2021, which helped systems maintain strong coverage and bolster
6 liquidity.

7 - **Strong debt service coverage provided a buffer against shocks.** Median coverage
8 held steady at 2.3x in fiscal 2021, indicating good capacity to pay debt even under
9 stressed scenarios.

10 - **Liquidity continued to climb, enhancing financial flexibility.** Total cash grew by
11 more than 9% for most utilities in fiscal 2021, and median days cash on hand rose to a
12 robust 534 days.

13 - **Leverage remained steady.** The median debt-to-revenue ratio remained steady at a
14 modest 2.1x in fiscal 2021. Careful debt management enables utilities to address their
15 most pressing concerns, though projected needs are significant.

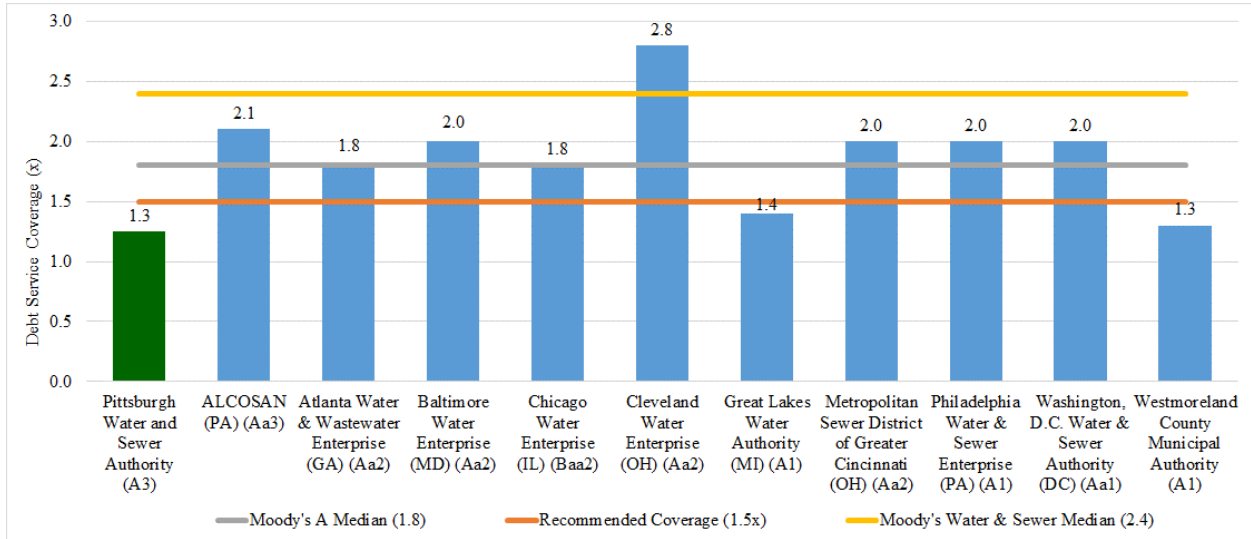
16 - **Reported asset condition was stable.** Utilities continued to invest in infrastructure,
17 with median useful life remaining solid at 28 years in fiscal 2021. Usage of aging
18 system components is common and will eventually require significant investment for
19 replacements.

20 **Q. HOW DOES AN ALL-IN DEBT SERVICE COVERAGE OF 1.50X FOR PWSA**
21 **COMPARE TO CERTAIN MUNICIPAL WATER AND SEWER PEERS?**

22 A. In addition, in comparison with peers presented in my Direct Testimony, PWSA St. No.
23 9, a total debt service coverage of 1.50x would still be in the bottom half of peers, as well
24 as below the new medians presented in Moody's Investors Service's Water and Sewer

1 Utilities – US. Medians – Steady revenue growth, strong coverage and robust liquidity
 2 boost sector dated 12 June 2023 (PWSA Exhibit CF-12). Please see below for the
 3 updated chart comparing PWSA to certain peers.

4 **DEBT SERVICE COVERAGE**
 5 **(2021 net revenue divided by 2021 debt service, expressed as a multiple)**



7 * Chicago, Washington DC and Westmoreland County debt service coverage is based on 2020 data.
 8 Sources: Moody’s Investor Service: Water and Sewer Utilities Medians – Steady revenue growth, strong coverage
 9 and robust liquidity boost sector dated 12 June 2023 (2021 data) and Moody’s Investor Service latest rating
 10 reports for each entity (2020 and 2021 data).

11 **Q. HOW DOES THE 1.50X TOTAL DEBT SERVICE COMPARE TO THE**
 12 **PROJECTED TOTAL DEBT SERVICE FOLLOWING THE REQUESTED RATE**
 13 **INCREASE?**

14 **A.** The Authority requested a Multi-Year Rate Plan (MYRP) with a total increase of \$146.1
 15 million over three years with a \$46.5 million increase in FPPTY which results in total all-
 16 in debt service of 1.21x. While this is significantly below the 1.5x coverage deemed to be
 17 justified and appropriate based on rating agency methodologies, medians and peer issuers
 18 as described in my testimony it is understandable that this is a goal to work towards over
 19 a number of years. As demonstrated in the table below, which summarizes the MYRP
 20

1 requested by the Authority, total debt service coverage is projected at 1.4x by FY 26,
 2 nearing the 1.5x reinvestment rate that is appropriate for the Authority.

	FY 2023	FY 2024 FPFTY	FY 2025	FY 2026
Revenue Requirement	\$202.659M	\$249.167M	\$294.567M	\$348.46M
Requested Revenue Increase	-	\$46.5M	\$45.4M	\$53.9M
Senior Debt Service Coverage	1.45x	1.65x	1.87x	2.02x
Total Debt Service Coverage	1.13x	1.21x	1.26x	1.40x

3
 4 **Q. IF PWSA HAD REQUESTED A RATE INCREASE TO PRODUCE A 1.50X ALL-**
 5 **IN DEBT SERVICE COVERAGE, WHAT AMOUNT OF RATE INCREASE**
 6 **WOULD IT HAVE BEEN ABLE TO JUSTIFY?**

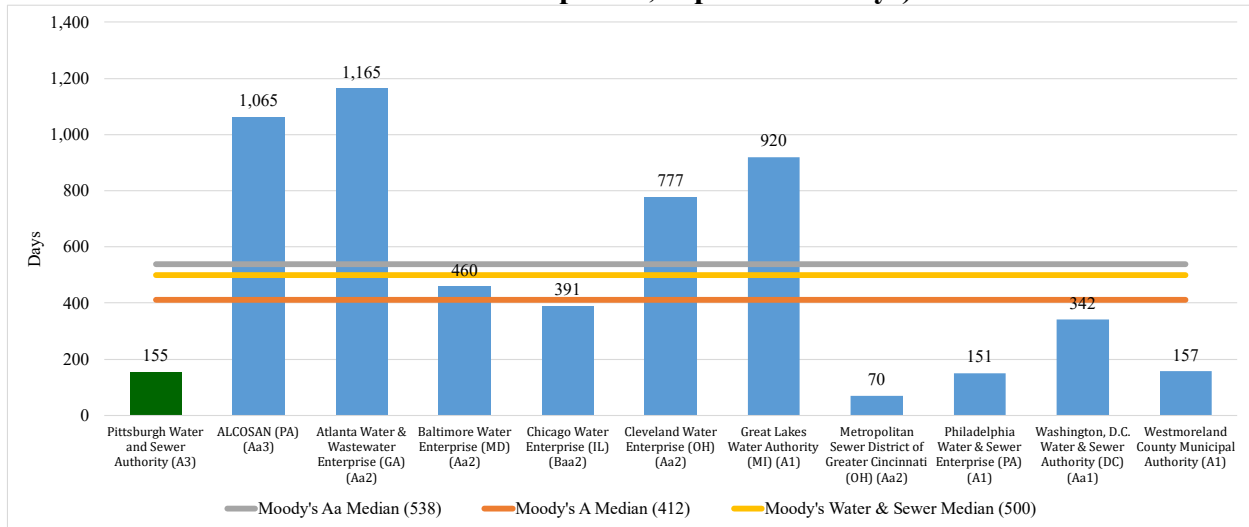
7 A. PWSA could have reasonably requested a justifiable revenue requirement of \$283.9
 8 million (\$75.1 million rate increase) that would enable the PWSA to achieve total debt
 9 service coverage of 1.50x in FPFTY and also generate 321 days cash on hand (DCOH),
 10 which is more comparable to its peers. The revenue requirement to achieve the 1.50x
 11 coverage would have required a rate increase of \$28.7 million of additional revenue over
 12 and above the requested \$46.5 million increase, which is an increase of 13.7% over what
 13 the PWSA requested.

14
 15 **Q. HOW DOES THE PROJECTED DCOH OF THE REQUESTED RATE INCREASE**
 16 **COMPARE TO THAT OF THE AUTHORITY’S PEERS?**

17 A. The Authority requested rate increase results in DCOH of 247 for FPFTY which is higher
 18 than past years but still inadequate as compared to peer municipal utilities. In past rating
 19 meetings, the Moody’s rating analyst cited the Authority’s weak DCOH as compared to
 20 its peers as one of the primary reasons the Authority has not been upgraded and continues
 21 to be rated “A3.” Provided below is a peer comparison chart of days cash on hand that

1 compares PWSA to other large city water and sewer entities. In 2021, PWSA had 155
 2 days cash on hand which ranked the Authority as the third lowest liquidity of its peer
 3 utilities and also compared very unfavorably to Moody’s overall and “A” and “Aa” rated
 4 utility medians.

5 **DAYS CASH ON HAND***
 6 **(2021 unrestricted cash and liquid investments times 365 divided by 2021 operating and**
 7 **maintenance expenses, expressed in days)**



8
 9 * Chicago, Washington DC and Westmoreland County debt service coverage is based on 2020 data.

10 Sources: Moody’s Investor Service: Water and Sewer Utilities Medians – Steady revenue growth, strong coverage
 11 and robust liquidity boost sector dated 12 June 2023 (2021 data) and Moody’s Investor Service latest rating
 12 reports for each entity (2020 and 2021 data).
 13

14 **Q. DO YOU AGREE WITH MR. SPADACCIO’S ASSESSMENT OF THE RATING**
 15 **AGENCIES LACK OF CONCERN REGARDING COVERAGE FOR PWSA?**
 16 **(I&E ST. NO. 1 AT 16).**

17 A. No. As addressed in my Direct Testimony, Statement No. 9 (as well as in my testimony
 18 above), it is imperative for municipal utilities to have coverage that far exceed their
 19 minimum requirements. Although the Authority’s meets their rate covenants, Moody’s
 20 still focuses on this particular financial metric. Moody’s most recent report stated that
 21 [PWSA’s] “[i]nability to raise rates sufficiently to meet debt service coverage covenants
 22 while also funding significant deferred capital improvements” is a “[f]actor(s) that could
 23 lead to a downgrade.” In this report Moody’s further details that “PWSA expects all-in

1 coverage to stay in the range of 1.2 times to 1.4 times over the next five years, though the
 2 Authority assumes rather significant rate increases in order to keep coverage stable.
 3 Moody's expects that the PUC will be supportive of rate increases that will allow for
 4 satisfactory coverage levels while PWSA continues to execute its capital plan. Future
 5 reviews will consider whether the Authority is able to maintain satisfactory coverage and
 6 adhere to projected financial performance while supporting increased leverage to execute
 7 the Authority's sizeable capital plan." Moody's is clearly signaling in this report the
 8 importance for the Authority to maintain satisfactory coverage in the coming years. The
 9 Authority's FPFTY rate request is projected to generate 1.21x all in coverage in FY 2024
 10 and grow to 1.40x in 2026 with the MYRP. I note again that the 1.21x coverage is at the
 11 low end of the expected coverage levels referenced in Moody's most recent credit report
 12 and the recommended rate requirements from the Intervenors result in all-in coverage
 13 levels well below these levels which would most certainly cause concern to the rating
 14 agencies.

15 **Q. SIMILARLY, MR. SPADACCIO CLAIMS THAT THE I&E RECOMMENDED**
 16 **RATE DECREASE WOULD NONETHELESS PRODUCE A 1.7X DEBT**
 17 **SERVICE COVERAGE LEVEL ON PWSA'S SENIOR SECURITIES AND 1.11X**
 18 **ON TOTAL DEBT SERVICE, WHICH HE CLAIMS IS CLOSE TO PWSA'S**
 19 **HISTORICAL EXPERIENCE AND THAT THE RATING AGENCIES**
 20 **EXPRESSED NO CONCERN ABOUT PWSA'S DEBT SERVICE COVERAGE IN**
 21 **THE PAST. CAN YOU RESPOND?**

22 A. The debt service coverage ratios expected based in I&E recommended revenue
 23 requirement are inadequate based on the levels that Moody's and S&P expect for a credit
 24 such as PWSA and significantly deficient based on peer comparisons. Moody's rating
 25 report for PWSA dated October 15, 2018 discussed the Authority's downgrade at that
 26 time and listed "narrow coverage and liquidity" as a credit challenge. Coverage at that

1 time was 0.81x, however, Moody's has continued to reference the Authority's coverage
 2 and their expectations for maintaining or continuing to raise coverage.

3 Additionally, Moody's most recent rating report for PWSA, dated May 29, 2023,
 4 discusses the Authority's debt service coverage at 1.8x and total coverage of 1.41x as
 5 "well within covenant requirements and satisfactory versus peers." The report goes on to
 6 discuss that Moody's analysts expect the PUC will be supportive of rate increases that
 7 continue to allow for satisfactory coverage levels, and they will consider whether PWSA
 8 is able to maintain satisfactory coverage levels.

9 Moody's has maintained, since its PWSA rating report dated June 4, 2019, that "sustained
 10 improvements in debt service coverage" could lead to an upgrade. Prior to the
 11 Authority's downgrade by Moody's in 2018 and continuing to their latest rating report for
 12 PWSA dated May 29, 2023, Moody's analysts have noted that narrowing of debt service
 13 coverage could lead to a downgrade.

14 **Q. MR. SPADACCIO ALSO ASSERTS THAT A S&P PUBLICATION DISCUSSING**
 15 **“AT WHAT LEVEL A MUNICIPAL DEBT SERVICE HAS TO BE TO ALLOW**
 16 **IT TO “PAY ITS DEBT” DEMONSTRATES THAT ANYTHING OVER 1.0X IS**
 17 **CONSIDERED “ADEQUATE AND 1.5X IS “STRONG.” IS HE CORRECT?**

18 **A.** No. As I have stated above, Mr. Spadaccio included S&P's criteria for Water and Sewer
 19 Utilities dated September 15, 2008 (I&E Ex. No. 1, Schedule 6, Page 1), and is ignoring
 20 S&P's current rating methodology, dated April 14, 2022 and titled "U.S. Municipal
 21 Water, Sewer, and Solid Waste Utilities: Methodology and Assumptions" (PWSA
 22 Exhibit CF-7). Table 17 in this criteria lists S&P's assessment of all-in coverage. 1.0x
 23 coverage is given a score of '5,' which translates to 'Vulnerable' as outlined in Table 3 of
 24 the criteria, and is on the verge of the lowest category of 'Highly Vulnerable.' An
 25 'Adequate' debt service coverage, according to S&P's criteria, would be between 1.10x

1 and 1.20x and 'Strong' coverage falls between 1.20x and 1.40x. A debt service coverage
 2 of 1.5x is given a score of '2,' which is 'Very Strong.'

3 According to S&P's most recent rating report for PWSA dated May 17, 2023 (PWSA
 4 Exhibit CF-11) , the Authority's "S&P Global Ratings-adjusted all-in DSC" for fiscal
 5 year 2022 was 1.6x, while the median for the 'A+' rating category was 1.8x.

Table 3

Descriptors For Enterprise Risk Profile Factors

Assessment	Description
1	Extremely strong
2	Very strong
3	Strong
4	Adequate
5	Vulnerable
6	Highly vulnerable

6

Table 17

Assessment Of All-In Coverage

Initial assessment	All-in coverage
1	1.60x or above
2	1.40x-1.60x
3	1.20x-1.40x
4	1.10x-1.20x
5	1.00x-1.10x
6	Below 1.00x

7

8 **Q. WHY DO YOU BELIEVE THAT PWSA HAVING A DEBT SERVICE**
 9 **COVERAGE IN THE “VULNERABLE” OR “ADEQUATE” LEVEL IS**
 10 **UNACCEPTABLE?**

11 A. PWSA is already on the low end of the credit spectrum in the single A rating category for
 12 a municipal water and sewer entity and is paying a higher cost of borrowing as compared
 13 to its peers as a result. Setting a revenue requirement at levels that only generate
 14 “vulnerable” or “adequate” coverage further pressure the Authority’s credit rating and
 15 expose the Authority to unforeseen events without appropriate coverage levels to manage
 16 these risks. Additionally, the coverage does not allow for adequate resources to pass the

1 ABT needed for the Authority to issue debt to fund its capital program as demonstrated
 2 by Mr. Barca’s Rebuttal Testimony, PWSA St. No. 2-R.

3 **Q. DO YOU AGREE WITH MR. SPADACCIO’S ASSESSMENT OF THE RATING**
 4 **AGENCIES LACK OF CONCERN REGARDING CASH ON HAND FOR PWSA?**
 5 **(I&E ST. NO. 1 AT 12).**

6 A. No. My Direct Testimony, PWSA Statement No. 9, highlights the importance of cash
 7 reserves and liquidity, as well as summarizes the rating agencies views and opinions of
 8 the Authority’s days cash on hand position historically. Although the Authority’s
 9 liquidity has improved, it is certainly not prudent to believe that the rating agencies do
 10 not have concern for PWSA’s days’ cash on hand. In fact, the Moody’s credit analyst has
 11 attributed the Authority’s weak DCOH as compared to its peers as one of the main
 12 obstacles holding the Authority back from being upgraded from its A3 rating.

13 **Q. IN RESPONSE TO MR. BARCA’S TESTIMONY THAT PWSA’S PRO FORMA**
 14 **YEAR END CASH WAS EXTREMELY LOW IN THE FPFTY AND EVEN**
 15 **NEGATIVE IN THE PERIODS AFTER THAT WITHOUT A RATE INCREASE,**
 16 **MR. SPADACCIO REJECTS THIS AS A CONCERN ON THE GROUNDS**
 17 **THAT, IN HIS VIEW, THE RATING AGENCIES HAVE NOT EXPRESSED**
 18 **CONCERN WITH PWSA’S DCOH (I & E ST. 1 AT 14). DO YOU AGREE WITH**
 19 **MR. SPADACCIO?**

20 A. No. In their most recent rating report for PWSA, dated May 29, 2023 (CF-10), Moody's
 21 noted that PWSA's liquidity is "satisfactory, at 165 days unrestricted cash on hand as of
 22 fiscal year end 2022." The report also notes that PWSA's cash position is "considerably
 23 weaker than national water and sewer system median days cash of 450 days as of 2021."
 24 Moody's report titled "Water and Sewer Utilities - US: Medians - Steady revenue growth,
 25 strong coverage and robust liquidity boost sector" dated June 12, 2023 (PWSA Exhibit
 26 CF-12), shows that the median DCOH for combined water and sewer utilities is the 'A'
 27 rating category is 412. These levels, I believe, show clearly that the rating agencies would
 28 NOT be satisfied with a DCOH as low as I&E’s real recommendations.

1 **Q. MR. SPADACCIO ALSO CLAIMS THAT I&E’S CALCULATED DAYS OF**
 2 **CASH (WITH A DEMANDED \$6.9 MILLION RATE DECREASE) WOULD,**
 3 **NONETHELESS PUT PWSA’S DOCH AT A LEVEL THAT IS CONSISTENT**
 4 **WITH THE AUTHORITY’S CREDIT LEVEL, ACCORDING TO MOODY’S,**
 5 **AND CLOSE TO PWSA’S “TARGET RANGE.” CAN YOU RESPOND?**

6 Yes. The I&E recommendation results in DCOH of 293 for FPFTY, although after
 7 adjusting for the haircut to operating and capital expenses this figure drops significantly
 8 to 181 days which is significantly less than the Moody’s median of 412 for “A’ rated
 9 combined water and sewer utilities and not consistent with the Authority’s target of
 10 achieving 300 DCOH.

11 **Q. HOW WOULD THE RATING AGENCIES REACT TO THE INTERVENOR’S**
 12 **REVENUE REQUIREMENT RECOMMENDATIONS IF THEY WERE**
 13 **ADOPTED BY THE COMMISSION?**

14 A. The rating agencies would react negatively if the Commission, unfortunately, were to adopt
 15 the Parties’ recommendations. The agencies would be concerned about (i) the PUC
 16 adopting the Intervenors indiscriminate “normalizing” operating budget reductions, which
 17 are inconsistent with budgeting best practices, (ii) that neither the Commission nor any of
 18 the opposing Parties seriously considered the ABT when determining their overall revenue
 19 requirement recommendation, (iii) that adopting their recommendations would require the
 20 PWSA to substantially cut its operating and capital budgets to a point that would seriously
 21 threaten the Authority’s ability to continue to provide safe and reliable services in order to
 22 achieve sufficient net operating revenue to meet the Rate Covenant avoid a default, and
 23 (iv) that adopting the recommendations would undermine the existing PWSA management.
 24 Both Moody’s and S&P have in their reports commented on the Commission’s oversight
 25 of the PWSA as a positive since 2018. As Mr. Spadaccio’s testimony states “both [rating
 26 agencies] appear confident that the Authority’s recently established (April 1, 2018)

1 relationship with the Commission and being subjected to regulatory oversight will yield
2 positive results in strengthening its financial position.” However, what the Intervenors are
3 proposing will not strengthen PWSA’s financial position. The rating agencies will continue
4 to support Commission’s oversight so long as the agencies believe that the Commission
5 supports the PWSA’s efforts to raise the needed revenue to continue to improve
6 operationally and make infrastructure improvements. As a note of caution, in one of the
7 Authority’s rating meetings, a senior rating analyst from one of the rating agencies was
8 initially taken aback by the size of the “hair-cut” in the authorized rate increase that PWSA
9 took compared to the PWSA’s request. While I understand that the last two rate cases were
10 settled, the rating agencies may not understand or appreciate the nuances in the settlement
11 process, and may focus on the continued differences between PWSA’s requests and the
12 actual PUC order. The risk is that the rating agencies will see the significant gap between
13 PWSA’s request and the actual rate increase granted as a lack of PUC support for PWSA,
14 leading to concerns about the Commission not allowing PWSA sufficient resources and
15 disrupting PWSA’s planning and implementation of operational, maintenance, regulatory
16 and supervisory improvements and the risk of undermining PWSA’s management and rate
17 making ability.

18 **Q. DO YOU THINK THERE IS A RISK OF THE AUTHORITY BEING**
19 **DOWNGRADED IF IT ACCEPTS THE INTERVENORS**
20 **RECOMMENDATIONS?**

21 Yes. All of the recommended rate increases are below the Authority’s requested rate
22 increase and result in debt service coverage levels that are in violation of the Authority’s
23 rate covenant with bond investors. I would also point out that adoption of the Parties’
24 recommendations could very likely lead to a bond rating downgrade. As signaled by the
25 rating agencies in their most recent reports, they expect the PUC to grant rate increases at

1 or near the requested levels and at levels sufficient (i) to fund its future capital needs and
2 (ii) provide debt service coverages and liquidity at levels consistent with industry
3 medians and PWSA’s peers, which are not the case with recommended levels.

4 S&P Global Ratings reports for Pittsburgh Water and Sewer Authority dated May 17,
5 2023 (PWSA Exhibit CF-11):

6 “A very conservative approach to long-term planning has enabled
7 management to successfully get three rate increases from the
8 Pennsylvania Public Utility Commission (PaPUC), with the last
9 being for two years (fiscal years 2022 and 2023). These rate
10 increases have enabled management to continue funding the capital
11 improvement program (CIP) while dealing with rising costs from its
12 suppliers. Additionally, management was successful in getting a
13 new stormwater fee approved to assist in funding those projects.
14 **Given the capital plan, it is important for rating maintenance**
15 **that the recently filed rate case be approved at or near the**
16 **requested levels for fiscal years 2024-2026.” (Emphasis added).**

17
18 Moody’s Investors Service reports for Pittsburgh Water and Sewer Authority dated May
19 29, 2023 (PWSA Exhibit CF-10):

20 “The positive outlook also reflects the expectation that, while the
21 settlement of PWSA’s consent decree with the EPA is still a large
22 unknown, improved governance controls and a continued track
23 record of adequate rate setting with the PUC will enable PWSA to
24 readily and reasonably manage its future capital plans.”

25
26 **Q. AT THE AUTHORITY’S EXISTING A3 MOODY’S CREDIT RATING ARE YOU**
27 **CONCERNED ABOUT THE REPERCUSSIONS TO THE AUTHORITY OF A**
28 **RATING DOWNGRADE?**

29 A. As can be seen in the graphic below, PWSA’s current Moody’s rating of “A3” of the 292
30 combined municipal water and sewer utilities that Moody’s rates, only 8 utilities are rated
31 lower than PWSA. The Authority still ranks in the bottom 5% of all governmental water
32 and sewer utilities that are rated by Moody’s. Being downgraded below the single-A
33 category rating would add significant interest expense to rates and reduce the Authority’s

1 ability to efficiently access the capital market during challenging times. For example,
 2 during the great recession, single-A credits were at times unable to efficiently issue
 3 publicly offered bonds and credit spreads made accessing the bond market expensive
 4 compared to higher rated credits. More recently during the COVID-pandemic single-A
 5 credits experienced significant liquidity premiums and reduced market access.

6 **Distribution of Moody’s Ratings for Combined Municipal Water and Sewer**
 7 **Issuers**
 8 *(Median is Shown in Light Blue; PWSA’s Rating Enclosed in Red)*
 9

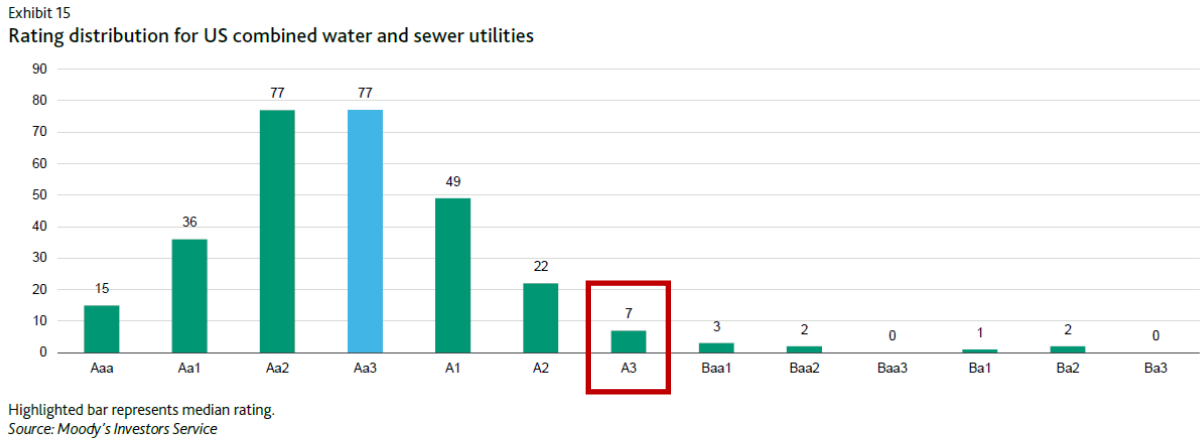


Exhibit 16
 2021 medians US combined water and sewer utilities by rating category
 Fiscal 2021

Selected indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	111%	95%	83%	70%	NA
Asset Condition: (Remaining Useful Life)	26	27	25	27	NA
Debt to Operating Revenue	1.7	1.9	2.5	4.0	NA
Annual Debt Service Coverage	3.7	2.5	1.8	1.8	NA
Days Cash on Hand	901	538	412	155	NA
System Size: (O&M, \$000)	107,341	25,387	8,273	29,193	NA
Net Revenue (\$000)	89,583	21,337	5,091	28,343	NA
Net Funded Debt (\$000)	316,177	75,875	30,442	313,595	NA
Total Revenue (\$000)	176,234	42,918	13,774	60,047	NA

Source: Moody's Investors Service

10
 11

12 **Q. WHAT WOULD BE THE IMPACT OF A RATING DOWNGRADE?**

13 A. As addressed in my Direct Testimony, PWSA St. No. 9, a rating downgrade would lead
 14 to several negative circumstances. One result that would undoubtedly occur is an
 15 increase in the cost of capital to PWSA and, ultimately, and the cost to its ratepayers.

1 My Direct Testimony, PWSA St. No. 9 emphasizes a difference of 45 basis points
 2 between an “A” rated credit versus a “Baa” rated credit. This higher “credit spread” of
 3 45 basis points would increase annual debt service by an additional \$3.6 million or more
 4 than \$108.3 million over the life of the bond issue with the Authority’s plan to issue \$1.8
 5 billion in revenue bond debt over the next five years. It’s important to weigh this risk
 6 when considering the costs of denying PWSA’s rate increase claim.

7 **Q. DO THE INTERVENORS RECOMMENDATION PRODUCE FINANCIAL**
 8 **METRICS THAT WILL BE CONCERNING TO THE RATING AGENCIES?**

9 A. Yes. On an adjusted basis the I&E recommendation of produces all in debt service
 10 coverage of .95x and the OCA recommendation produces all in debt service coverage of
 11 1.05x, both of which are below the rate covenant requirements and significantly below
 12 the 1.8x median for municipal water and sewer utilities. Also on an adjusted basis the
 13 I&E recommendation results in DCOH of 181 and OCA recommendation results in
 14 DCOH of 207 both of which are far below the median DCOH for combined water and
 15 sewer utilities is the 'A' rating category is 412.¹

16
 17 **IV. CONCLUSION**

18 **Q. WHAT DO YOU BELIEVE THE COMMISSION SHOULD CONCLUDE?**

19 A. That PWSA has not only fully justified a rate award that grants all or substantially all of
 20 its request, it could have, in my view justified a much higher rate award based on the
 21 median debt service coverages for similar municipal water and sewer utilities. The risk
 22 of granting the Intervenor’s rate recommendation is the material risk that critical
 23 operations would not be funded, maintenance would not be accomplished, certain

¹ The OSBA witness did not recommend financial metrics; his results would be similar to OCA’s.

1 proposed capital projects would have to be cancelled and/or delayed, additional
2 regulatory efforts would be disrupted and the operational level of service would be
3 reduced and the Authority would also not be able to demonstrate resources available to
4 meet its ABT or its Annual Rate Covenant so it would be precluded from accessing the
5 capital markets to issue debt, which would require the Authority to proceed with an
6 emergency rate filing with the PUC which would have long-term negative effects for
7 PWSA and the PUC. These factors most certainly would lead to a credit rating
8 downgrade and increased borrowing costs for the Authority. The risk of granting
9 PWSA's rate recommendation is that every dollar of revenue collected from ratepayers is
10 used to benefit the system, which ultimately benefits ratepayers. If the expenditures
11 projected in PWSA's operating budget do not entirely materialize the Authority will have
12 more funds to reduce its debt, build its reserves, accelerate the timing for regulatory
13 projects, improve the quality and levels of service and other operational goals and lower
14 its cost of doing business, among others. Disregarding these facts and refusing to permit
15 PWSA to increase its rates to levels needed to continue to fund its substantial
16 modernization and improvement efforts would not be reasonable and jeopardize the
17 Authority's credit ratings.

18 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

19 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

PWSA Exhibit CF-10

CREDIT OPINION

29 May 2023



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Pittsburgh Water & Sewer Authority, PA

Update to credit opinion following outlook revised to positive

Summary

[The Pittsburgh Water and Sewer Authority](#) ("PWSA" or "the Authority") ([A3 positive](#)) benefits from a large and diverse service area, primarily serving the city of [Pittsburgh \(A1 stable\)](#), with notably stable top customers primarily in education and healthcare industries. The Authority has also benefitted from proactive steps to strengthen two key credit areas - its management and governance and its financial position. PWSA's governance structure has been materially improved by oversight from the Pennsylvania Public Utility Commission (PUC), initiated in 2018. Though the PUC's rate approval process is a lengthy 270 days, the commission has committed to allowing for rate increases that will both satisfy bond covenants and allow for needed capital improvements. Further, the PUC has helped to ensure timely system maintenance and routine capital investment, in line with broad industry standards. At the same time, PWSA has taken steps to strengthen its internal management structure and build its workforce; also a credit positive.

The Authority's financial position has also improved considerably over the past several years and continues to strengthen. Liquidity has reached a satisfactory 165 days cash on hand as of fiscal 2022 year-end, up from just 23 days cash in 2017. Debt service coverage has likewise strengthened, to 1.49 times when all liens of debt are considered. These metrics compare well to peers and also to the Authority's own past performance.

Yet certain credit challenges persist and high leverage will be a continued headwind for the Authority going forward. The Authority's current debt burden is significant and material additional debt is expected as the Authority progresses on its capital improvement plan. The Authority's current five year plan assumes an additional \$1 billion in debt, before consideration of a yet-to-be-determined consent order for combined sewer overflow remediation. The Authority's ability to maintain a healthy financial position while increasing leverage will be key to future credit reviews. Future reviews will also consider the potential challenges associated with the expected consent order and its impact on overall leverage and customer affordability.

Credit strengths

- » Diverse, urban Pittsburgh service area, supported by strong "eds & meds" presence
- » Considerable size; system assets include water conveyance and treatment, and sewer conveyance that ties to ALCOSAN
- » Significant, recently implemented rate increases boost revenues; PUC oversight brings improvements and controls

Credit challenges

- » Substantial debt burden; debt ratio is 96% and will continue to grow
- » Narrow, though improved, liquidity versus similarly sized peers
- » Projected \$1.8 billion in capital needs over the next five years, to be primarily funded with debt
- » Consent decree to remediate combined sewer overflows not yet finalized

Rating outlook

The positive outlook reflects the expectation of continued improvement to liquidity and coverage as PWSA progresses in its capital plans and continues to mature in its internal governance structure and relationship with the PUC. The positive outlook also reflects the expectation that, while the settlement of PWSA's consent decree with the EPA is still a large unknown, improved governance controls and a continued track record of adequate rate setting with the PUC will enable PWSA to readily and reasonably manage its future capital plans.

Factors that could lead to an upgrade

- » Substantial improvement in liquidity that is maintained over several reporting periods
- » Meaningful reduction of debt
- » Sustained improvements in debt service coverage

Factors that could lead to a downgrade

- » Material narrowing of debt service coverage and liquidity position
- » Inability to raise rates sufficiently to meet debt service coverage covenants while also funding significant deferred capital improvements
- » Failure to effectively deploy new revenues to address near term infrastructure and operating needs
- » Substantial new or worsening long-term environmental concerns

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody's.com> for the most updated credit rating action information and rating history.

Key indicators

Exhibit 1

Pittsburgh Water & Sewer Authority					
System Characteristics					
Asset Condition (Net Fixed Assets / Annual Depreciation)	40 years				
System Size - O&M (in \$000s)	\$184,743				
Service Area Wealth: MFI % of US median	92%				
Legal Provisions					
Rate Covenant (x)	1.10				
Debt Service Reserve Requirement	DSRF funded at lesser of standard 3-prong test (Aa)				
Management					
Rate Management	A				
Regulatory Compliance and Capital Planning	A				
Financial Strength					
	2018	2019	2020	2021	2022
Operating Revenue (\$000)	\$231,734	\$249,049	\$241,997	\$269,121	\$287,166
System Size - O&M (\$000)	\$153,180	\$165,230	\$169,507	\$179,900	\$184,743
Net Revenues (\$000)	\$81,565	\$87,280	\$79,692	\$90,592	\$112,035
Net Funded Debt (\$000)	\$871,040	\$915,696	\$978,458	\$1,064,365	\$1,136,955
Annual Debt Service (\$000)	\$59,406	\$52,010	\$64,774	\$67,796	\$75,038
Annual Debt Service Coverage (x)	1.4x	1.7x	1.2x	1.3x	1.5x
Days Cash on Hand	111.80	142.88	129.65	155.05	165.36
Debt to Operating Revenues (x)	3.76	3.68	4.04	3.95	3.96

Source: Moody's Investors Service, Pittsburgh Water & Sewer Authority

Profile

PWSA is an authority of the city of Pittsburgh, providing water treatment and conveyance to 84% of the city's population of roughly 305,000 residents and sewer conveyance for the entire city.

Detailed credit considerations

Service area and system characteristics: large, stable customer base in Pittsburgh

The Authority provides water distribution and wastewater collection and conveyance for the city of Pittsburgh and neighboring municipalities. The city's diverse economy is a credit positive for the Authority. Favorably, PWSA reported strong revenue collections throughout the coronavirus pandemic and did not experience large scale delinquencies that effected some regional peers, signaling resiliency in the customer base. The Authority's 10 largest customers (3.7% of revenues) include major Pittsburgh institutions, such as the Fox Chapel Water Authority, [Allegheny County \(Aa3 stable\)](#) and the [University of Pittsburgh \(Aa1 stable\)](#). All of the Authority's five largest customers have been in the system for at least 75 years. Notably, given a renegotiated cooperation agreement with the city of Pittsburgh in 2019, most city buildings are now metered for water, with the city paying for water usage - something it had not done previously.

The Authority continues to maintain an ample water supply, providing water to a population of approximately 305,000. The system is permitted to draw up to 100 million gallons per day (MGD) from the Allegheny River, its sole water source, though average demand for water is well below that level, at 70 MGD. The Authority treats drinking water at one plant located on the river, as well as a microfiltration plant at one of its reservoirs. The Authority has capacity to store approximately 3 days' worth of finished water for uninterrupted supply to its customers.

The Authority does not treat wastewater. It transmits all of its sewage to the [Allegheny County Sanitary Authority \(Aa3 stable\)](#). There is no contractual limit to the amount of sewage that can be conveyed, however, during wet weather events, the existing system frequently overflows. ALCOSAN is projecting annual rate increases over the next twenty years that will pass through to PWSA customers.

PWSA has made significant strides in improving its governance and management of its organization as well as its physical assets. Ordinary system updates and routine infrastructure improvements had been sorely lacking at PWSA and years of deferred maintenance have led to cost inefficiencies and exacerbated the natural wear and tear on an already aged system. PUC oversight since 2018 has already served to remediate some of this by establishing guidelines for system improvements based on industry-wide standards. The Authority has also hired more than 167 employees over the last five years - a 68% increase, and has filled key management roles with qualified personnel. This is a significant improvement over Authority operations of just a few years ago where management was mostly outsourced and employment was insufficient to provide for the day to day operations.

The additional operational oversight by the PUC is expected to be a credit positive going forward. Whereas the Authority had used capital deferment as a tool to maintain satisfactory finances and rate increases were heavily influenced by local politics in the past, the PUC has ensured that rate increases are less politicized. Further, while certain capital projects may be slowed to accommodate softening revenue if necessary, a complete sidelining of the capital plan and required maintenance is unlikely.

Debt service coverage and liquidity: recent history of satisfactory financial performance

The Authority's net revenues have been fairly stable since 2018, averaging a net take-down (net revenue / gross revenue) of about 35% over the past five years, as increased revenues have been matched by increased spending for maintenance and capital improvements. PWSA's operating margins are well in line with peers and are expected to remain stable as rate increases and further revenue growth is used to fund needed capital spending and a growing workforce payroll.

At fiscal 2022 year-end, the Authority reported senior debt service coverage of 1.8 times and total coverage of 1.41 times, well within covenant requirements and satisfactory versus peers. Moody's reports a slightly higher 1.87 times senior lien debt service coverage and 1.49 times all-in coverage, based on a net income figure that includes non-operating grant revenue. Favorably, coverage has continually improved since 2018, when PUC rate oversight went into effect, signaling that rate increases have been effective to maintain sufficient coverage while providing for more normalized operations and investment in system infrastructure.

The Authority is expecting an operating surplus of about \$6 million for 2023. PWSA expects all-in coverage to stay in the range of 1.2 times to 1.4 times over the next five years, though the Authority assumes rather significant rate increases in order to keep coverage stable. Moody's expects that the PUC will be supportive of rate increases that will allow for satisfactory coverage levels while PWSA continues to execute its capital plan. Future reviews will consider whether the Authority is able to maintain satisfactory coverage and adhere to projected financial performance while supporting increased leverage to execute the Authority's sizeable capital plan.

Liquidity

The Authority's liquidity is satisfactory, at 165 days unrestricted cash on hand as of fiscal year end 2022, equating to about \$84 million. PWSA's cash position is considerably weaker than national water and sewer system median days cash of 450 days as of 2021, though continues to strengthen. Further, when pass-through revenues and expenditures attributable to ALCOSAN are excluded from O&M, the Authority's days cash metric strengthens to 306 days cash, which is a somewhat more accurate view of liquidity relative to PWSA's own expenditure needs.

Debt and pensions: elevated debt burden continued credit challenge

The Authority continues to face material pressure to improve its infrastructure given years of disinvestment. Coupled with its own consent decree pertaining to combined sewer overflows during wet weather events, which is in negotiation since 2021, the Authority will necessarily add to its already elevated debt burden in the near term. PWSA anticipates roughly \$1.8 billion in capital spending over the next five years, largely funded by debt. This will add to leverage substantially and future credit reviews will focus on the Authority's ability to manage additional debt while maintaining satisfactory cash and coverage metrics; largely dependent on PWSA's ability to increase rates as needed. The Authority's total debt is equal to 96% of fixed assets as of 2022 year-end, well above similarly sized peers. The outstanding debt amortizes slowly, with only 36% of principal scheduled to be repaid in the next 10 years.

Legal security

PWSA's first lien revenue debt benefits from a limited obligation revenue pledge backed by a first lien security interest in and to the revenues of the authority after payment of current expenses.

Debt structure

The majority - 49% - of Authority debt benefits from a first lien pledge on net revenues. Another 7% is subordinate-lien bonds, and the remainder is backed by a third lien, which is shared on a parity basis between PennVest and PNC Bank, NA (A2) which provides a revolving credit facility to PWSA. Roughly 14% of the Authority's current debt outstanding (as of May 2023) is hedged variable rate.

The Authority introduced a new indenture in 2017, which strengthened the rate covenant. The requirement is now 125% of senior debt service coverage plus 110% of subordinate debt service coverage. Free cash is no longer used in the coverage calculation. The debt service reserve is funded at the lesser of the three-pronged test.

The Authority materially reduced its variable rate debt outstanding with its Series 2019 A&B issuance. Variable rate debt has been reduced to 14% of the total debt portfolio today, down from 44% prior to 2019. There is one variable rate issuance outstanding currently - the Authority's senior lien Series 2017C bonds, which were last remarketed in December 2020 and are subject to mandatory tender in December 2023. The bonds were remarketed with a rate indexed to SIFMA. Since the fixed-to-floating rate swaps associated with the 2017C bonds were LIBOR-based, the Authority layered on a basis swap alongside the remarketing in order to convert the variable rate received on the swaps to SIFMA from LIBOR, creating an effective hedge for the bonds. The Series 2023 ABCD issuance eliminates the basis swap, as both the variable rate debt and associated swaps will now be indexed to SOFR. Further the 2023 issuance contemplates a private placement of two-thirds of the variable rate debt with a soft put in 2028. The remaining one-third of variable rate debt will either be fixed for a five-year period or will be refinanced as fully fixed rate bonds with a full swap termination.

[Assured Guaranty Municipal Corp. \(A1 stable insurance financial strength\)](#) insures the Authority's variable rate bonds and all of the Authority's swaps, except the 2020 basis swap, and provides the surety policy for all debt service reserve funds, except the reserve associated with PWSA's 2013 bonds, which is cash funded. This counterparty concentration may adversely impact the Authority should AGM's credit quality deteriorate.

The Authority maintains \$535 million in outstanding PennVest loans as of May 2023 and an \$150 million revolving credit facility, of which \$131 million is currently drawn. The Authority will apply proceeds from its Series 2023 A issuance to pay down the credit line. Given an intercreditor agreement, PennVest and PNC Bank, NA share a third lien priority on system revenues.

Debt-related derivatives

The Authority maintains floating-to-fixed rate swaps in support of its Series 2017C issuance under ISDA Master Agreements with JP Morgan Chase Bank N.A. (Aa2 Sr. Unsecured) (64%) and Merrill Lynch Capital Services (36%), whereby the authority pays a fixed interest rate semiannually (3.79% weighted average) and receives 70% of LIBOR. The Authority layered on a basis swap in 2020 to convert the LIBOR received rate to SIFMA.

AGM provides swap insurance for all swaps. The aggregate swap mark to market is a negative (\$20 million) as of fiscal year end 2022.

The floating-to-fixed rate swaps are included in the parameters of a credit support annex (CSA), though there is no collateral posting requirement unless an Insurer Event occurs. The basis swap is excluded from the CSA. The amortization schedule for each swap mirrors that of the corresponding bonds and the swaps terminate at bond maturity. The basis swap terminates in December 2023 with the next mandatory tender of the Series 2017 C bonds. For all of the swaps, per the 2017 indenture, regularly scheduled swap payments are subordinate to subordinate bond debt service. Early termination is optional for the Authority only, and termination by the counterparty depends upon specified termination events, including the downgrade of PWSA's underlying rating below investment grade. An Authority termination payment would be subordinate to first and second lien debt service payments.

Pensions and OPEB

Most of the Authority's employees participate in the city's pension program. The Authority's share of its pension contribution is now accurately provided for through its renegotiated cooperation agreement with the city. Beginning in 2019, all new full time non-union PWSA employees are eligible to participate in a 401(a) retirement plan and do not have the option of enrolling in the city's municipal pension fund plan.

ESG considerations

Environmental

The Pittsburgh metropolitan area faces a high risk of elevated rainfall levels. Demonstrated elevated rainfall levels in the region have directly impacted PWSA, as wet weather events overwhelm the system's current combined sewer infrastructure. This is the reason for the Authority's consent decree related to combined sewer overflows.

Social

Pittsburgh's population is relatively stable at roughly 301,000 and the five year average annual growth rate of the city's full value is a strong 4.5% as of fiscal 2021, well above the US median of -0.5%. Nevertheless, the city's wealth indicators remain below average with median family income at just 89% of the nation. Poverty is also elevated at 20%. As PWSA has increased rates, it has also implemented a rate relief program for qualifying residents, acknowledging this weakness in its rate base.

Governance

The Authority's current management team has developed a comprehensive plan to bring operations to good working order and to proceed with much needed capital improvements. Strong governance controls at the Authority are evidenced by several years of improved financial performance.

Management views its relationship with the PUC as well as the DEP and EPA as an opportunity for partnership and has proactively sought to engage these agencies as PWSA moves forward with its substantial CIP. This is a definitive, positive change from the Authority's prior actions, and informs our stable outlook on PWSA's current credit profile.

The Authority's Board consists of nine members recommended by a nominating committee, appointed by the Mayor, and approved by City Council. Currently, eight of the nine Board seats are filled. Starting in 2020, city water charges were phased in pursuant to a cooperation agreement; the Authority had provided water to the city at no cost prior to 2020. Among other things, the cooperation agreement also provides for payments between the city and the PWSA to be based upon actual, verifiable, direct expenses, and in accordance with customary utility practices under the PUC Code, and importantly, confirms that payments by the PWSA to the city will continue to be subordinate to all debt obligations of the PWSA.

Pennsylvania's Public Utility Commission began oversight of the authority in April 2018. The PUC is responsible for regulating the Authority's rate making, operating effectiveness, and debt issuance. We expect that the PUC will bring standardization and effective governance to the Authority's future operations. The PUC is required to approve rate increases that will ensure PWSA complies with its bondholder covenants, though we note that the approval process for increases can be lengthy.

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PWSA Exhibit CF-11

RatingsDirect®

Summary:

Pittsburgh Water and Sewer Authority; Water/Sewer

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Credit Highlights

Outlook

Credit Opinion

Related Research

Summary:**Pittsburgh Water and Sewer Authority;
Water/Sewer**

Credit Profile		
US\$146.058 mil wtr and swr sys first lien rev rfdg bnds ser 2023D due 09/01/2028		
<i>Long Term Rating</i>	A+/Stable	New
US\$144.62 mil wtr and swr sys first lien rev rfdg bnds ser 2023B due 09/01/2040		
<i>Long Term Rating</i>	A+/Stable	New
US\$103.705 mil wtr and swr sys first lien rev bnds ser 2023A due 09/01/2053		
<i>Long Term Rating</i>	A+/Stable	New
US\$0.89 mil wtr and swr sys first lien rev bnds (federally taxable) ser 2023C due 09/01/2024		
<i>Long Term Rating</i>	A+/Stable	New
Pittsburgh Wtr & Swr Auth WTRSWR		
<i>Long Term Rating</i>	A+/Stable	Affirmed

Credit Highlights

- S&P Global Ratings affirmed its 'A+' rating on the Pittsburgh Water and Sewer Authority's (PWSA) first-lien revenue bonds.
- At the same time, S&P Global Ratings also affirmed its 'A' rating on PWSA's subordinate-lien revenue bonds.
- Additionally, we assigned our 'A+' rating to PWSA's upcoming approximately \$400 million water and sewer system first-lien revenue and revenue refunding bonds series A, B, C (federally taxable), and D bonds and remarketing of the 2017C bonds.
- The outlook is stable.
- Total debt outstanding will be approximately \$1.5 billion.

Security

The first-lien bonds are secured by a senior-lien pledge on the net revenues of the authority's waterworks and sanitary sewer system. Bond provisions are credit neutral.

We have applied our primary utility revenue bond criteria to determine the authority's general creditworthiness, and have applied this rating to its senior-lien issues. We rate PWSA's subordinate lien one notch lower, based on the application of our criteria "Assigning Issue Credit Ratings Of Operating Entities" (published May 20, 2015, on RatingsDirect), given the open status of the senior lien and the likelihood that PWSA will continue to use the senior lien from time to time.

Proceeds of the bonds will be used to fund a portion of the system's capital program and refund the authority's series 2013A and B for interest rate savings, which will allow for the remarketing of the 2017C bonds, finance the partial

termination costs of the fixed payer swap associated with the 2017C bonds, and fund the cost of issuing the bonds.

Of the series 2017C bonds, the subseries 1, 2, and 3 will each be associated with a basis swap to the Securities Industry and Financial Markets Association (SIFMA) index rate. The counterpart for this overlay swap is Merrill Lynch Capital Services Inc., with a notional amount of \$216.72 million of the 2017C bonds that are synthetically fixed with a fixed payer swap with JPMorgan Chase Bank N.A. or Bank of America Merrill Lynch N.A. The authority intends to remarket \$146 million of the 2017C bonds into secured overnight financing rate (SOFR) mode and issue \$72 million series 2023D bonds as fixed-rate premium put bonds, as well as partially terminate the fixed payer swap for five years or upsize the series 2013B refunding bonds to refund \$72 million of the 2017C bonds and pay the termination cost of the associated fixed payer swaps to maturity. The decision whether to terminate fully or partially is subject to market conditions. The outstanding basis overlay swap to the Securities Industry and Financial Markets Association (SIFMA) index rate on the series 2017C bonds will be terminated and related costs will be financed with proceeds of the bonds. Although only a point-in-time snapshot and--barring a termination event such as the rating on PWSA falling below 'BBB-'--not an actual liability, those swaps are currently substantially out of the money. Subseries 4 (\$2 million) and the balance on the PNC Bank capital line of credit (\$132 million) are not hedged.

Credit overview

A very conservative approach to long-term planning has enabled management to successfully get three rate increases from the Pennsylvania Public Utility Commission (PaPUC), with the last being for two years (fiscal years 2022 and 2023). These rate increases have enabled management to continue funding the capital improvement program (CIP) while dealing with rising costs from its suppliers. Additionally, management was successful in getting a new stormwater fee approved to assist in funding those projects. Given the capital plan, it is important for rating maintenance that the recently filed rate case be approved at or near the requested levels for fiscal years 2024-2026.

Other factors that support the rating include:

- Pittsburgh's role as the anchor and economic engine for western Pennsylvania, based on an employment base that has reinvented itself from one that once relied heavily on manufacturing and industrial jobs;
- Rates for service that have been pressured over the past decade by the unfunded mandates, and will need to be reviewed by the state's rate regulator, but remain affordable;
- Operational management assessment (OMA) that we view as good, even despite the above-mentioned challenges;
- Strong coverage levels of all-in debt service historically and projected;
- Strong on-balance-sheet liquidity, supported further by the available credit line; and
- Financial management practices and policies we consider good.

The rating is limited by extremely high leverage, with \$1.8 billion in capital commitments identified through fiscal 2027 that are likely to continue to pressure the financial profile.

Environmental, social, and governance

In our view, PWSA has outsized risks related to each of our environmental, social, and governance (ESG) factors, although each of these are generally trending favorably. In previous years, the authority faced scrutiny from local and

state elected officials who voiced concerns over its operations. An auditor general's opinion, released in November 2017, cited "aging and deteriorating infrastructure issues and financial and operational long-term viability issues," and was an important factor in legislation that ultimately placed PWSA under PaPUC oversight as of April 1, 2018. The PaPUC regulates the authority's rates and fees and must approve additional debt. PWSA's management team has worked closely with regulators and other stakeholders, and has already achieved several measures that are likely to improve operations and financial capacity. This includes recent approval of a distribution system improvement charge that will be dedicated to underground infrastructure rehabilitation.

PWSA has also implemented various socially directed programs, such as lead service-line replacements and customer bill-pay assistance programs. We view the latter as a credit quality stabilizer that could allay affordability concerns. PWSA's own environmental compliance mandates, as well as drinking water efficiency, are key programs in PWSA's capital budget and have been the major generators for the need to consider additional rate adjustments; the authority has the ability to administratively pass through and recover costs from its wholesale wastewater treatment provider. PWSA, under its Green First plan, is also piloting approximately a dozen projects to experiment with different approaches to green infrastructure and overflow reduction that could also present capital budget cost savings.

Outlook

The stable outlook reflects our expectation that when PWSA does need to propose a rate case to the PaPUC, there will generally be a credit-supportive relationship, observed by both the timing and magnitude of rate adjustments that PWSA is likely to request, versus what the PaPUC ultimately grants. We are assuming that the financial profile will be further stabilized by the sufficiency test in the rate covenant, which does not allow for the use of cash transfers. We will also likely keep in place the one-notch distinction between the first- and subordinate-lien debt.

Downside scenario

Should inflationary and supply-chain issues significantly drive up the cost of the CIP, which is expected to be mostly debt funded, and thereby cause additional debt that pressures financial metrics, the rating could be lowered.

Upside scenario

Management has represented that total debt service coverage (DSC) will generally move toward about 1.25x, with on-balance-sheet available reserves equivalent to four to five months' operating expenses. Consistently outperforming financial projections while meeting the long-term challenges presented by an aging system, compounded by regulatory pressures, would be the key to PWSA achieving a higher rating.

Credit Opinion

Enterprise risk

Based on our Operational Management Assessment (OMA), we view PWSA to be good. An assessment of good, in our opinion, implies that overall alignment between the system's operational characteristics and its management is sufficient, although there are areas of opportunity. Management's plans to rehabilitate and build reliability into the operations have improved our view of this assessment. The CIP contains projects that are based on both PWSA's

prioritization and those reflecting consent decrees.

Much of the existing infrastructure was built to serve a much larger population and a workforce different from that of today. While we note, for example, that the city has an essentially unlimited raw-water supply from the Allegheny River and overall system capacity that could support a population several times the size of the current one, it is also the case that the authority's focus remains the renewal and replacement of its aging underground infrastructure. The water distribution system is also an identified area of opportunity, given the high nonrevenue water percentage, which is attributable to line losses. However, under a 2019 cooperation agreement, the city will no longer receive free service, which alone should help improve nonrevenue water. The renegotiated agreement will not affect the capital lease agreement, and PWSA still intends to purchase the system from the city for \$1 in 2025 under the terms of the current agreement.

PWSA can administratively fully pass through and recover Allegheny County Sanitary Authority (ALCOSAN) billings and the surcharge for distribution system improvements. Management instituted stormwater charges in fiscal 2022. For fiscal 2021, the average customer--using 3,000 gallons of both water and sewer service plus ALCOSAN's treatment surcharge--pays about \$121 per month, or 3.3% of median household effective buying income (MHHEBI). As costs increase over time to support the CIP, headroom for affordability, especially for lower-income customers, could diminish.

Financial risk

A Financial Management Assessment (FMA) of good indicates that we consider management's practices currently good, but not comprehensive. The authority maintains many best practices we believe are critical to supporting credit quality, particularly in the finance department. These practices, however, may not be institutionalized or formalized in policy, or may not be as robust as those of comparable utilities with an FMA of strong. The FMA of good includes a long-term financial plan that management intends to implement in partnership with PaPUC to support its identified capital commitments. The authority also has implemented new, more comprehensive, and conservative budgeting assumptions that better capture annual revenue requirements. We understand that the authority's management team regularly tracks budget-to-actual performance, and that the new management team is instituting a number of additional best practices to target consistently higher levels of financial performance.

Pittsburgh Water & Sewer Authority--Economic and financial data					
	Most recent	Fiscal year-end			
		2022	2021	2020	Median (A+)
Economic data					
Water customers	65,739				7,244
Sewer customers	--				7,424
MHHEBI of the service area as % of the U.S.	78.0				91.0
Unemployment rate (%)	3.0				4.6
Poverty rate (%)	11.3				12.1
Water rate (6,000 gallons or actual) (\$)	58.96				38.0
Sewer rate (6,000 gallons or actual) (\$)	64.03				42.0
Annual utility bill as % of MHHEBI	3.3				1.1

Pittsburgh Water & Sewer Authority--Economic and financial data (cont.)

	Most recent	Fiscal year-end			Median (A+)
		2022	2021	2020	
Operational Management Assessment	Good				Good
Financial data					
Operating revenues (\$000s)		287,166	269,121	241,997	7,237
Total operating expenses less depreciation (\$000s)		184,743	179,900	169,507	4,216
S&P Global Ratings-adjusted all-in DSC (x)		1.6	1.4	1.2	1.8
Unrestricted cash (\$000s)		101,983	130,630	183,545	5,110
Days' cash of operating expenses		201	265	395	438
Total on-balance-sheet debt (\$000s)		1,212,627	1,146,271	1,066,226	13,879
Financial Management Assessment	Good		--	--	Good

Note: Most recent economic data available from our vendors. MHHEBI--Median household effective buying income. DSC--Debt service coverage.

Related Research

- Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

Ratings Detail (As Of May 17, 2023)

Pittsburgh Wtr & Swr Auth WS (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WS (AGM)		
<i>Unenhanced Rating</i>	A(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WS (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR		
<i>Long Term Rating</i>	A+/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM)		
<i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed

Many issues are enhanced by bond insurance.

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column.

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PWSA Exhibit CF-12

SECTOR PROFILE

12 June 2023



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Water and Sewer Utilities – US

Medians - Steady revenue growth, strong coverage and robust liquidity boost sector

Summary

Municipal water and sewer utilities benefited from steady revenue growth, strong debt service coverage and robust liquidity on a sectorwide basis in fiscal 2021, according to our medians data. And the trend continued into fiscal 2022 based on available audits. Continued improvement in financial results highlights utilities' ability to raise rates and the essentiality of their services. Even as some utilities chose to forego rate increases in the wake of the pandemic, coverage remained strong and led to significant increases in liquidity. Federal COVID-19 relief funds helped utilities fund improvements and manage risks posed by inflation and supply-chain disruption. Data in this report is derived from more than 650 water and sewer utilities we rate; most are enterprises of a city or county. Other water and sewer systems are standalone authorities.

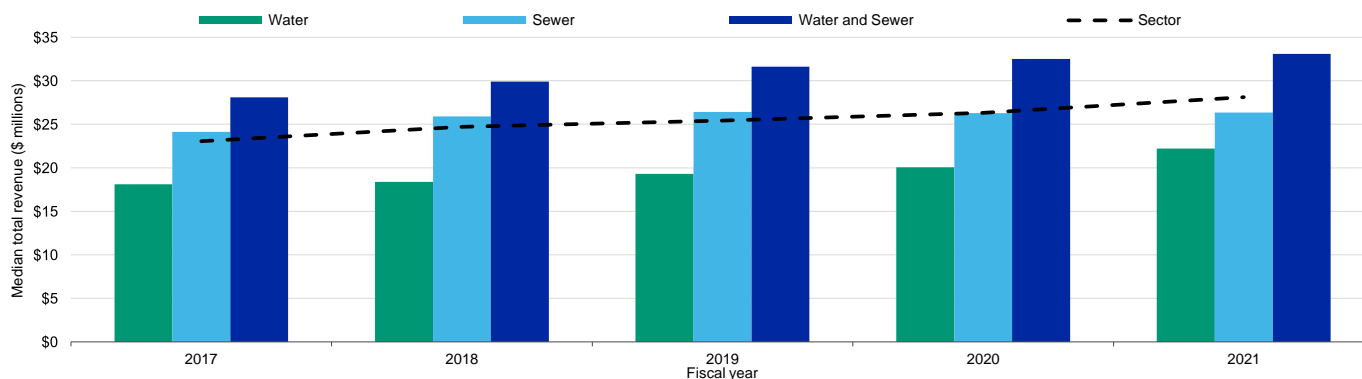
- » **Revenue grew in fiscal 2021, bolstered by independent rate-setting ability and essentiality of services.** Sectorwide, more than half of water and sewer utilities we rate had revenue growth of about 3.5% or greater in fiscal 2021.
- » **Operating and maintenance (O&M) costs grew slightly slower than revenue.** Most utilities had O&M costs rise by about 3.5% or less in fiscal 2021 versus the prior year.
- » **Net revenue improved sectorwide.** Net revenue rose by at least 2% for most utilities in fiscal 2021, which helped systems maintain strong coverage and bolster liquidity.
- » **Strong debt service coverage provided a buffer against shocks.** Median coverage held steady at 2.3x in fiscal 2021, indicating good capacity to pay debt even under stressed scenarios.
- » **Liquidity continued to climb, enhancing financial flexibility.** Total cash grew by more than 9% for most utilities in fiscal 2021, and median days cash on hand rose to a robust 534 days.
- » **Leverage remained steady.** The median debt-to-revenue ratio remained steady at a modest 2.1x in fiscal 2021. Careful debt management enables utilities to address their most pressing concerns, though projected needs are significant.
- » **Reported asset condition was stable.** Utilities continued to invest in infrastructure, with median useful life remaining solid at 28 years in fiscal 2021. Usage of aging system components is common and will eventually require significant investment for replacements.

Revenue grew in fiscal 2021, helped by independent rate-raising authority and essentiality of services

- » Independent rate-setting authority, essentiality of services and fixed charges underpin the stability of utilities' revenue. More than half of utilities we rate experienced revenue growth of about 3.5% or greater in fiscal 2021.
- » Still, there can be practical and political constraints on rate hikes. Some utilities modified their rate plans due to the pandemic and related concerns about affordability. Continued rate increases will be necessary to fund significant capital needs, though a weakening economy and high inflation may present challenges.

Exhibit 1

Revenue improved for water, sewer and combined systems in fiscal 2021



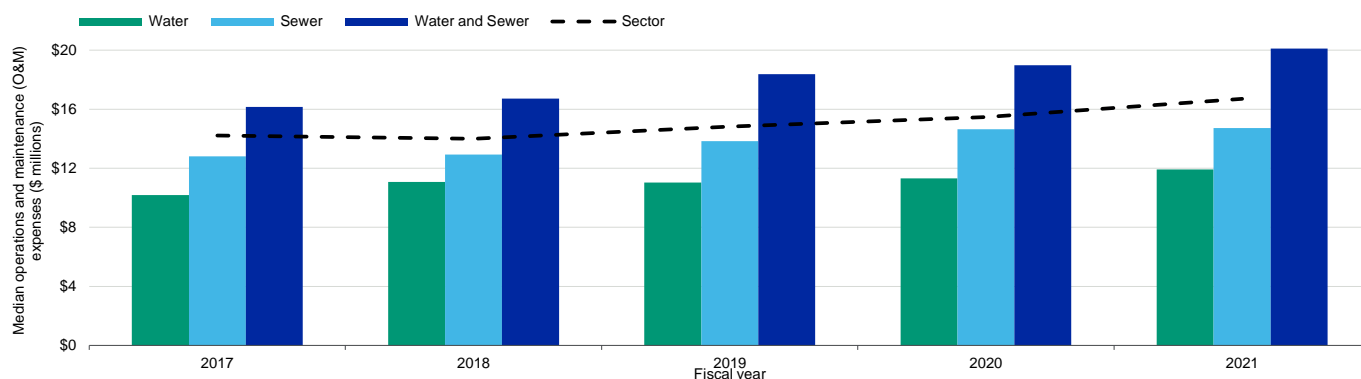
Source: Moody's Investors Service

O&M expenses increased with rising wages and supply costs

- » Most utilities across the sector saw O&M costs rise by about 3.5% or less versus the prior year in fiscal 2021. Still, growth in O&M costs trailed the pace of revenue growth, as well as the national rate of inflation in 2021.
- » Rising costs for construction materials driven by steep inflation led to particularly high costs for repairs and large capital projects for some utilities. Sharp expense increases can strain affordability and hinder capital investment.

Exhibit 2

Operations and maintenance (O&M) expenses grew for all three system types, but trailed revenue growth



Source: Moody's Investors Service

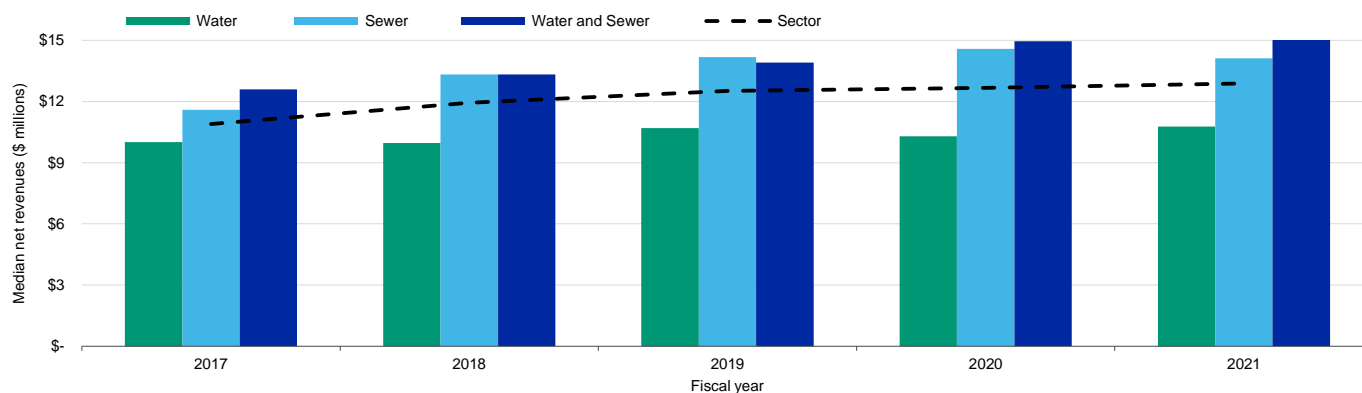
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Improved net revenue highlights financial strength

- » Net revenue improved as growth in revenue outpaced expenses, providing additional capacity to pay debt or build liquidity. Across the sector, fiscal 2021 net revenue rose by at least 2% versus the prior year for most utilities. Median net revenue was up for water and combined utilities but declined modestly for sewer utilities.
- » Net revenue has consistently grown in recent years, highlighting the benefits of the sector's independent rate-raising ability and essentiality of services.

Exhibit 3

Net revenue at the sectorwide level improved as revenue outpaced expenditures



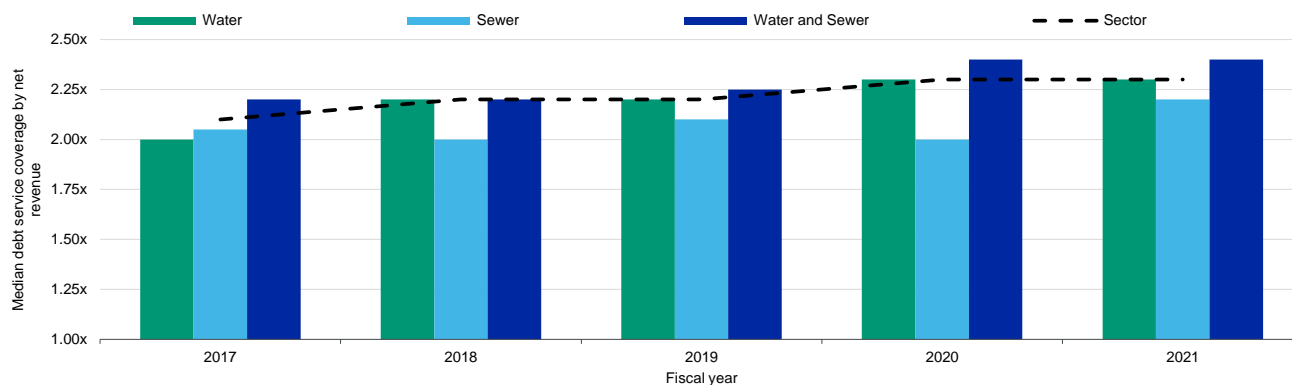
Source: Moody's Investors Service

Strong debt service coverage continued to provide a buffer against shocks

- » Sectorwide debt service coverage — annual net revenue divided by annual debt service — held steady at 2.3x in fiscal 2021. Coverage remained well in excess of standard rate covenants that are usually between 1.0x and 1.5x annual debt service. Debt service coverage remained similarly strong in fiscal 2022 based on available audits.
- » Very strong debt service coverage and liquidity provide utilities with a substantial ability to withstand shocks. While results show that revenue only modestly increased in 2020 and 2021, we [previously reported](#) that even under a stress scenario of a 10% decline in revenue due to the pandemic, the median debt service coverage ratio for water and sewer utilities we rate would remain strong at 1.7x.

Exhibit 4

Debt service coverage continued to top 2.0x across the sector



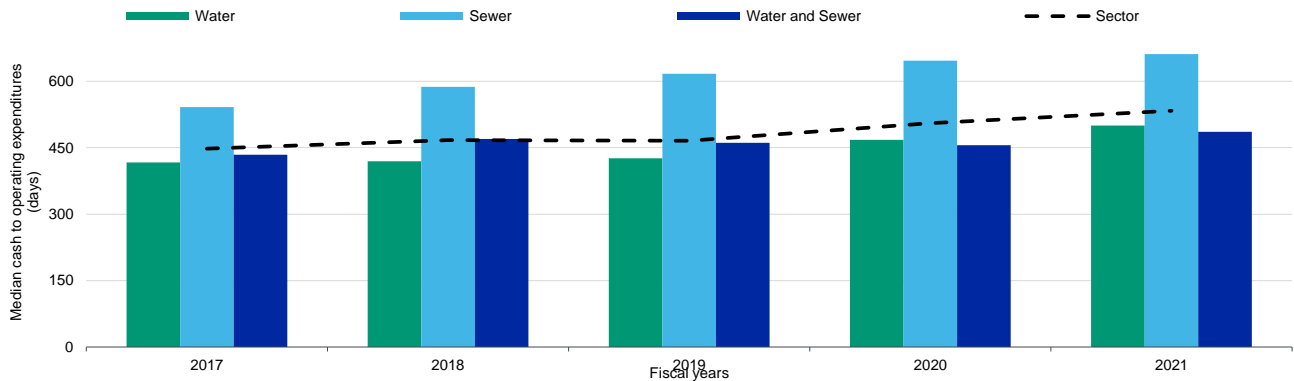
Source: Moody's Investors Service

Liquidity continued to climb, enhancing flexibility

- » Sectorwide liquidity remains robust and continues to strengthen, providing flexibility to manage potential revenue swings, address unanticipated expenses or fund certain capital projects. Liquidity continued to improve in fiscal 2022 based on available audits.
- » Total cash grew by more than 9% for most utilities in fiscal 2021, and the median days cash on hand rose in fiscal 2021 to a robust 534 days.

Exhibit 5

Liquidity remained strong across the sector with the three system types maintaining more than a year of operating cash



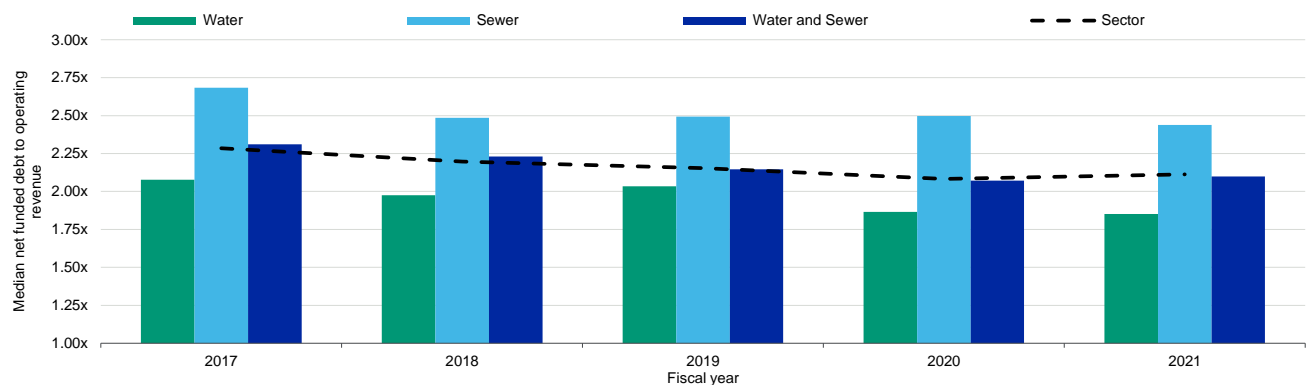
Source: Moody's Investors Service

Leverage remained steady, with good borrowing capacity

- » Leverage from debt remained fairly modest across the sector at a median of 2.1x. The median debt-to-revenue figure for water, sewer and combined utilities all remained fairly steady, and available audits for fiscal 2022 reflect similar results. Some utilities' deferred their borrowing plans because of the pandemic, and others used allocations from the American Rescue Plan Act of 2021 to fund water or sewer projects.
- » Careful management of debt provides utilities with good capacity to address their most pressing needs, though projected costs to address aging infrastructure, remain in compliance with laws and regulations, and mitigate growing environmental risks are significant. Many utilities will likely have to raise rates and issue debt to comply with the Environmental Protection Agency's proposal to [reduce PFAS in drinking water](#).

Exhibit 6

Leverage remained low in fiscal 2021



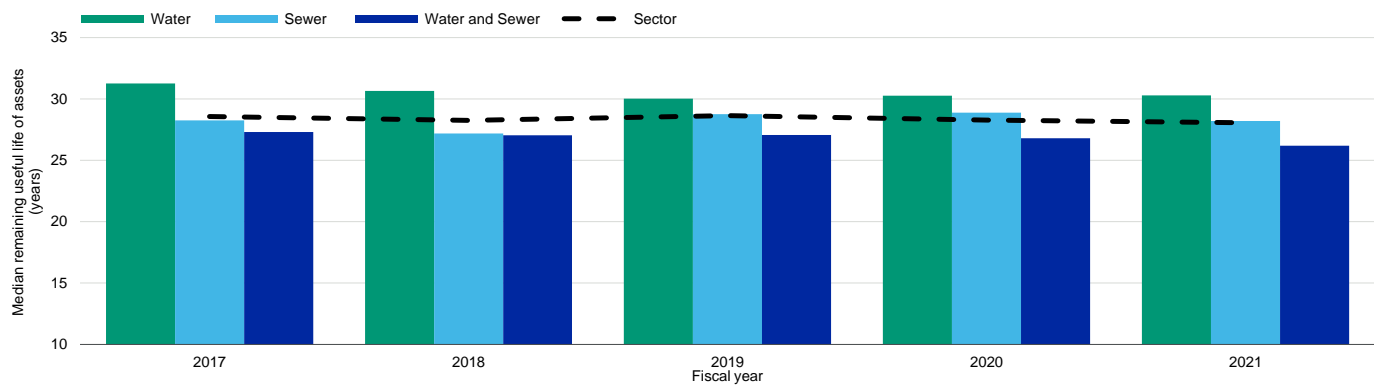
Source: Moody's Investors Service

Reported asset condition was stable

- » Median sectorwide asset condition — net fixed assets divided by depreciation expense — remained stable at a healthy 28 years, indicating that utilities continue to invest in their systems. Most utilities proceeded with necessary capital projects during the pandemic, though some were postponed for budget savings or supply-chain disruptions.
- » Continued usage of fully depreciated system components, particularly pipes, is common in the sector, but typically not reflected in a utility's reported capital asset figures. The projected cost to replace aging infrastructure is significant and presents a major credit challenge for the sector.

Exhibit 7

Remaining useful life of assets remained largely stable in fiscal 2021



Source: Moody's Investors Service

Basis for medians

This report conforms to our [US Municipal Utility Revenue Debt Methodology](#) published in April 2022. As such, the medians presented here are based on the key metrics outlined in the methodology and the associated scorecard. The appendix of this report provides additional metrics broken out by sector and rating category.

We use data from a variety of sources to calculate the medians, some of which have differing reporting schedules. The median family income data (see below) was derived from the 2021 US Census American Community Survey.

Medians for some rating levels, namely Aaa- and Baa-rated issuers (see below), are based on relatively small sample sizes. These medians may therefore be subject to substantial year-over-year variation.

Our ratings reflect our forward-looking opinion derived partly from forecasts of financial performance and qualitative factors, as opposed to strictly historical quantitative data. Our expectation of future performance, combined with the relative importance of certain metrics on individual utility ratings, account for the range of values that can be found within each rating category.

Key ratios

- » Net revenue: operating revenue minus operating expenditures net of depreciation
- » Debt service coverage: net revenue divided by annual debt service
- » Days cash on hand: unrestricted cash and liquid investments multiplied by 365 and divided by operating and maintenance expenses (net of depreciation), expressed in days
- » Debt to operating revenue: net long-term debt less debt service reserve funds divided by annual operating revenue
- » Asset condition: net fixed assets divided by depreciation expense, expressed in years

Appendix A: Water, sewer and combined water and sewer utilities

Exhibit 8

Medians for US water utilities

Fiscal 2017-2021

Selected Indicators	2017	2018	2019	2020	2021
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	99%	98%	99%	100%	100%
Asset Condition: (Remaining Useful Life)	31	31	30	30	30
Debt to Operating Revenue	2.1	2.0	2.0	1.9	1.9
Annual Debt Service Coverage	2.0	2.2	2.2	2.3	2.3
Days Cash on Hand	417	420	426	468	500
System Size: (O&M, \$000)	10,188	11,062	11,041	11,310	11,919
Net Revenue (\$000)	10,012	9,969	10,696	10,292	10,776
Net Funded Debt (\$000)	38,425	36,857	36,450	38,515	40,250
Total Revenue (\$000)	18,100	18,379	19,319	20,045	22,213

Source: Moody's Investors Service

Exhibit 9

Medians for US sewer utilities

Fiscal 2017-2021

Selected Indicators	2017	2018	2019	2020	2021
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	100%	101%	100%	101%	101%
Asset Condition: (Remaining Useful Life)	28	27	29	29	28
Debt to Operating Revenue	2.7	2.5	2.5	2.5	2.4
Annual Debt Service Coverage	2.1	2.0	2.1	2.0	2.2
Days Cash on Hand	542	588	617	647	661
System Size: (O&M, \$000)	12,798	12,920	13,825	14,646	14,714
Net Revenue (\$000)	11,595	13,332	14,179	14,586	14,117
Net Funded Debt (\$000)	58,448	58,875	60,981	63,200	59,662
Total Revenue (\$000)	24,135	25,918	26,408	26,287	26,366

Source: Moody's Investors Service

Exhibit 10

Medians US combined water and sewer utilities

Fiscal 2017-2021

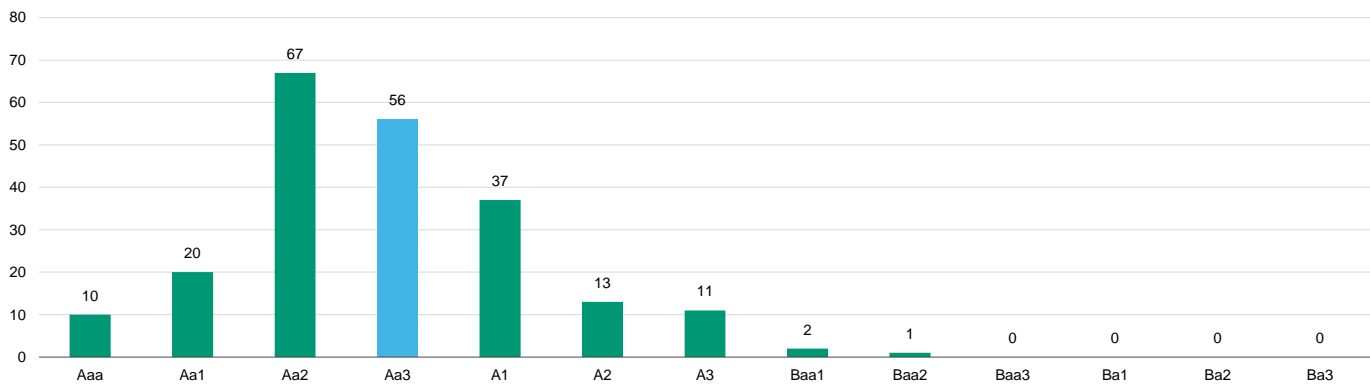
Selected Indicators	2017	2018	2019	2020	2021
Moody's Median Senior Revenue Rating					Aa3
Median Family Income (% of US Median)	91%	92%	93%	93%	92%
Asset Condition: (Remaining Useful Life)	27	27	27	27	26
Debt to Operating Revenue	2.3	2.2	2.1	2.1	2.1
Annual Debt Service Coverage	2.2	2.2	2.3	2.4	2.4
Days Cash on Hand	435	470	461	456	486
System Size: (O&M, \$000)	16,164	16,720	18,382	18,975	20,100
Net Revenue (\$000)	12,598	13,319	13,902	14,961	15,129
Net Funded Debt (\$000)	58,375	60,019	59,636	57,415	56,805
Total Revenue (\$000)	28,089	29,890	31,619	32,498	33,103

Source: Moody's Investors Service

Appendix B: Water utilities

Exhibit 11

Rating distribution for US water utilities



Highlighted bar represents median rating.

Source: Moody's Investors Service

Exhibit 12

2021 medians for US water utilities by rating category

Fiscal 2021

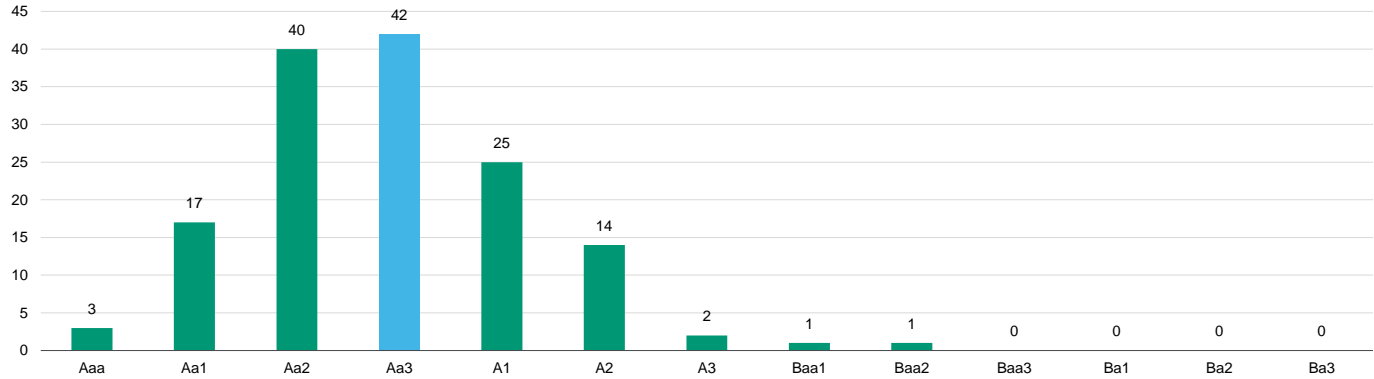
Selected indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	124%	103%	86%	78%	NA
Asset Condition: (Remaining Useful Life)	36	32	26	31	NA
Debt to Operating Revenue	2.2	1.9	2.2	1.6	NA
Annual Debt Service Coverage	2.8	2.5	1.9	1.8	NA
Days Cash on Hand	676	516	468	421	NA
System Size: (O&M, \$000)	89,856	18,801	3,528	3,481	NA
Net Revenue (\$000)	104,112	14,897	2,780	1,912	NA
Net Funded Debt (\$000)	435,497	57,665	13,683	7,738	NA
Total Revenue (\$000)	181,350	35,914	6,164	4,844	NA

Source: Moody's Investors Service

Appendix C: Sewer utilities

Exhibit 13

Rating distribution for US sewer utilities



Highlighted bar represents median rating.

Source: Moody's Investors Service

Exhibit 14

2021 medians US sewer utilities by rating category

Fiscal 2021

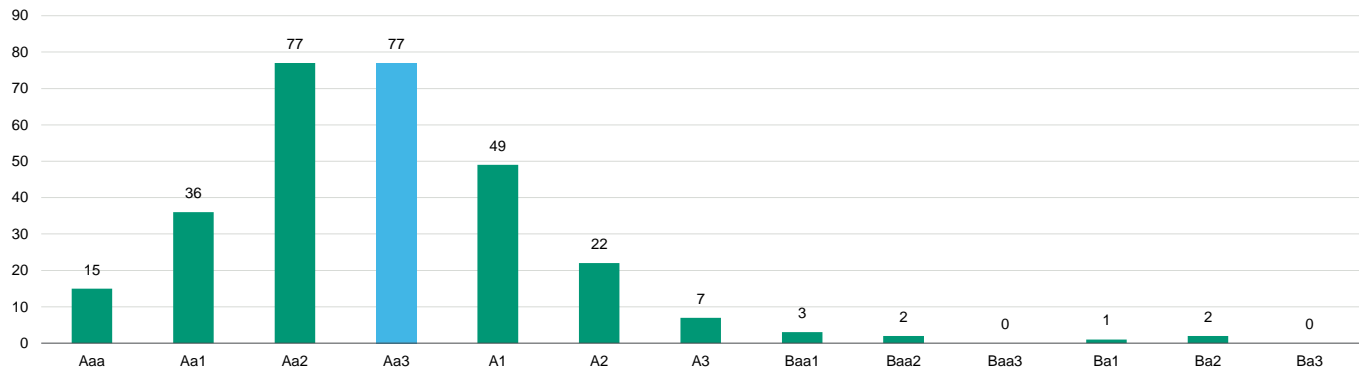
Selected indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	133%	103%	90%	89%	NA
Asset Condition: (Remaining Useful Life)	27	29	26	37	NA
Debt to Operating Revenue	2.7	2.4	2.8	2.8	NA
Annual Debt Service Coverage	3.0	2.3	1.8	2.9	NA
Days Cash on Hand	1,590	691	619	626	NA
System Size: (O&M, \$000)	107,039	23,278	7,454	86,142	NA
Net Revenue (\$000)	144,970	19,843	4,312	104,555	NA
Net Funded Debt (\$000)	694,662	102,617	21,258	944,062	NA
Total Revenue (\$000)	216,448	35,323	12,660	187,295	NA

Source: Moody's Investors Service

Appendix D: Combined water and sewer utilities

Exhibit 15

Rating distribution for US combined water and sewer utilities



Highlighted bar represents median rating.
Source: Moody's Investors Service

Exhibit 16

2021 medians US combined water and sewer utilities by rating category

Fiscal 2021

Selected indicators	Aaa	Aa	A	Baa	Ba
Median Family Income (% of US Median)	111%	95%	83%	70%	NA
Asset Condition: (Remaining Useful Life)	26	27	25	27	NA
Debt to Operating Revenue	1.7	1.9	2.5	4.0	NA
Annual Debt Service Coverage	3.7	2.5	1.8	1.8	NA
Days Cash on Hand	901	538	412	155	NA
System Size: (O&M, \$000)	107,341	25,387	8,273	29,193	NA
Net Revenue (\$000)	89,583	21,337	5,091	28,343	NA
Net Funded Debt (\$000)	316,177	75,875	30,442	313,595	NA
Total Revenue (\$000)	176,234	42,918	13,774	60,047	NA

Source: Moody's Investors Service

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REPORT NUMBER 1359152

PWSA Exhibit CF-13

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

February 24, 2022

Key Takeaways

- U.S. municipal water and sewer utilities entered 2022 on strong financial footing, with median days' cash on hand increasing to 488 days of operating expenses and all-in debt service coverage (DSC) remaining near 1.9x in 2021.
- Capital spending has increased in recent years as utilities replaced aging infrastructure, invested in new sources of supply, and complied with stringent regulations.
- Climate- and cyber-related challenges are key longer-term risks. The consequences of climate change and lack of emergency preparedness could increase operational challenges and potentially have negative credit implications if not managed effectively.
- Steady residential demand and improved revenue gains more recently continue to highlight the sector's overall financial resilience despite the effects of the COVID-19 pandemic on the broader economy.

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S&P Global Ratings maintains long-term ratings on over 1,600 municipal water and wastewater utilities in the U.S. Our rated universe includes utilities that use a combined pledge (consisting of both water and sewer revenues), as well as those that issue separately secured utility debt (for example, water-only or sewer-only revenue bonds). Our data set excludes debt issued by either wholesalers or state agencies to fund water and wastewater projects. About 46% of these utilities are in the 'A' category, 44% are in the 'AA' category, 7% are in the 'AAA' category, and fewer than 4% are in the 'BBB' category or lower (see chart 2). The rating distribution reflects the retail utilities' generally very strong enterprise and financial risk profiles supported by strong demographic and financial characteristics.

We base our median ratios on statistical information from our municipal retail water and sewer utility public ratings. These medians are not requirements for any particular rating but rather reflect the sector's general credit trends at the specified levels. As economic conditions and the number of rated utilities change so will the reported medians. Most key financial median ratios including unrestricted liquidity median metrics improved modestly, reflecting the rated municipal water and sewer utility sector's financial resilience despite the effects of the COVID-19 pandemic on the broader economy. In our view, the influence of the pandemic on utility revenue has been relatively muted, as most serve diverse customer bases that are anchored by steady residential

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

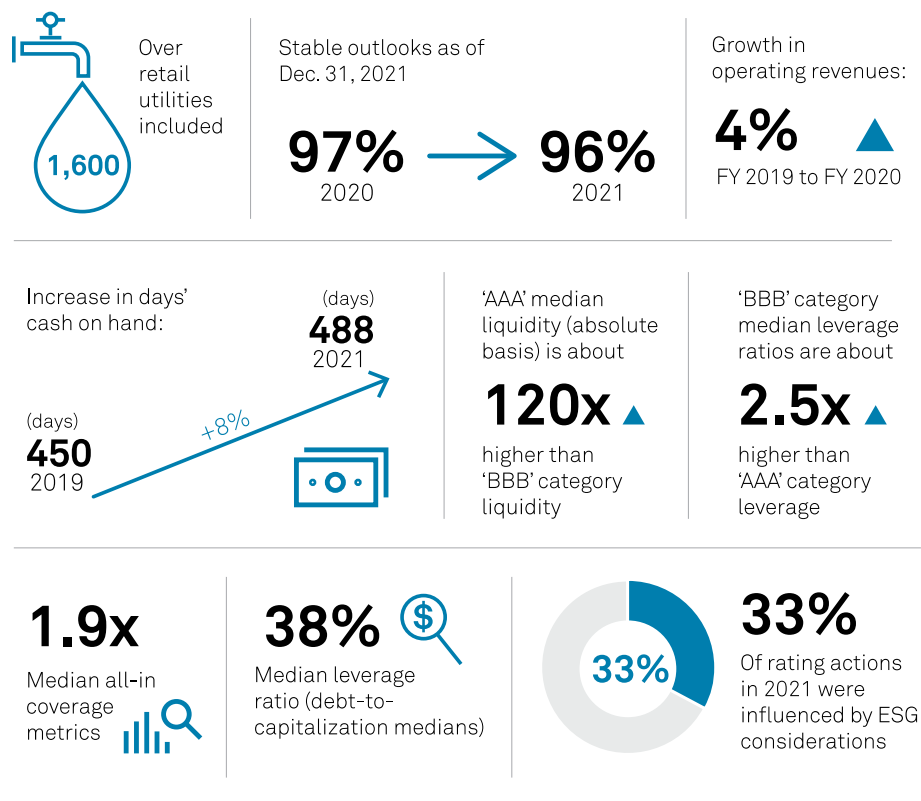
demand, with the exceptions of those with outsized agricultural or tourism and hospitality sector concentration.

We expect there will likely be continued pressure on rate affordability as the cost of water and wastewater treatment is expected to rise faster than inflation as utilities replace aging infrastructure, invest in new or alternative sources of supply, and respond to more stringent federal and state regulations. Utilities will need to strike a good balance between capital investments and affordability in the long term to preserve credit quality. The \$55 billion allocated by the Infrastructure Investment and Jobs Act to water and sewer projects could alleviate some rate-affordability pressure, considering some projects that would have otherwise been debt financed or rate funded. We anticipate that utilities will seek grant funding opportunities for several capital projects (see "Rate Affordability Could Be Pressured As U.S. Public Utilities Tackle Aging Infrastructure And Climate Considerations," published Dec. 15, 2021, on RatingsDirect).

Every year, we anticipate the key generators of credit quality for the municipal water and sewer utilities in the U.S. While we note that the sector carries relatively very low risk, we add that it is not without risk. We expect credit quality for water and sewer utilities to remain sound in 2022, building upon the strong performance in 2021. Cash balances will be critical in 2022 as utilities face pressures from rising inflation, increased operating expenses, and growing capital needs related to emerging environmental, social, and governance (ESG) risks, potential regulatory changes, and deferred maintenance. For a comprehensive view of the sector, see "Outlook For U.S. Municipal Utilities: Stable, With Expanding Operating Margins," published Jan. 19, 2022.

Chart 1

U.S. Municipal Water And Sewer Utilities Medians: By The Numbers



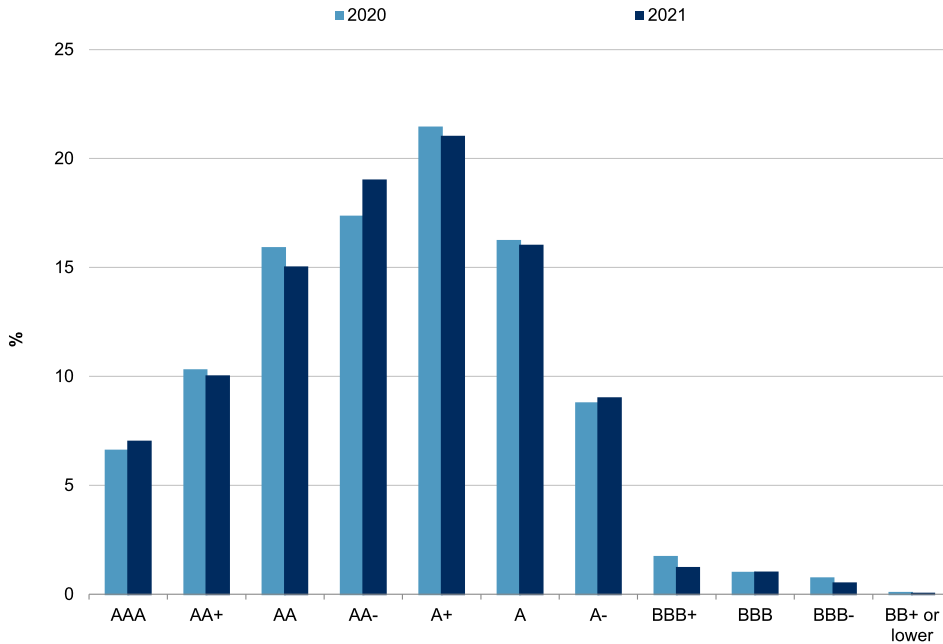
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U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

In comparison to last year, the ratings distribution generally reflects minimal changes. The largest number of ratings nationally remain at 'A+' and 'AA-'. Collectively, the 'A+' and 'AA-' rating levels account for slightly over 600 ratings, or 40% of the total, reflecting the sector's very low risk and monopolistic provision of essential services. The number of 'AAA' rated issuers has been consistent, representing 7% of ratings in the sector. At the lower end of the scale, ratings 'BBB+' or lower totaled roughly 3% (chart 2).

Chart 2

Ratings Distribution Comparison (as of Dec. 31)



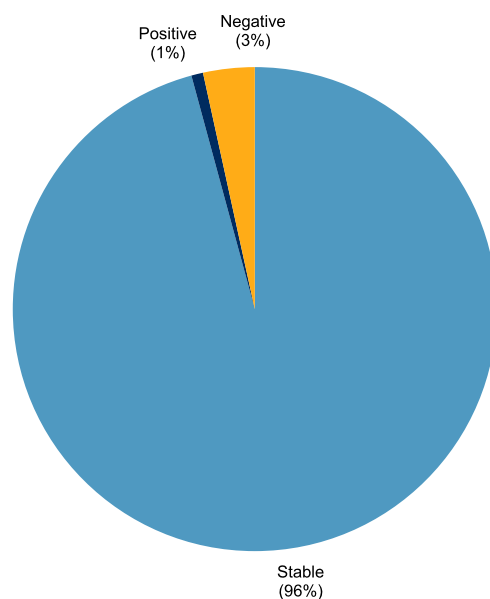
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As of Dec. 31, 2021, 96% of U.S. municipal water and sewer utility sector ratings have a stable outlook, 3% negative, and the remaining 1% positive (chart 3). These outlook trends have generally remained consistent with prior years. Negative outlooks mostly reflect weakening financial metrics due to weak long-term risk-mitigation strategies with outsized exposure to cyclical economic bases, while positive outlooks reflect service area economic diversification, and improving governance and risk-mitigation strategies.

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

Chart 3

Outlook Distribution As of Dec. 31, 2021



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National And Regional Medians

Financial metrics improved during the pandemic

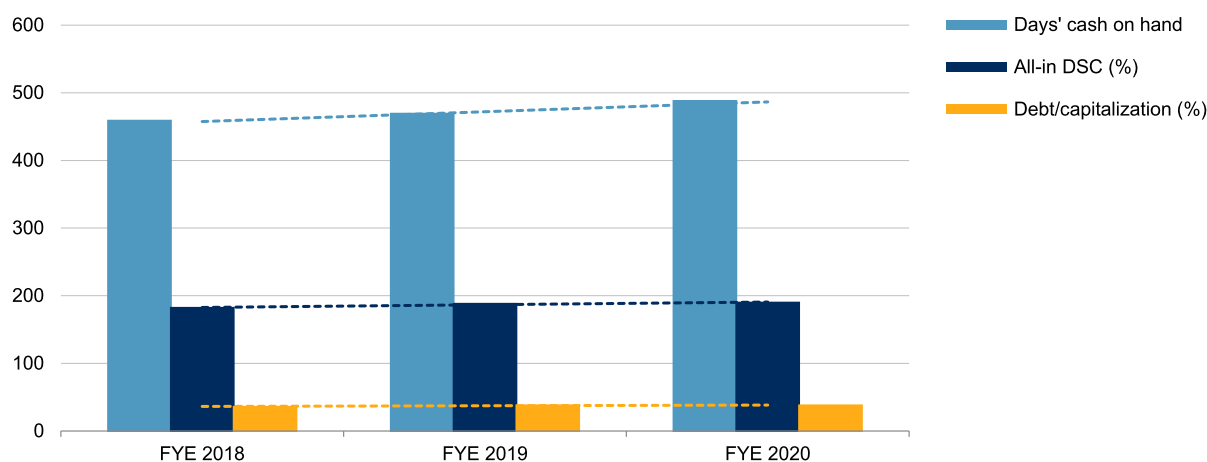
With higher residential water consumption owing to increased remote work, financial metrics generally strengthened in fiscal year 2020 compared with 2019, offsetting lower revenues from commercial customers. In fact, most utilities saw improved revenue growth year-over-year (4% average operating revenue increase in 2020) supporting improved unrestricted reserves and days' cash on hand, with stable all-in DSC at 1.9x (see chart 4). Nationally, median liquidity and reserves levels for fiscal year 2020 have showed modest improvements, with days' cash on hand increasing to 488 days of operating expenses (or approximately \$8.8 million on an absolute basis). We believe that liquidity at this level will provide utilities with additional flexibility to absorb future operational and capital funding needs.

Leverage ratios (debt-to-capitalization medians) remained largely stable at about 38% nationally, despite significant debt issuance for new money or interest rate savings, largely due to an increase in capitalization fueled by unrestricted reserve growth. In addition, many utilities de-risked their debt portfolios by eliminating variable rate debt given the favorable interest rate environment. Overall, the national medians suggest that utilities tend to fund a greater portion of system capital needs on a pay-as-you-go basis and that they have capacity for additional borrowing for future capital needs.

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

Chart 4

Trend Of Select Balance Sheet Ratios



FYE--fiscal year end.

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The Focus On Asset Resilience And Climate-Related Issues Increases

Our view of forward-looking analysis always begins with the capital plan. Strong capital planning is supported by robust asset management programs including understanding critical assets, assessing their condition, and identifying any future regulatory requirements. Most utilities continue to deal with aging infrastructure needs but are also grappling with stringent water quality requirements and the need to prepare for climate resiliency and cybersecurity risks, while maintaining affordable rate structures. In our view, water and sewer utilities growing exposure to physical climate risks will likely require additional capital plan expenditure associated with asset hardening and resiliency.

The National Oceanic and Atmospheric Administration estimated that the 2021 weather and climate disasters exceeded \$145 billion in damage (third highest on record), with 20 separate events that each caused at least \$1 billion in damage (just two events shy of the record set in 2020). Disaster costs over the past five years (2017-2021) exceeded a record \$742 billion, reflecting the increased exposure and vulnerability to extreme weather and climate events. The terms resiliency and risk management can be as broad or as detailed as management needs, but thematically include responding operationally and financially to threats and rapid changes while minimizing effects on service quality and financial performance. Although the risks vary by region, our rating analyses incorporate a utility's mitigation plans through review of long-term financial and capital-planning documents as well as any specific resiliency plans. We expect the already capital-intensive water and sewer utilities to become even more so over the next several years. To the extent that utility leadership demonstrates proactive operational and financial risk management towards addressing challenges such as infrastructure renewals, as well as resiliency to impactful events like climate and cyber risks, credit quality can generally be preserved in our view.

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

We rate utility revenue-backed bonds in almost every U.S. state, although the number of ratings depends on many factors, including access to state bond banks, bond issuance restrictions and population. For analytical purposes, we divide the country into 10 regions consistent with the Environmental Protection Agency's categories. These regions share some characteristics such as climate, hydrology, consumption, agriculture, sources of water supply, state and regional environmental regulations, and to some extent, economic attributes.

Table 1

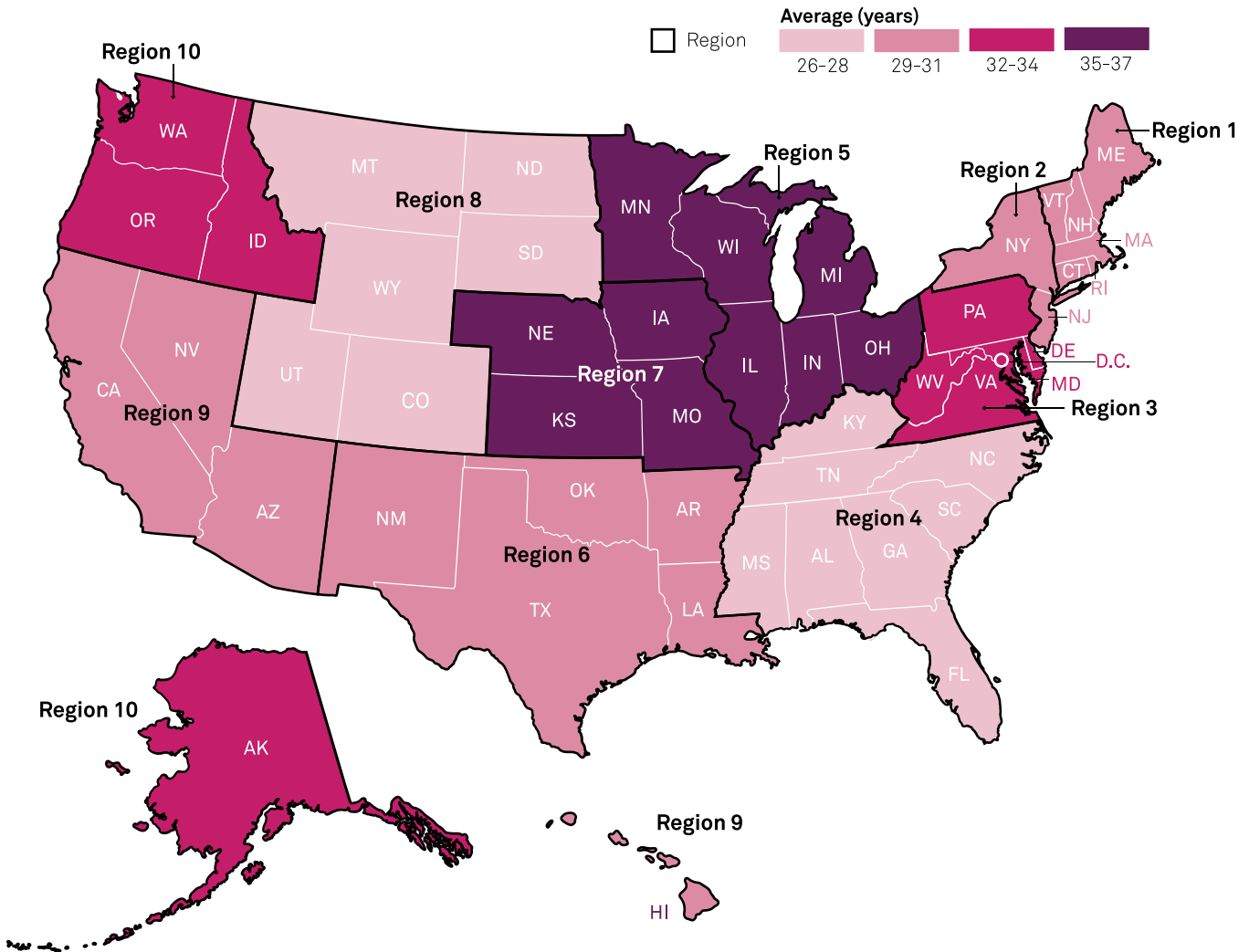
Region Categories

Region	States covered
1 New England	CT MA ME NH RI VT
2 New York	NY NJ PR
3 Mid-Atlantic	PA DE MD DC WV VA
4 Southeast	AL FL GA KY MS NC SC TN
5 Great Lakes	IL IN MI MN WI OH
6 South Central	TX NM OK AR LA
7 Midwest	IA KS MO NE
8 Mountains and Plains	CO UT MT WY ND SD
9 Pacific Southwest	CA NV AZ HI GU
10 Pacific Northwest	WA OR ID AK

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

Chart 5

Asset Condition Across Regions In The U.S.

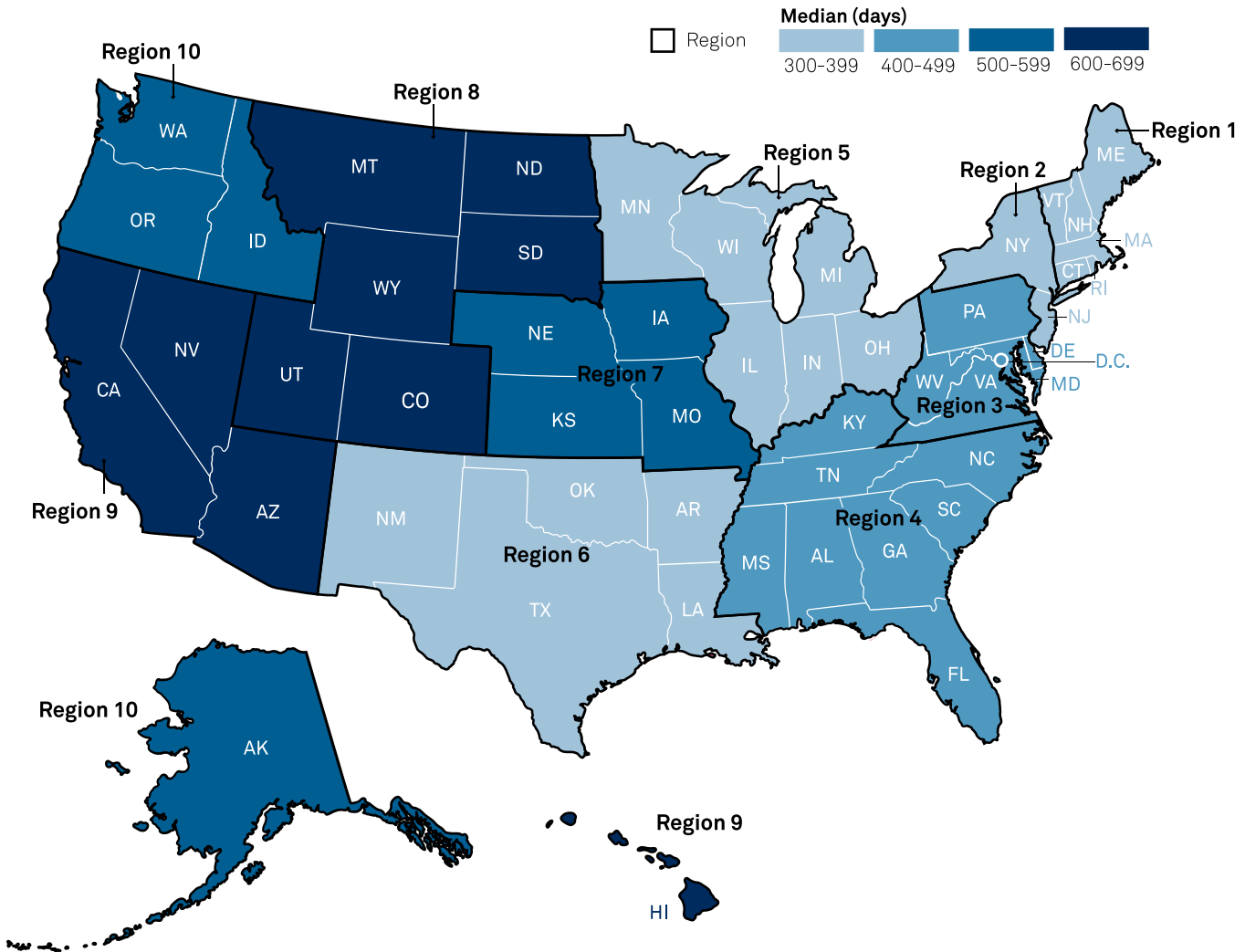


Regional average remaining useful life of net capital assets by depreciation. Source: S&P Global Ratings
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U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

Chart 6

Median Days' Cash Range By Region



Sources: S&P Global Ratings
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Due to aging infrastructure and more stringent regulations, we anticipate forecasted capital spending to primarily focus on infrastructure replacements in most regions (the average useful life of assets is 30 years across the country) and potential growth initiatives in faster population growth regions like the Mountains and some states in the South. National and regional median financial ratios held strong in 2021, which suggest that as capital spending continues to increase, most utilities are well positioned to absorb capital financing costs in the near term. The strong median liquidity (488 days' cash on hand) provides a higher degree of financial flexibility to guard against exposure to climate risks or infrastructure vulnerabilities. However, we expect the cost of building resiliency into operations and infrastructure to address these rising risks to be borne by ratepayers, which may heighten affordability concerns in the long-term.

Operational challenges can vary across regions: utilities east of the Mississippi tend to have ample water supply but deal more with aging infrastructure issues, particularly in the older urban

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

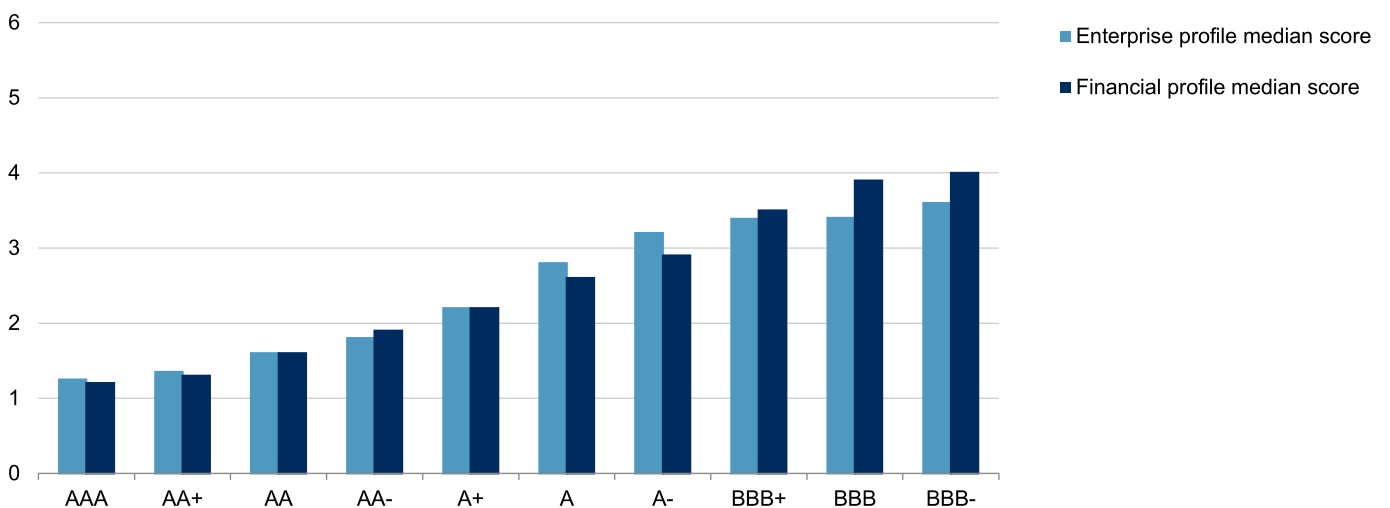
areas of New England, Mid-Atlantic, and New York. Utilities west of the Mississippi tend to have a greater focus on water scarcity and supply reliability and diversification. Moreover, many utilities in the Mountain and the Southwest regions face the challenges of a growing population, and a limited and vulnerable supply of water, which necessitates higher investments in diverse supplies and storage. Even as the path to asset resilience may look different for each utility--adopting robust asset management and emergency preparedness policies coupled with ratemaking and budgetary flexibility would improve utilities' ability to react to system challenges which, in our view, would preserve consistent financial performance.

Medians By Rating

We generally see that many of the enterprise and financial risk profile medians tend to improve with credit quality (see chart 7). Not surprisingly, higher rated utilities will have enterprise risk profile and financial risk profile scores at the lower (more favorable) end of the scale. Many highly rated utilities tend to be in major metropolitan areas and therefore can spread fixed costs across a larger customer base; others are newer systems with fewer capital needs associated with maintaining aging infrastructure. Lower-rated utilities have higher (less favorable) enterprise and financial risk profile assessment scores, and the common credit weaknesses include limited economies, low incomes, slim coverage, and lower liquidity levels especially on an absolute basis. They also tend to have below-average operational and financial management assessment scores, stemming from reactive policies and a lack of best practices. Charts 8 and 9 provide more detailed information regarding the specific criteria areas that comprise the broader enterprise and financial risk profile assessments. (Note that '1' is the most favorable assessment score on a six-point scale).

Chart 7

Enterprise And Financial Risk Profile Scores By Rating level

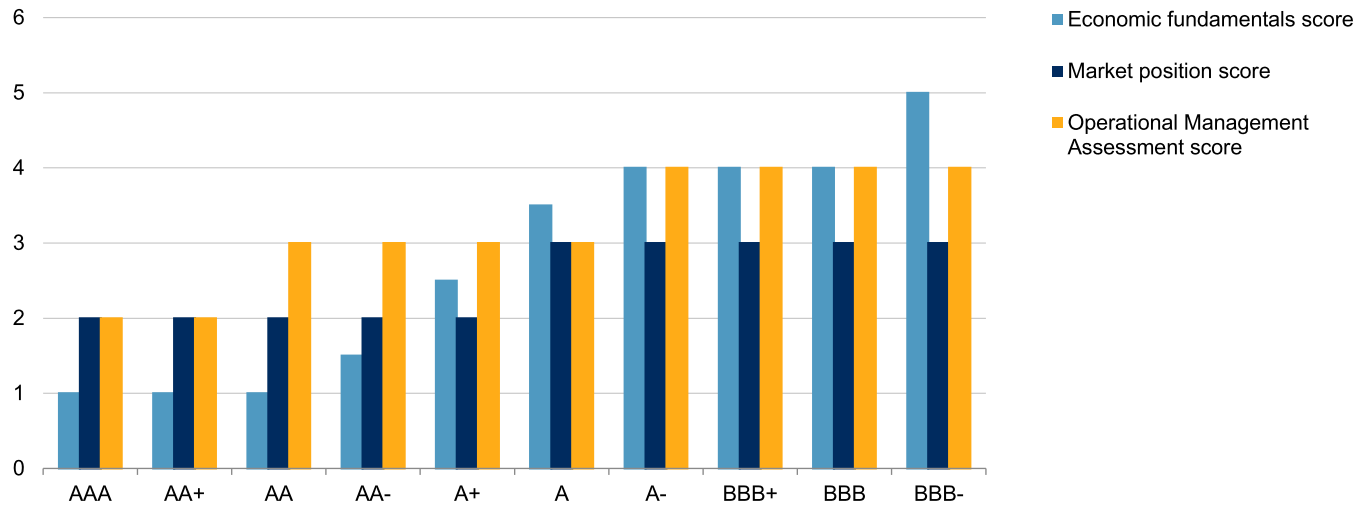


'1' is the most favorable assessment on a 6-point scale. highest. As of Dec. 31, 2021.
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U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

Chart 8

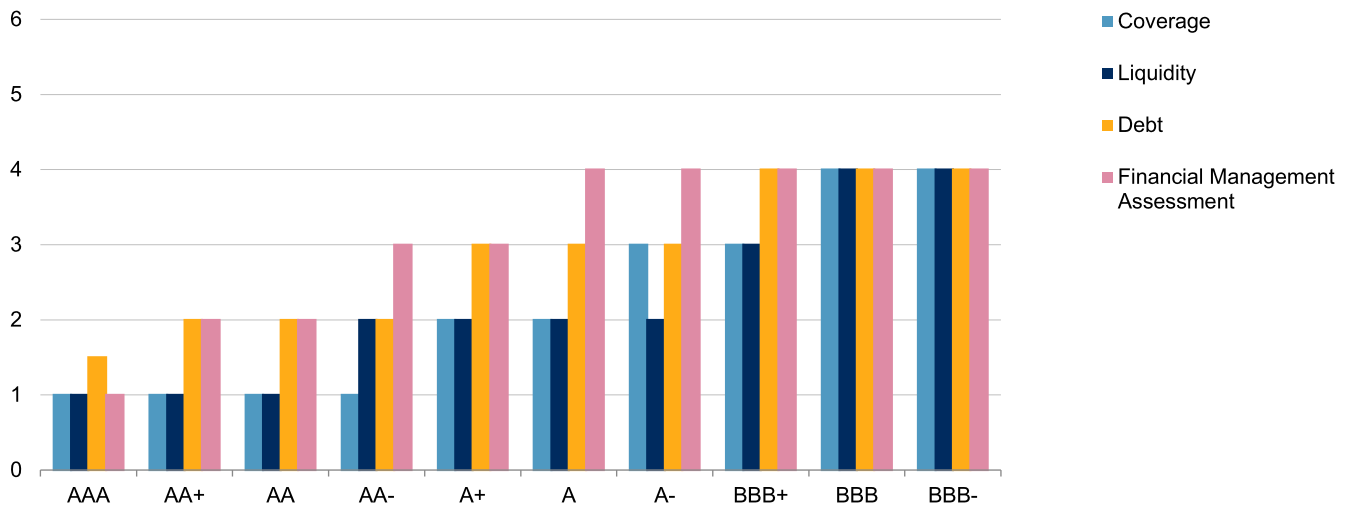
Median Enterprise Profile Subfactor Scores By Rating Level



'1' is the most favorable assessment on a 6-point scale. As of Dec. 31, 2021.
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Chart 9

Median Financial Profile Subfactor Scores By Rating Level



'1' is the most favorable assessment on a 6-point scale. As of Dec. 31, 2021.
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U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

Table 2

U.S. Municipal Water And Wastewater Utilities Selected Sectorwide Ratios

	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-
Enterprise risk profile										
Overall enterprise risk profile assessment score	1.3	1.4	1.6	1.8	2.2	2.8	3.2	3.4	3.4	3.6
Economic fundamentals										
MHHEBI (as % of US level)	118	111	110	101	91	83	79	74	70	73
Top 10 customers as % of operating revenues	5.9	7.9	8.2	9.0	11.4	12.8	14.1	8.5	10.6	16.5
Economic output in % (county vs U.S. rate of GDP annual growth)	1.9	1.9	2.1	2.1	1.8	1.5	1.3	1.2	1.2	0.8
Economies of scale (based on annual operating revenues (\$000s), three year avg)	72,714	37,950	20,331	13,257	6,751	4,442	2,481	2,411	1,757	1,707
Overall economic fundamentals assessment score	1.0	1.0	1.0	1.5	2.5	3.5	4.0	4.0	4.0	5.0
Market position										
Monthly water utility rates (\$)	30	34	35	38	38	40	40	40	40	40
Monthly sewer utility rates (\$)	37	43	45	41	42	42	42	42	42	46
County poverty rate (%)	10.2	10.2	9.6	11.2	11.7	13.7	13.4	14.9	15.6	15.9
Individual water or sewer utility rates as % of MHHEBI	0.8	0.9	0.9	1.0	1.1	1.2	1.4	1.4	1.5	1.6
Overall market position assessment score	2.0	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0
Operational management										
Overall operational management assessment score	2.0	2.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
Financial risk profile										
Overall financial risk profile assessment score	1.2	1.3	1.6	1.9	2.2	2.6	2.9	3.5	3.9	4.0
All-in coverage										
All-in DSC - Most recent year (x)	2.4	2.4	2.2	2.0	1.8	1.6	1.5	1.2	1.2	1.1
All-in DSC - Three year average (x)	2.4	2.4	2.2	2.0	1.8	1.5	1.4	1.3	1.2	1.2
Overall all-in coverage assessment score	1.0	1.0	1.0	1.0	2.0	2.0	3.0	3.0	4.0	4.0
Liquidity and reserves										
Available reserves, most recent year (\$000s)	75,313	46,871	24,488	13,272	5,418	2,936	1,651	1,047	653	307
Available reserves, three-year avg (\$000s)	72,202	43,231	22,334	11,964	5,110	2,562	1,480	958	610	262
Days' cash on hand , most recent year	640	610	575	500	459	374	367	226	175	65
Days' cash on hand, three-year avg	670	600	566	493	438	360	334	198	160	90
Overall liquidity and reserves assessment score	1.0	1.0	1.0	2.0	2.0	2.0	2.0	3.0	4.0	4.0
Debt and liabilities										
Debt-to-capitalization (%)	22	25	30	33	38	45	50	57	53	52
Overall debt and liabilities assessment score	1.5	2.0	2.0	2.0	3.0	3.0	3.0	4.0	4.0	4.0
Financial management assessment										
Overall financial management assessment score	1.0	2.0	2.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0

'1' is the most favorable assessment score on a six-point scale

We did not include industry risk in the above table, because we score this factor as extremely strong ('1') for all utilities, and it is not subject to analytic discretion per utility.

Financial profile medians have largely remained stable across rating levels

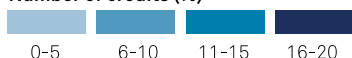
Our opinion of financial risk profile remains largely in line with our pre-pandemic opinions with no significant change in the number we consider as having extremely strong financial risk profiles at 18%, 50% we consider very strong, 27% we consider strong, and 5% we consider adequate or weaker (chart 10).

Chart 10

Enterprise And Financial Risk Profile Distribution

Enterprise risk	Financial risk					
	1 - Extremely strong	2 - Very strong	3 - Strong	4 - Adequate	5 - Vulnerable	6 - Highly vulnerable
1 - Extremely strong	7%	10%	2%			
2 - Very strong	9%	20%	11%	1%		
3 - Strong	2%	15%	9%	2%	1%	
4 - Adequate		5%	5%	1%		
5 - Vulnerable						
6 - Highly vulnerable						

Number of credits (%)



'Extremely strong' or '1' is the most favorable assessment score on a six-point scale.

Source: S&P Global Ratings.

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Coverage metrics

Our use of "all-in" coverage metrics allows us to compare systems that are vertically integrated with those that contract for core services, such as water supply or wastewater treatment. The inclusion of off-balance-sheet debt, specifically debt issued by another entity, creates more comparable ratios, though the resulting coverage is often suppressed. Our coverage ratio also includes the amount typically transferred annually from the utility system to another fund, such as a city's general fund. Coverage ratios will vary from year to year, which is one reason our criteria allow for discretionary weighting of historical results and projected outcomes.

Because ratings are designed to be forward-looking opinions of credit quality, when possible, we will consider projected coverage ratios in our analysis. As a result, when we look at the universe of ratings, the coverage ratios will be a combination of historical results and projected outcomes across several fiscal years. So, while the median coverage scores may be valuable and informative, they can't be viewed in isolation.

Liquidity and reserves

Our liquidity and reserve analysis evaluates a utility's financial resources both as a ratio relative to its annual operating expenses and as the absolute dollar amount. For most of our highly rated

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

utilities, the absolute cash level is the primary determinant of the liquidity assessment rather than the days' cash ratio metric, and we note that at the lower end of the investment-grade category, a utility's low nominal level of reserves tempers our assessment of its liquidity and reserves.

Debt and liabilities

Our assessment of the debt and liabilities profile correlates strongly with ratings, which reflects lower leverage for credits at the higher end of the investment-grade categories (debt-to-capitalization medians are typically less than 35% for 'AAA' and 'AA' category utilities, and 50% or lesser for 'A' category utilities). As with all-in coverage, higher-rated utilities tend to fund a greater portion of system capital needs on a pay-as-you-go basis, which in turn enables them to maintain lower levels of leverage.

Also, virtually all our rated utilities are making required contributions to their pension funds, and a utility's exposure to pension challenges tends to be more limited than a city's or county's general fund. This is because salaries and benefits are a smaller portion of total operating expenses since utilities typically also have substantial costs for raw water, chemicals, energy, and maintenance.

Financial management assessment

Management and governance is the one factor that can likely stabilize or even relieve utilities of most rating stress. Therefore, we note that higher-rated utilities tend to have enhanced quality of management policies and practices as well as sophisticated long-range financial planning that correlate closely with ratings and the overall FMA median scores.

Looking Ahead

Regardless of whether a utility's system investments are by way of regulatory mandates, crucial asset rehabilitation, or climate-resiliency projects, its capital improvement program remains the main factor in deciding rates, and rate-setting flexibility remain highly correlated with its financial health. We believe that decisions on rates and charges and its effects on affordability will be the long-term determinant of continued sectorwide stability, or lack thereof.

This report does not constitute a rating action.

U.S. Municipal Water And Sewer Sector Medians Held Strong In 2021

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VERIFICATION

I, Christine Fay hereby state that: (1) I am Senior Managing Director and Partner with Public Resources Advisory Group, Inc.; (2) I have been retained by The Pittsburgh Water and Sewer Authority and am authorized to present rebuttal testimony on its behalf; (3) the facts set forth in my rebuttal testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C .S. § 4904 (relating to unsworn falsification to authorities).

09/05/2023 | 4:10 PM EDT

Dated

DocuSigned by:
Christine Fay
E1C03447089F49E...

Christine Fay, Senior Managing Director and Partner
Public Resources Advisory Group, Inc.

Consultant to:
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REJOINDER TESTIMONY OF

EDWARD BARCA

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920	(Water)
R-2023-3039921	(Wastewater)
R-2023-3039919	(Stormwater)

TOPICS:

Revenue Requirement Recommendations of Other Parties
Expense Adjustment Recommendations of Other Parties
PWSA's Financial Metrics

September 29, 2023

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TABLE OF EXHIBITS

EB-15	Task Orders for Wet Weather Consent Decree Program Manager
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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Edward Barca, and I am the Director of Finance for The Pittsburgh Water
4 and Sewer Authority (“PWSA” or “Authority”).

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes, I submitted Direct Testimony (PWSA St. No. 2), together with accompanying
7 exhibits EB-1 to EB-9, on May 9, 2023; Rebuttal Testimony (PWSA St. No. 2-R),
8 together with accompanying Exhibits EB-10 to EB-14, on September 8, 2023; and
9 Surrebuttal Testimony (PWSA St. No. 2-SR¹) on September 22, 2023.

10 **Q. WHAT IS THE PURPOSE OF YOUR REJOINDER TESTIMONY?**

11 A. My rejoinder testimony responds to the various recommendations including financial
12 metrics, revenue, and expense recommendations contained in portions of the surrebuttal
13 testimony submitted by the Bureau of Investigation and Enforcement (“I&E”), the Office
14 of Consumer Advocate (“OCA”), the Office of Small Business Advocate (“OSBA”),
15 Pittsburgh United’s Our Water Table (“Pittsburgh United”) and the Pittsburgh School
16 District (“School District”) (together, “the Opposing Parties”).

17 I have attempted to respond to the specific statements and recommendations made
18 by the Opposing Parties’ witnesses. In the event that an issue is not addressed, this should
19 not be viewed as my acceptance of their testimony. Rather it reflects my belief that a
20 further response in this rejoinder testimony is not warranted, either because it was
21 adequately addressed in my prior testimony, was addressed by other prior testimony on

¹ See footnote 4, *infra*.

1 behalf of PWSA, or because it is a legal matter that is better addressed by counsel in
2 briefs or other pleadings.

3 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

4 A. Yes. I am sponsoring the following exhibit:

EB-15	Task Orders for Wet Weather Consent Decree Program Manager
-------	--

5
6 **II. I&E’s UPDATED FPPTY REVENUE REQUIREMENT RECOMMENDATION**

7 **Q. DID ANY OF THE OPPOSING PARTIES PROVIDE UPDATED OVERALL**
8 **REVENUE RECOMMENDATIONS FOR THE FPPTY?**

9 A. Yes, Mr. Spadaccio states that I&E’s updated FPPTY total recommended revenue
10 requirement is \$227,685,945 (I&E St. No. 1-SR at 3). This recommended revenue
11 requirement represents an increase of \$25,026,204 (\$227,685,945 - \$202,659,741) to the
12 FPPTY at present rates of \$202,659,741.

13 OCA is not proposing adjustments to its direct testimony and is still
14 recommending an overall FPPTY increase of \$30,584,475 (OCA St. 1SR).

15 The following table shows I&E’s updated recommendation together with the
16 continued recommendations of PWSA, OCA and OSBA:

Recommended Revenue Requirement and <u>Claimed</u> Financial Metrics				
FPFTY	PWSA	I&E (UPDATED)	OCA	OSBA
Recommended Rate Increase	\$46.836 M	\$25.026 M	\$30.584 M	\$34.057 M ²
Debt Service Coverage Ratio (DSCR):				
Senior (1.25x requirement)	1.65	1.64	1.65	--
Total (1.1x requirement)	1.21	1.20	1.21	--
Days of Cash on Hand (DCOH):				
DCOH	247.6	289.2	279.08	--
DCOH with ALCOSAN	145.0	158.3	155.27	--

1 However, the financial metrics claimed to be produced by the Opposing Parties’
2 recommendations are inflated due to their use of “normalization” and other adjustments
3 which artificially lowers PWSA’s expected levels of operating expenses and debt service
4 in the FPFTY. In reality, the financial metrics produced by these recommendations are as
5 follows:

² PWSA claimed revenue at proposed rates less \$7,938,311 for expense adjustments and less \$4,840,624 for DSIC adjustment: \$12,778,935.

1

Opposing Parties Financial Metrics W/O Normalization				
FPPTY	PWSA	I&E (UPDATED)	OCA	OSBA
Recommended Rate Increase	\$46.836 M	\$25.026 M	\$30.584 M	\$34.057 M ³
Debt Service Coverage Ratio (DSCR):				
Senior (1.25x requirement)	1.65	1.35	1.44	--
Total (1.1x requirement)	1.21	0.98	1.05	--
Days of Cash on Hand (DCOH):				
DCOH	247.6	189.0	206.9	--
DCOH with ALCOSAN	145.0	110.7	121.2	--

2

3 **Q. CAN YOU DESCRIBE THE SPECIFIC ADJUSTMENTS PROPOSED BY I&E IN**
4 **ITS UPDATED FPPTY REVENUE REQUIREMENT RECOMMENDATION?**

5 A. Yes, I&E is proposing to reduce the FPPTY debt service requirement by \$1,625,745 and
6 cash-financed capital (DSIC) by \$618,876, for a total capital requirement reduction of
7 \$2,244,621 (I&E Exhibit No. 1-SR, Schedule 1). In addition, I&E has accepted PWSA's
8 full \$780,372 drag bucket and \$763,995 line televising claim in the FPPTY (I&E St. No.
9 1-SR at 15), resulting in a total operating requirement reduction of \$19,236,455. These
10 adjustments result in a total reduction of \$21,481,076 (\$1,625,745 + \$618,876 +
11 \$19,236,455).

³ PWSA claimed revenue at proposed rates less \$7,938,311 for expense adjustments and less \$4,840,624 for DSIC adjustment: \$12,778,935.

1 **Q. MR. SPADACCIO STATES THAT, AS A RESULT OF I&E’S UPDATED**
2 **POSITION, MANY OF PWSA’S CRITICISMS OF I&E’S POSITION IN DIRECT**
3 **TESTIMONY HAVE BECOME OBSOLETE. DO YOU AGREE?**

4 A. No, I do not agree. As described below, PWSA’s criticisms still exist even with I&E’s
5 updated position.

6 **Q. CAN YOU ELABORATE ON I&E’S PROPOSED FPPTY DEBT SERVICE AND**
7 **OTHER FINANCING REDUCTION TO REFLECT A \$32.6 MILLION**
8 **REDUCTION IN PWSA’S CAPITAL SPENDING ALLOWANCE?**

9 A. Yes. As shown in I&E Exhibit No. 1-SR, Schedule 3, I&E split the cost of PWSA’s
10 incremental FPPTY capital funding increases into the categories of senior debt,
11 subordinate debt, and DSIC. A weight was then applied to each category to calculate the
12 total adjustment of \$2,244,612: \$820,281 for senior debt service, \$596,891 for
13 PENNVEST subordinate debt service, \$618,876 for DSIC, \$140,073 for capital line of
14 credit interest subordinate debt service, and \$68,501 for Water Infrastructure Finance and
15 Innovation Act (“WIFIA”) Loan #1 subordinate debt service.

16 **Q. ARE THESE PROPOSED REDUCTIONS IN PWSA’S ALLOWED DEBT**
17 **SERVICE AND DSIC REASONABLE?**

18 A. No. I&E’s proposal to reduce the subordinate debt service claim by \$805,465 (\$596,891
19 + \$140,073 + \$68,501) should be denied since the debt associated with this debt service
20 is already issued – the PENNVEST debt service is related to funding either awarded or
21 closed on, the capital line of credit is an active debt obligation, and PWSA closed on
22 WIFIA Loan #1 in May 2023. To be clear, the failure to permit recovery of these revenue
23 requirements would force PWSA to default on these existing debt obligations or to cut
24 other services to find the cash to pay these existing obligations.

25 Further, I also disagree with the allocations used by I&E for reducing debt
26 service. The 2023 PENNVEST loans and the 2024 WIFIA loan are tied to anticipated

1 spending for specific projects; PWSA is fully committed to spending 100% of that
 2 borrowing for those projects. Any capital budget shortfall will not come from those
 3 borrowings. If PWSA is not able to complete all the debt-financed capital improvements
 4 it has projected for the FPFTY the funds made possible by this debt issuance will be used
 5 in a subsequent period to complete those projects.

6 In addition, PWSA disagrees with reducing capital spending under the DSIC. As I
 7 previously testified, PWSA is fully committed to spending 100% of its DSIC revenues at
 8 the new 7.5% cap that I&E is supporting. PWSA St. No. 2-R at 20. More to the point, if
 9 PWSA fails to spend those DSIC revenues on DSIC-eligible projects they will
 10 automatically be returned to ratepayers via the “e -factor” in the DSIC mechanism. Any
 11 capital budget shortfall will not come from its DSIC.

12 I would also, again dispute the reasonableness of reducing PWSA’s allowed
 13 capital financing in any manner on the ground that the Authority failed to actually meet
 14 the spending levels it had originally projected in its Capital Improvement Plan.

15 **Q. DOES PWSA PASS THE ADDITIONAL BONDS TEST UNDER I&E’S**
 16 **UPDATED FPFTY REVENUE REQUIREMENT?**

17 A. Yes barely, as shown below in Scenario #1. However, as proposed by I&E, Scenario #1
 18 assumes that PWSA’s subordinate debt service revenue requirement is reduced below a
 19 sufficient level to service outstanding obligations, which would cause a default.

20 Calculating the additional bonds test excluding the subordinate debt reductions, as
 21 shown below as Scenario #2 is a better representation of I&E’s updated FPFTY revenue
 22 requirement impact on the additional bonds test. Under Scenario #2, revenue requirement
 23 would need to be increased by at least the \$493,111 shown deficient **plus** the subordinate
 24 debt reduction of \$805,465, totaling \$1,298,576. Note that in both scenarios, the Series A

1 of 2024 Maximum Annual Debt Services includes I&E’s proposed \$820,281 reduction to
 2 senior debt service (\$9,054,184 - \$820,281 = \$8,233,903).

	Scenario 1	Scenario 2
Additional Bonds Test	I & E - Updated Proposed Revenue Requirement	I & E - Updated Proposed Revenue Requirement Excluding Subordinate Debt Reductions
2024 Rate Covenant Net Revenues	\$114,611,246	\$114,611,246
Plus Transfer to Rate Stabilization Fund	\$1,000,000	\$1,000,000
Additional Indebtedness Test Net Revenues	\$115,611,246	\$115,611,246
2024 Rate Covenant First Lien Debt Service	\$61,663,907	\$61,663,907
Series A of 2024 Maximum Annual Debt Service	\$8,233,903	\$8,233,903
First Lien Debt Service for Additional Bonds Test	\$69,897,810	\$69,897,810
First Lien Debt Service for Additional Bonds Test * 125%	\$87,372,263	\$87,372,263
First Lien Revenue Surplus / (Deficiency)	\$28,238,984	\$28,238,984
2024 Rate Covenant Subordinate Lien Debt Service	\$18,448,385	\$18,516,886
Additional PENNVEST	\$3,367,207	\$3,964,098
WIFIA Maximum Annual Debt Service	\$3,639,101	\$3,639,101
Subordinate Lien Debt Service for Additional Bonds Test	\$25,454,693	\$26,120,085
2024 Rate Covenant Subordinate Lien Debt Service * 110%	\$28,000,162	\$28,732,094
125% First + 110% Subordinate Lien Rate Covenant Debt Service	\$115,372,425	\$116,104,356
Subordinate Lien Revenue Surplus / (Deficiency)	\$238,821	(\$493,110)
Total Debt Service for Additional Bonds Test (100%)	\$95,352,503	\$96,017,895
Total Revenue Surplus / (Deficiency)	\$20,258,743	\$19,593,351

3

4 **Q. WHAT CAN YOU CONCLUDE ABOUT I&E’S PROPOSED ADJUSTMENTS TO**
 5 **FPPTY CAPITAL REQUIREMENTS?**

6 A. It remains clear that I&E does not understand PWSA’s capital structure and financial
 7 requirements. Their original FPPTY revenue requirement reduced existing debt service
 8 by \$12,057,362 and failed the additional bonds test. I&E then updated its proposed
 9 FPPTY revenue requirement which reduced existing subordinate debt service by
 10 \$805,465, resulting for a second time in the failure of the additional bonds test. Both of
 11 I&E’s proposals would result in PWSA defaulting on its obligations while
 12 simultaneously stopping all future debt issuances. To be clear, while Scenario #1 appears

1 to be in compliance with the additional bonds test, this is not actually the case since I&E
2 is reducing existing subordinate debt.

3 **Q. AS IT RELATES TO DAYS CASH ON HAND (DCOH), MR. SPADACCIO**
4 **CLAIMS THAT YOUR CONCERN OF NORMALIZING COSTS TO SHOW AN**
5 **ARTIFICIALLY HIGHER DCOH IS NO LONGER RELEVANT DUE TO I&E'S**
6 **UPDATED REVENUE REQUIREMENT (I&E ST. NO. 1-SR AT 17). CAN YOU**
7 **RESPOND?**

8 A. This is false. I&E did not make any changes to its proposed normalization adjustments
9 for the FPFTY. Therefore, PWSA is still of the opinion that I&E is artificially showing a
10 higher DCOH amount. I&E's DCOH recommendation (without ALCOSAN) for the
11 FPFTY is actually 189.0 when the normalization recommendations are removed and the
12 full amount of the cost is assumed to be incurred. If PWSA's rate increase only permits a
13 "normalized" amount of expense to be recovered then PWSA will only be able to incur
14 this normalized amount and will have to reduce services and activities accordingly or
15 incur the projected level of expenses resulting in these inadequate levels of DOCH.

16 **Q. MR. SPADACCIO CLAIMS THAT I&E'S UPDATED REVENUE**
17 **REQUIREMENT RESULTS IN A DEBT SERVICE COVERAGE OF 1.64X FOR**
18 **SENIOR LIENS AND 1.20X FOR TOTAL DEBT SERVICE. (I&E ST. NO. 1-SR**
19 **AT 21). DO YOU AGREE?**

20 A. No. Again, I&E did not make any changes to its proposed normalization in the FPFTY
21 and is therefore overstating the senior and total debt service coverage ratios. As
22 previously stated, I&E's updated revenue requirement also reduces subordinate lien debt
23 service costs for active obligations by \$805,465, which further skews its coverage ratios.
24 I&E's actual debt service coverage recommendation is 1.35x for the senior lien and 0.98
25 for total debt service coverage when the normalization recommendations are removed
26 and the \$805,465 of subordinate debt service is added. Mr. Spadaccio's claim that in his
27 calculation "generally, operating expenses are matched with revenues dollar-for-dollar,

1 so the impact of adjustments to operating expenses on DSCRs is minimal (pg. 22)” is not
2 correct and appears to be based on his elimination of debt service obligations that PWSA
3 cannot in fact avoid.

4 **III. OCA’s FINANCIAL METRICS**

5 **Q. CAN YOU RESPOND TO MR. MUGRACE’S CLAIM THAT YOU ATTEMPTED**
6 **TO MANIPULATE OCA’S DEBT SERVICE COVERAGE CALCULATION TO**
7 **SHOW THAT IT IS IN VIOLATION OF LEGAL REQUIREMENTS (OCA ST.**
8 **1SR AT 6)?**

9 A. This statement is incorrect. I was attempting to show the true impact of OCA’s
10 recommended revenue requirement by eliminating the normalization of expenses. PWSA
11 cannot assume the normalization of costs within its revenue requirement since the full
12 amount of costs must be available to purchase goods or services. The only way in which
13 PWSA will achieve the DSCR that Mr. Mugrace claims his recommended revenue
14 requirement will produce is by cutting back severely on its operating budget so that it
15 actually only expends Mugrace’s “normalized” amounts. But this is a self-fulfilling
16 prophecy that will harm service and reduce PWSA’s ability safely and reliably run the
17 Authority.

18 **Q. ARE YOU, IN MAKING THIS ARGUMENT, CONTENDING THAT THE PUC**
19 **CANNOT MAKE ANY ADJUSTMENTS TO PWSA’S PROPOSED REVENUE**
20 **REQUIREMENT AS MR. MUGRACE CONTENDS (OCA ST. 1SR AT 5-6)?**

21 A. No, of course not. The Parties are free to make proposed adjustments to PWSA’s
22 operating expenses or capital improvement budget based on evidence that those projects
23 or activities are imprudent or unreasonable. But Mr. Mugrace (and I&E) have made
24 adjustments claiming that PWSA should only be permitted an “average” or “normalized”
25 amount of expenditure, based on historic averages. In virtually no case have they
26 claimed that the expenditures are imprudent or that the levels projected are unreasonable

1 (other than because they exceed historic averages).⁴ This simply denies PWSA with the
2 cash it will need to actually meet those expenditures. PWSA therefore will be faced with
3 either realizing a massive regression in the progress it has been making in modernizing
4 the Authority's service and operations or go forward with its plans and realize a massive
5 negative effect on its financials. The latter course would likely lead to the downgrade of
6 its bonds, which would create additional costs for ratepayers for years to come.

7 **Q. MR. MUGRACE ARGUES THAT, EVEN THOUGH REGULATED ON A CASH**
8 **FLOW BASIS, RATEMAKING CONCEPTS, INCLUDING THOSE THAT ARE**
9 **SET UNDER A CASH FLOW METHOD, DO NOT PROVIDE FOR 100%**
10 **GUARANTEED RECOVERY OF ALL COSTS AND EXPENDITURES BUT**
11 **ONLY THE OPPORTUNITY AND THE ABILITY TO RECOVER ALL OF A**
12 **UTILITY'S KNOWN AND MEASURABLE COSTS. CAN YOU COMMENT?**

13 A. Yes. PWSA is not asking for a "guarantee" but a reasonable opportunity to recover its
14 projected expenditures. I submit that providing an allowance that is demonstrably lower
15 than that which PWSA's budgeting team projects it will incur does not provide a
16 reasonable "opportunity." Moreover, I would point out that Mr. Mugrace has taken a
17 standard statement about utilities regulated on a rate of return/rate base basis and tried to
18 apply it here: that a utility is only given the opportunity to earn a fair return on its utility
19 investment – not a guarantee. To the extent that an investor-owned utility expense
20 allowance is based on a "normalized" or average amount it can make up the difference
21 from its profit allowance. PWSA has no such cushion.

⁴ Minor adjustments have been made for lobbying expense on an "unreasonableness" basis.

1 **Q. MR. MUGRACE ALSO CLAIMS THAT IF THE RATE INCREASE PROPOSED**
2 **BY THE OCA IS INADEQUATE PWSA CAN SIMPLY FILE ANOTHER RATE**
3 **CASE. CAN YOU COMMENT?**

4 A. First, this is obviously not a reasonable basis on which to deal with the serious concerns
5 about OCA's proposals that I and the other PWSA witnesses have raised. But, practically
6 speaking, PWSA would not be able to file for and receive another base rate case in time
7 to head off the negative financial and operational consequences of inadequate rate relief
8 in 2024. The only avenue available would be to seek extraordinary rate relief, which, I
9 am informed by counsel, is only available if the Authority was essentially on the brink of
10 default. Even if PWSA were, unfortunately, able to meet such a standard, such a filing
11 would clearly have a very significant negative effect in terms of PWSA's bond rating.

12 **IV. CAPITAL BUDGET; DEBT SERVICE**

13 **Q. MR. CLINE CONTINUES TO ADVOCATE THAT PWSA NOT BE PERMITTED**
14 **A RATE INCREASE NECESSARY TO FULLY FUND ITS PROJECTED**
15 **CAPITAL IMPROVEMENT PROJECTS IN THE FPFTY BECAUSE OF HIS**
16 **ASSERTION THAT PWSA IS NOT CAPABLE OF ACHIEVING THAT LEVEL**
17 **(I&E ST. NO. 3-RS AT 23). CAN YOU RESPOND?**

18 A. Yes, it is reasonable to consider whether capital plans can be achieved and PWSA
19 considers this when formulating its capital improvement plan. However, I would point
20 out that the bulk of what is included in PWSA's capital improvement plan is the result of
21 regulatory mandates. Failure to show the necessary improvements within the specific
22 timelines set by the regulatory agencies could result in fines or further regulatory action.

23 Moreover, by insisting that PWSA's FPFTY capital expenditures be set at prior
24 year averages, Mr. Cline appears to be attempting to punish PWSA for not spending
25 100% of its prior capital budgets. That is obviously unreasonable and inappropriate.

1 **Q. BUT MR. CLINE SAYS THAT YOU HAVEN'T "PROVEN" THAT UNSPENT**
2 **CAPITAL BUDGET FUNDS ARE USED IN SUBSEQUENT YEARS OR TO**
3 **BENEFIT CUSTOMERS IN SOME OTHER WAY. CAN YOU RESPOND?**

4 A. Capital budget funds can only be used for capital projects. If the funds were borrowed,
5 the funds are restricted to capital use. So, they would be used for the same project in the
6 next (or future) capital budget or on a different project (to avoid the need for
7 additional/other borrowing). If the funds were received under the DSIC, the funds are
8 restricted to DSIC-eligible projects and must be refunded if not timely used.⁵ I would
9 also note that neither Mr. Cline nor any other witness has identified any project, either
10 past or pending, that he considers imprudent or even unreasonable. The Opposing Parties
11 were provided data on PWSA's actual spending for the HTY and the FTY. None of the
12 Opposing Parties identified that PWSA used capital budget funds for a non-capital
13 purpose.

14 **Q. CAN YOU RESPOND TO MR. CLINE'S DEPRECIATION CLAIMS (I&E ST.**
15 **NO. 3-RS AT 30)?**

16 A. Yes, I do not contradict my direct testimony as it relates to citing a 2010 Commission
17 Policy Statement at 52 Pa. Code § 69.2702. PWSA interprets the 2010 Commission
18 Policy to allow utilities to include depreciation allowances, if applicable to the utility.
19 Not the presumption that all utilities have depreciation allowances. Furthermore, like all
20 governmental entities, PWSA books completed assets to its balance sheets and
21 depreciates the assets over its useful life. However, since its rates are based on the Cash
22 Flow method of ratemaking, this does not have an impact on PWSA's revenue
23 requirement or any other relevant rate making information.

⁵ Both now and historically, virtually 100% of its non-DSIC capital improvements were financed by long term debt.

1 **V. DSIC; INCREASE**

2 **Q. CAN YOU EXPLAIN OCA WITNESS PAVLOVIC’S RESPONSE (OCA ST. 4SR**
3 **AT 14-17) TO YOUR TESTIMONY REGARDING PWSA’S PROPOSAL TO**
4 **INCREASE THE WATER AND WASTEWATER DSIC FROM 5% TO 7.5%?**

5 A. Yes. As part of my Direct Testimony, I proposed that PWSA’s DSIC cap, currently
6 established at 5% of intrastate operating revenues, be increased to 7.5%. I explained there
7 that the DSIC cap increase would permit PWSA to make a small increase in the amount
8 of PAYGO funding that the DSIC would produce, thereby accelerating PWSA’s capital
9 improvement efforts, providing increased diversification of capital improvement funding
10 sources, reducing financial risk and reducing costs to ratepayers (as, for a Cash-Flow-
11 regulated company, PAYGO funding is actually cheaper for ratepayers than long-term
12 debt funding). I therefore demonstrated that raising the cap would increase PWSA’s
13 ability to ensure and maintain adequate, safe and reliable service. In response to my
14 Direct Testimony, I&E Spadaccio testified in favor of increasing PWSA’s DSIC cap,
15 principally based on his belief that permitting PWSA to fund an additional amount of its
16 Capital Improvement Plan via its DSIC was superior to authorizing an additional amount
17 of PAYGO in base rates. This appeared to be because, in his view, DSIC-financing can
18 only be used to fund projects that have been previously reviewed and approved in
19 PWSA’s LTIP. In his Rebuttal testimony, witness Pavlovic disagreed with I&E witness
20 Spadaccio, claiming, among other things (as he did in his Direct Testimony), that
21 permitting PWSA to recover an increased amount of PAYGO through its DSIC will
22 exacerbate what he claims is a violation of the “regulatory principle of ratable recovery”
23 which he describes as “the over recovery of capital costs from current customers and
24 under recovery of capital costs from later generations in violation of intergenerational
25 equity.” (OCA St. 2R at 6). He also asserts that neither Mr. Spadaccio nor I have shown

1 that the increase in the DSIC cap furthered PWSA's ability to ensure and maintain
 2 adequate, safe and reliable service (*Id.* at 5). Witness Pavlovic reiterated and expanded
 3 his criticisms in his surrebuttal : First, he claims that the increase is not needed to
 4 accelerate the completion rate of LTIIP projects. (OCA St. 4SR at 15-17.) Second, he
 5 states that OCA's prior acceptance of PWSA's DSIC in a settlement has no precedential
 6 value. (OCA St. 4SR at 15). Third, he states that there is no evidence that DSIC PAYGO
 7 should be part of any balanced capital funding program, either generally or specifically,
 8 (OCA St. 4SR at 15). He also asserts that my rebuttal failed to adequately respond to any
 9 of his other criticisms of the DSIC that he set forth in his direct testimony. (OCA St. 4SR
 10 at 16-17).

11 **Q. DO YOU WISH TO RESPOND TO THESE CLAIMS?**

12 A. Yes. Responding to the first criticism , witness Pavlovic is simply wrong when he claims
 13 that my testimony fails to show how increasing the DSIC furthers PWSA's ability to
 14 maintain the adequacy and reliability of its water and wastewater systems.

15 I explained in my Direct that PWSA must invest capital today in order to meet the
 16 needs of the system today, as discussed in PWSA St. Nos. 3 to 5. That capital comes
 17 from increases in base rates (to cover new debt service and coverage) and from the DSIC.
 18 PWSA's DSIC permits the Authority to finance a very modest additional amount of
 19 capital improvements each year without reliance on the issuance of long-term debt. In FY
 20 2023, the 5% DSIC will permit PWSA to use PAYGO financing for some \$8.4 million in
 21 additional distribution improvements.⁶ PWSA's requested increase in the DSIC cap

⁶ Dr. Pavlovic opines that DSIC PAYGO recovery is not an option under Section 1357(c) and is inconsistent with the recovery options set forth in Section 1357(c). OCA St. 2R at 6. Such issues will be addressed in briefing, if necessary, since I am not an attorney. That being said, it is my understanding that, in PWSA's 2020 Rate Proceeding, PWSA was permitted to implement a levelized, 5% DSIC for both water and

1 would result in it being able to bill approximately \$5 million additionally in the FPPTY.
 2 The additional DSIC billings that the cap increase would permit are shown in the
 3 following table.

	2023 (at 5%)	2024	2025	2026	Total (3-yr)
DSIC at 7.5% for Forecast Period					
Annual DSIC Revenue	8,411,120	15,038,462	17,699,369	20,942,857	53,680,687
Incremental increase		6,627,342	2,660,907	3,243,488	
Cumulative increase		6,627,342	9,288,249	12,531,737	28,447,329
DSIC at 5% for Forecast Period					
Annual DSIC Revenue	8,411,120	10,025,641	11,799,579	13,961,905	35,787,125
Incremental increase		1,614,522	1,773,938	2,162,325	
Cumulative increase		1,614,522	3,388,460	5,550,785	10,553,766
Difference between DSIC at 7.5% to 5%					
		5,012,821	5,899,790	6,980,952	17,893,562

4
 5 The improvements made possible by the DSIC cap increase likely will not be
 6 possible without this additional DSIC financing. PWSA’s debt load is already quite large
 7 and it is unlikely that PWSA and its financial advisors would feel comfortable adding to
 8 that burden to replace this DSIC funding through even larger bond issuances. Those
 9 additional DSIC-funded projects will improve the reliability and adequacy of PWSA’s
 10 water and wastewater distribution system without creating a further debt service and debt
 11 service coverage burden on customers. Therefore, PWSA’s DSIC cap increase proposal
 12 will directly expedite PWSA’s existing timeline for completing the projects set out in
 13 PWSA’s LTIP.

14 **Q. DOES THE FACT THAT DSIC PRODUCES PAYGO FINANCING CREATE**
 15 **ADDITIONAL BENEFITS FOR PWSA AND ITS RATEPAYERS?**

16 A. Yes. As I testified in my Rebuttal, PWSA’s current debt to equity ratio is approximately
 17 100%. Financing a small portion of PWSA’s capital improvements with PAYGO on a
 18 consistent basis will at least keep that relationship from becoming any worse. This

wastewater. See *Pa PUC v. Pittsburgh Water and Sewer Authority*, Docket Nos. R-2020-3017951, R-2020-3017970, and P-2020-3019019. While that case was settled, I am informed by counsel that the Commission could not have approved the Settlement if it contained provisions that were illegal.

1 deleveraging will help PWSA to market its bonds and marginally reduce their cost.
 2 Maintaining PWSA’s access to the long-term debt market helps to ensure that it can
 3 continue to modernize its distribution system which, in turn, clearly helps to maintain the
 4 adequacy and reliability of its system. I would also add that, to the extent that PAYGO
 5 financing is cheaper for ratepayers for a Cash Flow regulated utility, as Dr. Pavlovic
 6 appears to admit,⁷ using PAYGO financing means that a greater amount of capital
 7 improvements can be accomplished with the same amount of ratepayer dollars. This,
 8 again, accelerates PWSA’s ability to make those improvements more efficiently,
 9 resulting in a more adequate and reliable water/wastewater system.

10 **Q. PLEASE RESPOND TO WITNESS PAVLOVIC’S CLAIM THAT HE**
 11 **DEMONSTRATED THAT FINANCING A PORTION OF PWSA’S CAPITAL**
 12 **IMPROVEMENT PLAN WITH PAYGO VIOLATES THE PRINCIPLE OF**
 13 **RATABLE RECOVERY AND CREATES “GENERATIONAL INEQUITY” (OCA**
 14 **ST. 4SR AT 14, 17).**

15 **A.** I disagree and believe that these concerns of “generational inequity” are not valid. First, I
 16 question whether the concept even applies to a Cash Flow-regulated company as opposed
 17 to utilities regulated on a rate of return/rate base basis. A rate of return/rate base regulated
 18 company charges a return of and on a capital improvement over the depreciated life of
 19 the property, which is generally assumed to equate to its useful life. Therefore, the cost of
 20 a facility with a 70-year life (for example) will be recovered over 70 years. But for a
 21 cash-flow regulated entity, capital improvements are funded either by long term bonds,

⁷ OCA St. 2R at 6, ln. 19 to 7, ln-2 (“PWSA’s DSICs are not PWSA’s only option for accessing capital asset financing that is less expensive than long term debt.”) I addressed this spurious argument in my Rebuttal testimony in which I pointed out that PWSA is already attempting to access every dollar of available government loans and the existence of or increase in a small amount of PAYGO-financed capital improvements will have absolutely no effect on PWSA’s efforts to obtain those loans. PWSA St. No. 2-R at 22-23.

1 generally with a 30-year life,⁸ or PAYGO. PWSA is in the midst of a massive system
 2 improvement and is replacing all types of assets each year. Those assets have a wide
 3 variety of useful lives, as demonstrated below.

Useful Life of Assets Replaced	2023-2027 Capital Improvement Plan	% of Total
10 Years or Less	\$ 43,119,588	2.4%
15 Years	267,946,161	14.7%
20 Years	49,369,182	2.7%
25 Years	91,099,098	5.0%
30 Years	72,159,260	4.0%
50 Years	37,362,597	2.1%
70 Years	1,258,986,865	69.2%
	\$ 1,820,042,750	

4
 5 As can be seen, only a tiny fraction – 4% – of PWSA’s capital additions have useful lives
 6 that match the life of the bonds used to finance most of those improvements. Some 20%
 7 of PWSA’s additions have lives that are shorter than 30 years, and 71% have lives far
 8 longer than the 30 years. This means that, at any point in time, a ratepayer is paying in
 9 rates for assets that: 1) are currently serving him/her; 2) have been previously taken out
 10 of service; and 3) will go on providing service long after the bonds used to finance the
 11 asset is paid off. For this reason, I conclude that all of PWSA’s asset financing vehicles
 12 have the same “generational equity” issues and, thus, the concept of “generational equity”
 13 simply does not apply here. At least, when an asset is financed from rates (PAYGO) we
 14 can be confident that ratepayers are paying for an asset from which they are currently
 15 receiving service. Therefore, paying for a small portion of capital expenditures with

⁸ Short-term financing exists by way of PWSA’s capital line of credit. PWSA St. No. 2 at 26-27. PWSA issues long-term debt to reduce the balance of its short-term debt when the line of credit nears capacity. *Id.* So, I am using the term long-term debt to refer to all borrowing by PWSA. Also, note that PENNVEST loan terms can range between 20-30 years, but the most recent water loan awards have been for 30 years.

1 PAYGO is actually just as consistent with “generational inequity” as financing most
 2 assets with bonds the life of which has little relation to the useful life of the assets they
 3 finance.

4 Second, under current rates, PWSA is projected to finance just 2.34% of the
 5 Capital Improvement Plan with PAYGO sources, as shown below.

PWSA Capital Improvement Plan Funding Sources (Current Rates)							
Funding Sources	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total	% of Total
Debt (Revenue Bonds)	\$ 122,335,310	150,214,517	203,743,270	236,469,077	316,179,204	\$ 1,028,941,377	56.53%
State and Federal Loans (PENNVEST/WIFIA)	165,063,140	190,453,321	186,248,435	145,625,152	50,477,069	737,867,116	40.54%
DSIC - Water (PAYGO)	6,028,526	6,058,669	6,088,962	6,119,407	6,150,004	30,445,568	1.67%
DSIC - Wastewater (PAYGO)	2,359,691	2,371,490	2,383,347	2,395,264	2,407,240	11,917,032	0.65%
American Rescue Plan Act (Grant)	10,582,757	-	-	-	-	10,582,757	0.58%
Cash (PAYGO)	164,400	124,500	-	-	-	288,900	0.02%
Total Funding Sources	\$ 306,533,824	349,222,497	398,464,014	390,608,900	375,213,517	\$ 1,820,042,750	

6
 7 If the DSIC increase to 7.5% is approved, PWSA is projecting that PAYGO
 8 financing will increase to 4.58% of total financing while at the same time providing
 9 approximately \$41 million of additional funding to complete capital projects (with \$17.9
 10 million from the DSIC cap increase to 7.5%) that would otherwise not get done.

PWSA Capital Improvement Plan Funding Sources (Proposed Rates)							
Funding Sources	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Total	% of Total
Debt (Revenue Bonds)	\$ 122,335,310	150,214,517	203,743,270	236,469,077	316,179,204	\$ 1,028,941,377	56.53%
State and Federal Loans (PENNVEST/WIFIA)	165,063,140	190,453,321	186,248,435	145,625,152	50,477,069	737,867,116	40.54%
DSIC - Water (PAYGO)	6,028,526	11,279,120	13,461,179	16,045,979	16,045,979	62,860,783	3.45%
DSIC - Wastewater (PAYGO)	2,359,691	3,759,342	4,238,190	4,896,878	4,896,878	20,150,979	1.11%
American Rescue Plan Act (Grant)	10,582,757	-	-	-	-	10,582,757	0.58%
Cash (PAYGO)	164,400	124,500	-	-	-	288,900	0.02%
Total Funding Sources	\$ 306,533,824	355,830,800	407,691,074	403,037,086	387,599,130	\$ 1,860,691,912	

11
 12 Therefore, to the extent that Dr. Pavlovic believes that financing with long term
 13 debt is consistent with “ratable recovery” and “intergenerational equity,” the vast
 14 majority of PWSA’s spending creates no problem as perceived by Dr. Pavlovic.

15 Third, any discussion of “equity” should include the fact that, for a Cash-Flow
 16 regulated company, PAYGO financing is cheaper for ratepayers compared to the debt
 17 service and debt service coverage that must be recovered when bond financing is utilized.
 18 As I testified (PWSA St. No. 2 at 27-29), bond financing means that current ratepayers

1 would pay the higher costs associated with issuing and paying back long-term debt for
 2 the DSIC-eligible projects compared to PAYGO. Exclusive use of bond financing also
 3 means that PWSA will have less capacity for project costs, given PWSA's existing high
 4 financial leverage.

5 **Q. REGARDING THE THIRD CRITICISM IN HIS SURREBUTTAL, DR.**
 6 **PAVLOVIC CLAIMS THAT YOU HAVE NOT PRESENTED ANY EVIDENCE**
 7 **THAT DSIC PAYGO NEEDS TO BE PART OF PWSA'S CAPITAL FUNDING**
 8 **PROGRAM. (OCA ST. 4SR AT 15). PLEASE RESPOND.**

9 A. DSIC PAYGO is already a part of PWSA's capital funding program, since PWSA was
 10 permitted to implement a levelized, 5% DSIC for both water and wastewater.⁹ For the
 11 reasons that I have explained, PWSA believes that increasing the water and wastewater
 12 DSIC from 5% to 7.5% will allow PWSA to advance the completion of DSIC-eligible
 13 capital improvement projects which will provide additional benefits for PWSA and its
 14 ratepayers such as reducing financial risk and reducing ratepayer costs I would note that
 15 witness Pavlovic never even addressed the financial leverage benefit or the fact that
 16 PAYGO financing is cheaper for ratepayers compared to long term debt financing.
 17 PWSA has clearly satisfied its burden of going forward with evidence that the proposed
 18 DSIC cap increase is reasonable.

19 **Q. DR. PAVLOVIC ALSO DOES NOT AGREE THAT FINANCING ASSETS**
 20 **THROUGH DSIC IS MORE DESIRABLE THAN FINANCING THOSE ASSETS**
 21 **WITH PAYGO IN BASE RATES (OCA ST. 2R AT 7). CAN YOU RESPOND?**

22 A. I agree with Dr. Pavlovic on this point. Mr. Spadaccio's claim that PAYGO from the
 23 DSIC is somehow better than from base rates is because DSIC financed capital
 24 improvements must be authorized through PWSA's LTIP. But the vast majority of

⁹ See footnote 5, *supra*.

1 PWSA’s assets are not reviewed in the LTIP because they are financed with long-term
 2 debt. Whether financed through debt or PAYGO, PWSA’s capital improvement plans are
 3 completely transparent, extensively detailed and adequately explained.¹⁰ Many of them
 4 have been further scrutinized in this and other base rate cases.

5 **Q. CAN YOU RESPOND TO DR. PAVLOVIC’S STATEMENTS THAT YOU DID**
 6 **NOT DEMONSTRATE THAT INCREASING PWSA’S WATER AND**
 7 **WASTEWATER DSIC CAP PERCENTAGE IS NECESSARY FOR IT TO**
 8 **ENSURE AND MAINTAIN ADEQUATE, EFFICIENT, SAFE, RELIABLE AND**
 9 **REASONABLE SERVICE? (OCA ST. 4SR AT 16-17)?**

10 A. Yes, as I tried to make clear in my direct testimony (and above),¹¹ it is necessary for the
 11 DSIC CAP percentages to be increased to 7.5% in order for PWSA to have all the funds
 12 it needs to finance its entire capital budget. Doing so is therefore necessary to continue to
 13 ensure and maintain adequate, efficient, safe, reliable, and reasonable service. The
 14 additional funding received through the DSIC will allow PWSA to expedite the
 15 replacement of its infrastructure, including its most vulnerable assets – small diameter
 16 water (including lead) and sewer pipe. These additional projects will not happen at this
 17 time without the additional DSIC funding. This clearly meets the applicable standards.

18 **Q. REGARDING THE SECOND CRITICISM IN HIS SURREBUTTAL, DR.**
 19 **PAVLOVIC CLAIMS THAT HE IS NOT PRECLUDED FROM CRITICIZING**
 20 **PWSA’S DSIC PAYGO IN THIS PROCEEDING (OCA ST. 4SR AT 15). CAN**
 21 **YOU RESPOND?**

22 A. While not an attorney, I believe that criticism of PWSA’s DSIC structure itself is not
 23 appropriate, since the DSIC was approved by the Commission in 2020. That being said, I
 24 understand that there is room in this proceeding for Dr. Pavlovic to be critical of the

¹⁰ PWSA’s entire FY 2024 Capital Improvement Plan is an exhibit to my Direct Testimony. *See* PWSA Exh. EB-4.

¹¹ *See* PWSA St. No. 2 at 27-29.

1 proposed increase of the DSIC from 5% to 7.5%. However, in my view, many of Dr.
 2 Pavlovic’s criticisms apply to the DSIC itself as well as the proposed increase. To the
 3 extent that witness Pavlovic’s criticisms are an attack on the existing DSIC (such as the
 4 production of PAYGO) they should be rejected since Dr. Pavlovic has not shown that
 5 circumstances have changed or that the existing DSIC has had negative consequences.

6 **Q. DR. PAVLOVIC EXPRESSED CONCERN OVER THE LACK OF A “RAMP-UP”**
 7 **PERIOD. (OCA ST. 4SR AT 16). PLEASE RESPOND.**

8 A. The Commission approved a levelized DSIC for PWSA, as it has for Philadelphia Gas
 9 Works (“PGW”).¹² As I have explained, the funds received under the DSIC are restricted
 10 to DSIC-eligible projects and must be refunded if not timely used. Given those
 11 protections, I do not see the need for a “ramp up” period either for the DSIC itself or for
 12 the proposed increase to 7.5%.

13 In addition, I would note that PWSA’s DSIC can change on a quarterly basis for
 14 over/under collection. I am not an attorney, but I believe that the DSIC for investor-
 15 owned utilities is also updated on a quarterly basis to reflect eligible property placed in
 16 service by them during the prior three-month period.¹³ The addition of the DSIC-eligible
 17 property allows the investor-owned utilities to begin recovering return on and of their
 18 “new” facilities, so I would not characterize the addition of “new” DSIC-eligible property
 19 as a “ramp-up” of additional revenues for the investor-owned utilities.

20 **Q. MR. SPADACCIO CLAIMS THAT YOU ARE MISSING HIS LARGER POINT**
 21 **ON PAYGO FINANCING BY STATING THAT CAPITAL ASSETS WILL**
 22 **LIKELY OUTLIVE THE CUSTOMERS USAGE OF THEM AND IS THE**

¹² See, e.g., *Petition of Philadelphia Gas Works for Waiver of Provisions of Act 11 to Increase The Distribution System Improvement Charge CAP and to Permit Levelization of DSIC Charges*, Docket Nos. P-2015-2501500; C-2015-2504092, PUC Opinion and Order entered January 28, 2016.

¹³ 66 Pa.C.S. § 1357(a)(2).

1 **REASON WHY CUSTOMERS SHOULD NOT FOOT THE ENTIRE BILL FOR**
2 **THOSE ASSETS (I&E ST. NO. 1-SR AT 14). CAN YOU RESPOND?**

3 A. I understand this point but disagree with the claim that PAYGO financing would result in
4 customers “footing the entire bill” for capital assets purchases. PAYGO, both DSIC
5 PAYGO and rate funded PAYGO, must be part of PWSA’s larger capital financings
6 strategy in order to keep rates as low as possible, while at the same time providing
7 financial flexibility. Mr. Spadaccio would seem to agree with this as he admits PWSA
8 needs to work towards developing the proper balance between long-term debt and
9 PAYGO. (I&E St. No. 1-SR at 14).

10 PWSA acknowledges and appreciates I&E’s support for increasing the DSIC
11 percentage from 5% to 7.5%. However, with a capital improvement plan that is currently
12 funded by over 97% debt, the Authority also needs base rate funded PAYGO.

13 Finally, I do not agree with Mr. Spadaccio’s concerns regarding
14 “intergenerational equity” for the same reasons that I disagree with Dr. Pavlovic’s
15 concerns on that issue. As I have already explained, the vast majority of PWSA’s capital
16 spending is for assets that have useful lives that are either far longer or far shorter than
17 the typical, 30-year life of PWSA’s bonds.

18 **Q. MR. SPADACCIO CLAIMS THAT RECEIVING LOW-INTEREST PENNVEST**
19 **AND WIFIA LOANS IS PREFERABLE AS COMPARED TO RATE FUNDED**
20 **PAYGO/DSIC. (I&E ST. NO. 1-SR AT 15-16). CAN YOU RESPOND?**

21 A. I do not agree with this statement. As demonstrated by the analysis completed in my
22 direct testimony (PWSA St. No 2. at 29), PAYGO funding is cheaper than borrowed
23 funds, either PENNVEST/WIFIA loans or publicly issued Revenue Bonds.

1 **VI. MULTI-YEAR RATE PLAN**

2 **Q. MR. CLINE STATES THAT “EACH WITNESS ONLY MAKES VAGUE**
 3 **REFERENCE TO REDIRECTED FUNDS BENEFITING RATEPAYERS. THEY**
 4 **HAVE PROVIDED NO EVIDENCE OR DETAIL AS TO WHERE EXTRA**
 5 **DOLLARS WILL BE SPENT THAT WOULD BENEFIT RATEPAYERS.” (I&E**
 6 **ST. NO. 3 AT 10). PLEASE RESPOND.**

7 A. PWSA has no shareholders and does not pay a dividend or a rate of return to its owner, as
 8 explained in PWSA St. No. 1 at 6, 17-18. It should be obvious that, without shareholders
 9 or dividends, PWSA can only spend funds to provide safe and reliable service.
 10 Moreover, and as noted above, bond proceeds can only be used for capital expenditures
 11 so any dollars not spent in the year anticipated will be spent the next year. For example,
 12 PWSA will be issuing a new bond in both 2024 and 2025 with additional annual debt
 13 service for each bond of approximately \$9 million for each. If PWSA doesn’t fully
 14 expend the proceeds from those bonds in the year in which the bond is issued it will use
 15 those funds for capital improvements in next year and will adjust the size of future bond
 16 issuances accordingly.

17 **VII. INFRASTRUCTURE IMPROVEMENT CHARGE**

18 **Q. MR. SPADACCIO CLAIMS THAT THE PROPER VENUE FOR THE**
 19 **INFRASTRUCTURE IMPROVEMENT CHARGE WOULD BE A PETITION TO**
 20 **THE COMMISSION WITHIN THE 60 TO 90-DAY WINDOW PRIOR TO THE**
 21 **FIRST ANTICIPATED PRINCIPAL AND INTEREST PAYMENT (I&E ST. NO.**
 22 **1-SR AT 12). CAN YOU RESPOND?**

23 A. Such issues will be addressed in briefing, if necessary, since I am not an attorney. I am
 24 informed by counsel, however, that this section is a PUC Policy, not a regulation, so the
 25 Commission is obligated to mold the policy to fit specific circumstances. Moreover, I
 26 believe that the reference to “filing for relief” refers to submitting data to the Commission
 27 to initiate the recovery of government loan costs, not the establishment of the recovery
 28 mechanism itself. This is the only reasonable interpretation because, as PWSA witness

1 Mechling testifies, the billing software changes and testing necessary to be in a position
 2 to start charging an automatic adjustment charge of this nature would take some 9 months
 3 to complete. Therefore, adopting Mr. Spadaccio’s reading would effectively eliminate
 4 the ability of many companies to be able to implement the surcharge that the PUC has
 5 generally authorized.

6 **Q. MR. SPADACCIO CLAIMS THAT 52 PA CODE § 69.363 MAKES NO MENTION**
 7 **OF WIFIA OBLIGATIONS; THEREFORE, IT CANNOT BE ASSUMED WIFIA**
 8 **SHOULD RECEIVE THE SAME TREATMENT AS PENNVEST LOANS. (I&E**
 9 **ST. NO. 1-ST, AT 12). CAN YOU RESPOND?**

10 A. PWSA agrees that 52 Pa. Code § 69.363 makes no mention of WIFIA. However, this
 11 should not be the basis to deny including WIFIA obligations in the surcharge. WIFIA is
 12 a more recent program that is the federal equivalent of PENNVEST. Given this, PWSA is
 13 proposing to model the proposed Infrastructure Improvement Charge (IIC) after the
 14 PENNVEST surcharge as defined in the section noted above. The only difference would
 15 be the inclusion of WIFIA in addition to PENNVEST obligations. Again, I am informed
 16 by counsel that this section is a PUC Policy, not a regulation, so the Commission may
 17 mold the policy to fit specific circumstances. Here, it clearly would not be reasonable to
 18 permit a surcharge for one type of government loan (PENNVEST) and deny it for the
 19 equivalent program from the federal government.

20 **VIII. EMPLOYEE COUNT; PAYROLL EXPENSES; PAYROLL TAXES;**
 21 **RETIREMENT BENEFITS**

22 **Q. DID I&E, OCA OR OSBA MAKE ANY CHANGES TO THEIR RESPECTIVE**
 23 **RECOMMENDATIONS FOR EMPLOYEE COUNTS, PAYROLL EXPENSE,**
 24 **PAYROLL TAX, AND RETIREMENT BENEFITS EXPENSE?**

25 A. No.

26 **Q. FOLLOWING YOUR REVIEW OF THE SURREBUTTAL TESTIMONY OF**
 27 **I&E, OCA AND OSBA REGARDING THEIR RECOMMENDED**
 28 **ADJUSTMENTS TO EMPLOYEE COUNT, PAYROLL EXPENSE, PAYROLL**

1 **TAX, AND RETIREMENT BENEFITS EXPENSE, DO YOU HAVE ANYTHING**
2 **TO ADD?**

3 A. Yes. In addition to my rebuttal testimony, which responds to their recommendations, I
4 would add that:

5 Mr. Mugrace missed the fundamental point of my rebuttal testimony. I testified
6 that the adoption of Mr. Mugrace's recommendation (of 368 employees for the FPFTY)
7 would unreasonably reduce the level of employees (and the recovery of payroll and
8 employee benefit expenses) for the FPFTY below the current level of employees and
9 expenses (418 as of September 7, 2023). (PWSA St. No. 2-R at 44). That employee
10 number was not contested or rebutted by Mr. Mugrace.

11 That same fundamental point is applicable to OSBA, since Mr. Higgins'
12 recommendations (of 404.5 employees for the FPFTY) would also unreasonably reduce
13 the level of employees (and the recovery of payroll and employee benefit expenses) for
14 the FPFTY below the current level of employees and expenses. That employee number
15 was not contested or rebutted by Mr. Higgins in his surrebuttal.

16 To avoid comparisons with the actual headcount as of September 2023, Mr.
17 Higgins states that PWSA has not reconciled the current headcount with the budgeted
18 projections. (OSBA St. No. 1-SR at 3). There is no need for a reconciliation of
19 projections because PWSA's employee-related expense claims remain the same. The
20 projected headcount for the FPFTY remains the same, 421. The projected headcount for
21 the Forecast period (2025 and 2026) also remains at 440. Mr. Higgins also states that
22 PWSA did not provide any explanation for the difference in employment levels. (OSBA
23 St. No. 1-SR at 3). The explanation is obvious. PWSA has hired, and retained, more
24 employees faster than originally projected.

1 I note my continued disagreement with Mr. Higgins’ roll-out of employees during
 2 a fully-projected future test year for the reasons expressed in my rebuttal testimony.

3 **Q. DO YOU HAVE ANY CHANGES TO PWSA’S EXPENSE CLAIMS FOR**
 4 **EMPLOYEE COUNT, PAYROLL EXPENSE, PAYROLL TAX, AND**
 5 **RETIREMENT BENEFITS EXPENSE FOR THE FPFTY OR THE FORECAST**
 6 **PERIOD?**

7 A. No.

8 **IX. WET WEATHER CONSENT DECREE**

9 **Q. MS. OKUM CONTINUES TO RECOMMEND THAT ALL WET WEATHER**
 10 **CONSENT DECREE COST BE DISALLOWED BECAUSE SUPPORTING**
 11 **DOCUMENTATION (ALLEGEDLY) HAS NOT BEEN PROVIDED TO**
 12 **SUPPORT THE CLAIM. (I&E ST. NO. 2-RS AT 13). CAN YOU RESPOND?**

13 A. Yes, in Direct Testimony, Ms. Okum recommended the disallowance of the entire Wet
 14 Weather Consent Decree costs because “claimed expenses, relevant calculations, or any
 15 other supporting documentation to substantiate its claim related to the Decree” was not
 16 provided by PWSA (I&E. St. No. 2 at 18). Those data were submitted in discovery but,
 17 nevertheless, I provided in rebuttal testimony (as Exhibit EB-10) the active contract for
 18 its Wet Weather Program Manager (Wade Trim). Ms. Okum rejected Exhibit EB-10 as
 19 sufficient justification for the \$7,500,000 Wet Weather Consent Decree expense claimed
 20 in the FPFTY and maintains in I&E’s updated revenue requirement that the entire amount
 21 be disallowed. (I&E St. No. 2-RS at 13). In an effort to further justify these costs,
 22 attached as Exhibit EB-15 are all of the Task Orders that coincide with the phases listed
 23 in the Scope of Work provided in Exhibit EB-10. The Task Orders provide further detail
 24 of the timeline, hours, and costs within each phase. I frankly do not know what more we
 25 could provide to justify a 2024 expense. I submit that these exhibits are adequate
 26 evidence that PWSA is committed to spending at least \$7,500,000 in the FPFTY for
 27 activities related to the Wet Weather Consent Decree and no adjustment is warranted.

1 **Q. MS. OKUM RECOMMENDS THAT RATE CASE EXPENSES BE**
 2 **DISTINGUISHED IN THEIR OWN SPECIFIC EXPENSE ACCOUNT IN**
 3 **FUTURE RATE CASES. (I&E ST. NO. 2-SR AT 21-22). CAN YOU RESPOND?**

4 A. Yes, the reality of this request is not as straight forward as Ms. Okum may think. PWSA
 5 would need to work with its accounting software support vendor to update the current
 6 chart of accounts. This will result in all of PWSA’s canned reports and reporting
 7 processes to also require updating. Additionally, PWSA’s administrative staff would need
 8 to spend the time splitting invoice expenses so they are charged to the correct expense
 9 accounts.

10 PWSA does not agree with Ms. Okum’s recommendation for the reasons stated
 11 above. Rather, PWSA can provide rate case expenses as requested, as per the response to
 12 Discovery Request OCA-XXI-7.

13 **X. DRAG BUCKET AND LINE TELEVISIONING**

14 **Q. DID I&E OR OCA MAKE ANY CHANGES TO THEIR RESPECTIVE**
 15 **RECOMMENDATIONS FOR DRAG BUCKET EXPENSES OR LINE**
 16 **TELEVISIONING EXPENSES?**

17 A. Yes. I&E is no longer recommending adjustments to those expenses. I&E accepted
 18 PWSA explanation that the respective accounts for drag bucket and line televising were
 19 repurposed and the PWSA would incur expenses related to the repurposed accounts.

20 **Q. CAN YOU RESPOND TO MR. MUGRACE’S CLAIM THAT THE NEW**
 21 **CONTRACT, NEW VENDOR, AND THE EFFECTIVE DATE OF THE NEW**
 22 **CONTRACT WAS NOT PROVIDED FOR DRAG BUCKET AND LINE**
 23 **TELEVISIONING COSTS (OCA ST. 1SR AT 9-10)?**

24 A. Yes, this argument is not a basis to deny PWSA’s claim. The solicitation of these new
 25 contracts is dependent upon receiving the necessary funds in this rate case to fund them.
 26 PWSA is not going to commit to a contract and then “hope” that the costs are approved in
 27 this rate case. That would be irresponsible of PWSA. The argument also misses the fact

1 that these accounts were repurposed. The anticipated amounts for these repurposed
2 accounts in the FPFTY are reasonable and it is unreasonable for OCA to divide that
3 amount in half solely because there were no prior costs, as I previously testified.

4 **XI. NORMALIZATION**

5 **Q. MS. OKUM STATES SHE UNDERSTANDS THAT AS A CASH FLOW UTILITY,**
6 **PWSA PAYS FOR ALL EXPENSES WITHIN THE YEAR THEY ARE**
7 **INCURRED, BUT THAT DOES NOT MEAN PWSA IS PROHIBITED FROM**
8 **NORMALIZING EXPENSES OVER INTERVENING PERIODS FOR**
9 **RATEMAKING PURPOSES. (I&E ST. NO. 2-SR AT 21). CAN YOU RESPOND?**

10 A. Ms. Okum misses the point. It is true that PWSA has an obligation to pay its bills when
11 due. To do that, PWSA must have the full amount of cash available at the time of
12 purchase for any item or service. Normalization of expenses threatens PWSA's ability to
13 pay its bills when due. For example, if PWSA anticipates spending \$3.4 million on
14 equipment in the FPFTY (which it does) PWSA will need \$3.4 million in the FPFTY to
15 pay for that equipment. Normalizing the equipment expense means that PWSA will only
16 have \$1,210,116 in the FPFTY to pay for equipment. All else being equal, PWSA will
17 not have the cash to purchase the remaining \$2,201,117 of equipment in the FPFTY –
18 unless PWSA eliminates other purchases or services.

19 **Q. CAN YOU RESPOND TO MR. MUGRACE'S CLAIM THAT PWSA'S DAILY**
20 **CASH BALANCE CAN BE USED TO COVER UNFORESEEN AND**
21 **UNEXPECTED EXPENDITURES DURING AN ANNUAL OPERATING PERIOD**
22 **(OCA ST. 1SR AT 14)?**

23 A. Yes, his claim is only partially correct. While PWSA has limited cash reserves, those
24 reserves are for emergencies and for unexpected obligations. PWSA does not receive a
25 return on and of rate base, and does not have the ability (as do investor-owned utilities) to
26 use the return on and of rate base to pay for normalized or unexpected expenses. The net
27 impact of normalization would be to either force PWSA to rely upon cash reserves to pay

1 obligations when they are due – threatening its ability to respond to emergencies or
 2 unexpected obligations – or to eliminate the necessary service or purchase. Continued
 3 (and mandated) reliance on cash reserves to pay current bills is not a sound financial
 4 practice.

5 Mr. Mugrace also fails to mention that the use of unrestricted cash is excluded
 6 from PWSA’s debt service coverage calculation. This means that relying on unrestricted
 7 cash to make up for lost revenue during an unforeseen event will actually increase that
 8 chance of a debt service coverage default.

9 **XII. INFLATION ADJUSTMENT**

10 **Q. CAN YOU RESPOND TO MR. MUGRACE’S RELIANCE ON THE CONSUMER**
 11 **PRICE INDEX (CPI) AND PRICE INDEX CONSUMPTION EXPENDITURES**
 12 **(PCE) AS APPROPRIATE INFLATIONARY FACTORS (OCA ST. 1SR AT 15-**
 13 **16)?**

14 A. Yes, my criticism of these inflationary factors is that they are a better reflection of the
 15 cost increases experienced by the average consumer rather than a utility in a capital-
 16 intensive industry. Put another way – the cost to replace infrastructure does not correlate
 17 well to a basket of consumer goods. A more fitting inflation measure must be used,
 18 similar to the PWSA proposed construction cost index published by the Engineering
 19 News-Record.

20 **XIII. INCREASED CUSTOMER SERVICE EXPENSES**

21 **A. ARREARAGE FORGIVENESS**

22 **Q. MR. COLTON MAKES A STATEMENT THAT YOUR ONLY RESPONSE TO**
 23 **THE FAILINGS OF HIS COST-BENEFIT ANALYSIS WAS THAT PWSA**
 24 **CUSTOMERS HAVE HISTORICALLY RECEIVED LOW-INCOME**

1 **HOUSEHOLD WATER ASSISTANCE PROGRAM (LIHWAP) FUNDING (OCA**
 2 **ST. 4SR AT 27). CAN YOU RESPOND?**

3 A. First, the failings of my cost-benefit analysis is Mr. Colton’s opinion and one that I
 4 obviously do not share. Second, Mr. Colton’s statement that my response to his criticisms
 5 of “PWSA customers have historically received LIHWAP funding” is not factually
 6 correct. My response was:

7 Mr. Colton claims that the cost-benefit analysis completed by PWSA is flawed
 8 because 1) it assumes that 100% of payments are made by AFP participants, 2) it
 9 assumes a collection rate of 100%, and 3) no effort was made to identify “benefits”.
 10 Using historical information as assumptions, such as the amount of customer arrears
 11 and collectability rate, would not have been accurate because the information is
 12 skewed by the vast amount of aid provided by the LIHWAP program. PWSA would
 13 need multiple years without LIHWAP funding to reflect “accurate” historical
 14 information, which invalidates Mr. Colton’s first two arguments. Mr. Colton’s third
 15 argument is his opinion rather than a fact. PWSA considered the potential benefits
 16 when completing the analysis. The analysis shows that \$3,695,166 in arrearages
 17 would be forgiven - providing a huge benefit to customers. It will also provide
 18 customers a “fresh start” for making on-time payments moving forward, yet another
 19 benefit.

20
 21 In addition, Mr. Colton claims the “fallacy” of PWSA’s analysis is that it does not
 22 connect with the information in the filing. However, this claim is misleading because
 23 PWSA’s cost-benefit analysis was completed in FY 2022 and represents FY 2022,
 24 FY 2023, and FY 2024 while the rate filing analysis was completed in FY 2023 and
 25 represents FY 2024, FY 2025, and FY 2026. Given these facts, it is obvious that the
 26 data sets would not match, dismissing Mr. Colton’s claim.

27
 28 The response above clearly differs from Mr. Colton’s stated claim. It is obvious that he is
 29 misrepresenting statements made by PWSA staff in an attempt to justify his outrageous
 30 arguments.

31 **Q. CAN YOU PROVIDE FURTHER PROOF THAT MR. COLTON IS**
 32 **MISREPRESENTING STATEMENTS MADE BY PWSA STAFF?**

33 A. Certainly. Mr. Colton states “Indeed, it is interesting to note that while I state that
 34 LIHWAP is significant in that it is no longer available, Ms. Mechling asserts LIHWAP is
 35 significant in that it is continuing.” (OCA St. 4SR at 27). This is a misrepresentation of

1 the statements made by PWSA. To be clear, I made a factual statement that Pennsylvania
 2 temporarily reopened the LIHWAP application period until August 18, 2023. Ms.
 3 Mechling’s following statement on September 8, 2023 that LIHWAP distribution “is
 4 coming” was another factual statement. Qualified individuals who submitted an
 5 application prior to the August 18, 2023 deadline will receive a LIHWAP distribution.

6 **B. PROCESSING FEES**

7 **Q. CAN YOU RESPOND TO MS. ALEXANDER’S CLAIM THAT YOU STATED
 8 THAT CUSTOMERS WHO PAY BY CREDIT AND/OR DEBIT CARD HAVE A
 9 BANK ACCOUNT AND COULD UTILIZE THE ACH PAYMENT OPTION FOR
 10 FREE (OCA ST. 5SR AT 9)?**

11 A. Yes. What I stated was “OCA also does not consider the fact that customers currently
 12 paying by **debit card** (*emphasis added*) also have a bank account and could continue to
 13 pay by ACH free of charge” (PWSA. St. No. 2-R at 78). It is very unusual, if not
 14 impossible, to have a debit card without an associated bank account. However, PWSA
 15 does agree that is cannot be assumed that customers with a credit card also have a bank
 16 account.

17 **XIV. COOPERATION AGREEMENT**

18 **Q. PLEASE DESCRIBE MR. FOUGHT’S TESTIMONY REGARDING AN
 19 AMENDMENT OF THE COOPERATION AGREEMENT.**

20 A. Mr. Fought takes issue with Mr. Pickering’s rebuttal testimony explaining although the
 21 City will pay for services on an arms-length transactional basis after expiration of the
 22 Cooperation Agreement, billing may continue to be handled through existing
 23 arrangements. In disagreeing with the plan to handle billing through existing
 24 arrangements, Mr. Fought raises concerns about services for which PWSA would
 25 continue to be responsible. (OCA St. 6SR at 2-3).

1 **Q. PLEASE RESPOND.**

2 A. PWSA is not planning to continue the existing arrangements to own, repair and maintain
3 the City facilities identified by Mr. Fought. Rather, PWSA has a mechanism in place for
4 billing the City for services that it agrees to provide. Those are the “billing
5 arrangements” that PWSA plans to keep in place after expiration of the Cooperation
6 Agreement solely to ease the process for invoicing the City for services rendered.

7 **XV. CONCLUSION**

8 **Q. DOES THAT COMPLETE YOUR REJOINDER TESTIMONY?**

9 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

PWSA Exhibit EB-15

<u>Task</u>	<u>Description</u>	<u>Status</u>
1	Task Order No. WT-PRGM-16 Task Order Name: PM Services for Wet Weather Program Manager	Final Approved
2	Task Order No. WT-PRGM-08 Task Order Name: Data Gathering Services for Wet Weather Program Manager	Final Approved
3	Task Order No. WT-PRGM-09 Task Order Name: Model Development and Calibration for Wet Weather Program Manager Project	Final Approved
4	Task Order No. WT-PRGM-10 Task Order Name: Identify and Prioritize Alternatives for Wet Weather Program Manager Project	Final Approved
5	Task Order No. WT-PRGM-11 Task Order Name: Stakeholder Coordination Services for Wet Weather Program Manager Project	Final Approved
6	Task Order No. WT-PRGM-12 Task Order Name: Act 537 Plan and LTCP for Wet Weather Program Manger Project	Final Approved
7	Task Order No. WT-PRGM-13 Task Order Name: Environmental Impact Assessment for Wet Weather Program Manager Project	Final Approved
8	Task Order No. WT-PRGM-14 Task Order Name: Third Party Regionalization Validation for Wet Weather Program Manager Project	Final Approved
9	Task Order No. WT-PRGM-15 Task Order Name: Evaluation of GSI Effectiveness for Wet Weather Program Manager Project	Final Approved

Task Order No. WT-PRGM-16

**Task Order Name: PM Services for Wet Weather Program Manager
Project**

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$3152202.36				
MBE:	0%	WBE:	5%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

**PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES**

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSAs compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA’s current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r², PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

*An additional Exhibit C or D may be used if space provided is not sufficient.

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. **Note that there is a table section for each Task type (budget code).**

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. **Note that the entries in this table are all inclusive of both labor and expenses.**

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task	
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant							
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide							
Enter Staff Role																			
1 PWSA Program Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
2 Program Management		2000	2210	0	1670	500	200	700	0	0	300	800			8380.00	\$1,667,300.00	\$20,672.28	\$1,394,504.86	\$3,082,477.14
3 Construction Management															0.00	\$0.00	\$0.00	\$0.00	\$0.00
4 Constructability Reviews															0.00	\$0.00	\$0.00	\$0.00	\$0.00
5 Professional Services															0.00	\$0.00	\$0.00	\$0.00	\$0.00
6 Design Engineering															0.00	\$0.00	\$0.00	\$0.00	\$0.00
7 Design Services During Construction															0.00	\$0.00	\$0.00	\$0.00	\$0.00
8 Planning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
9 Specialty Consultant/Specialty Service															0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Topographic Survey															0.00	\$0.00	\$0.00	\$0.00	\$0.00
11 GIS/CMMS															0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Geotechnical															0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Pipeline Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Environmental															0.00	\$0.00	\$0.00	\$0.00	\$0.00
15 Specialty Testing															0.00	\$0.00	\$0.00	\$0.00	\$0.00
16 Other Construction Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
17 Field Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
18 Testing and Specialty Inspections															0.00	\$0.00	\$0.00	\$0.00	\$0.00
19 Final Inspection and Commissioning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL HOURS		2000	2210	0	1670	500	200	700	0	0	300	800	0	0	8380.00	\$1,667,300.00	\$20,672.28	\$1,394,504.86	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67							
TOTAL LABOR COST (\$)		\$200,000.00	\$176,800.00	\$0.00	\$94,633.33	\$22,500.00	\$8,000.00	\$24,500.00	\$0.00	\$0.00	\$8,000.00	\$21,333.33	\$0.00	\$0.00					
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00							
TOTAL LABOR BILLING COST (\$)	\$1,667,299.98	\$600,000.00	\$530,400.00	\$0.00	\$283,899.99	\$67,500.00	\$24,000.00	\$73,500.00	\$0.00	\$0.00	\$24,000.00	\$63,999.99	\$0.00	\$0.00					
TOTAL EXPENSES (\$)	\$20,672.28																		
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$1,394,504.86																		
SUBCONSULTANT MARKUP (%)	5.00%																		
TOTAL SUBCONSULTANT COST	\$69,725.24																		
TOTAL FEE (\$)	\$3,152,202.36																		

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking		\$172.28													
hotel	\$5,400.00	\$3,500.00	\$2,700.00												
meal - breakfast/lunch/dinner	\$600.00	\$500.00	\$300.00												
printing															
rental	\$1,500.00	\$500.00	\$500.00								\$1,000.00				
airfare	\$2,000.00	\$1,000.00	\$1,000.00												
Total Expenses by Person	\$9,500.00	\$5,672.28	\$4,500.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$20,672.28
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task															\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name →	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification →	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management		\$1,227,753.29								\$166,751.57				\$1,394,504.86
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental														\$0.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	

October 25, 2021

Jason McBride
Wade Trim
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

Re: R2O Proposal for PWSA Wet Weather Program Manager
PWSA Project No. 2021-OPS-116-0

Dear Mr. McBride:

R2O Consulting LLC is pleased to provide our proposal for professional engineering service in support of the above referenced project. We are a certified DBE and WBE with the State of Pennsylvania and Allegheny County, and we have attached our certificate for your reference.

Per our discussion, R2O anticipates providing 3.17-percent, or \$538,252 of the project in the performance of the following scope items:

- Assist in Regulatory Strategy
- General engineering support
- As-needed assistance in
 - Flow monitoring/modeling
 - Constructability
 - Cost Estimating

The specific scope of our efforts in supporting the above tasks will be developed in collaboration with you upon award of the contract.

The R2O team is ready and available to begin work upon receipt of a notice-to-proceed and executed subcontractor agreement. We appreciate this opportunity to assist you on this critical PWSA infrastructure project and we look forward to collaborating.

Regards,



Kellie Carpenter Rotunno, PE, BCEE
Chief Executive Officer

Attachments: WBE Certification, Allegheny County



Allegheny County
Department of Equity and Inclusion
204 County Office Building
542 Forbes Avenue
Pittsburgh, PA 15219
Phone: (412) 350-4309 Fax: (412) 350-4915
Email: DEICertification@AlleghenyCounty.US

PWSA Exhibit EB-15

May 11, 2021

Kellie Rotunno
R2O Consulting LLC
11215 Edgewater Drive
Cleveland, OH 44102

RE: Pennsylvania Unified Certification Program
DBE Continued Eligibility Letter

Disadvantaged Business Enterprise (DBE) Certification # 10152
Anniversary Date - Annually on Mar 29

Dear Kellie Rotunno:

The Allegheny County Department of Equity and Inclusion, a certifying participant in the Pennsylvania Unified Certification Program (PA UCP), has reviewed your Annual Affidavit as a Disadvantaged Business Enterprise (DBE) and is pleased to inform you that your firm appears to meet the requirements established by the United States Department of Transportation (US DOT) Code of Regulations. Accordingly, your firm can continue as a Disadvantaged Business Enterprise (DBE) to participate in the program in the following classification(s) only:

Provides engineering services including planning, design, and construction management for infrastructure projects. Experience in hydraulic design for stormwater, sanitary, and drinking water systems. Experience in managing projects involving heavy, civil, and underground structures, including tunnels.

NAICS Code(s):
541330
541370

If you wish to expand your status to include another type of business, you must contact the PA UCP for reevaluation prior to undertaking any projects as a DBE in the expanded area.

In the event of a change in circumstances affecting your ability to meet size, disadvantage, ownership, and control requirements of Part 26 or any material change in the information provided; you must inform the PA UCP by means of a sworn affidavit by the owners, describing in detail the nature of such changes.

You must provide this written "Notice of Change" within 30 days of the occurrence of change. Failure to do so will be deemed a failure to cooperate. We would also remind you that the PA UCP reserves the right to review your firm at any time to ensure compliance with the program.

We are pleased to continue to have you as a DBE and wish you continued success in acquiring work within the DBE program. If you have any questions, please contact 412-350-4309.

Sincerely,

Lisa L. Edmonds, MCA
Chief Equity and Inclusion Officer
Department of Equity and Inclusion

Task Order No. WT-PRGM-08

Task Order Name: Data Gathering Services for Wet Weather Program Manager

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$2026696.08		
MBE:	5%	WBE:	49%
		SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSAs compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA's current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r², PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. **Note that there is a table section for each Task type (budget code).**

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. **Note that the entries in this table are all inclusive of both labor and expenses.**

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task	
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant							
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide							
Enter Staff Role																			
1 PWSA Program Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
2 Program Management		40	112	707	700	1035	0	740	630	0	0	200			4164.00	\$578,415.00	\$5,902.80	\$383,693.60	\$968,011.40
3 Construction Management															0.00	\$0.00	\$0.00	\$0.00	\$0.00
4 Constructability Reviews															0.00	\$0.00	\$0.00	\$0.00	\$0.00
5 Professional Services															0.00	\$0.00	\$0.00	\$0.00	\$0.00
6 Design Engineering															0.00	\$0.00	\$0.00	\$0.00	\$0.00
7 Design Services During Construction															0.00	\$0.00	\$0.00	\$0.00	\$0.00
8 Planning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
9 Specialty Consultant/Specialty Service															0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Topographic Survey															0.00	\$0.00	\$0.00	\$990,000.00	\$990,000.00
11 GIS/CMMS															0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Geotechnical															0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Pipeline Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Environmental															0.00	\$0.00	\$0.00	\$0.00	\$0.00
15 Specialty Testing															0.00	\$0.00	\$0.00	\$0.00	\$0.00
16 Other Construction Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
17 Field Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
18 Testing and Specialty Inspections															0.00	\$0.00	\$0.00	\$0.00	\$0.00
19 Final Inspection and Commissioning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL HOURS		40	112	707	700	1035	0	740	630	0	0	200	0	0	4164.00	\$578,415.00	\$5,902.80	\$1,373,693.60	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67							
TOTAL LABOR COST (\$)		\$4,000.00	\$8,960.00	\$42,420.00	\$39,666.67	\$46,575.00	\$0.00	\$25,900.00	\$19,950.00	\$0.00	\$0.00	\$5,333.33	\$0.00	\$0.00					
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00							
TOTAL LABOR BILLING COST (\$)	\$578,415.00	\$12,000.00	\$26,880.00	\$127,260.00	\$119,000.01	\$139,725.00	\$0.00	\$77,700.00	\$59,850.00	\$0.00	\$0.00	\$15,999.99	\$0.00	\$0.00					
TOTAL EXPENSES (\$)	\$5,902.80																		
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$1,373,693.60																		
SUBCONSULTANT MARKUP (%)	5.00%																		
TOTAL SUBCONSULTANT COST	\$68,684.68																		
TOTAL FEE (\$)	\$2,026,696.08																		

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking		\$202.80													
hotel	\$1,000.00		\$1,000.00												
meal - breakfast/lunch/dinner	\$450.00		\$450.00												
printing											\$800.00				
rental	\$500.00		\$500.00												
airfare	\$500.00		\$500.00												
Total Expenses by Person	\$2,450.00	\$202.80	\$2,450.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$800.00	\$0.00	\$0.00		
Total Expenses for Task															\$5,902.80
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task															\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

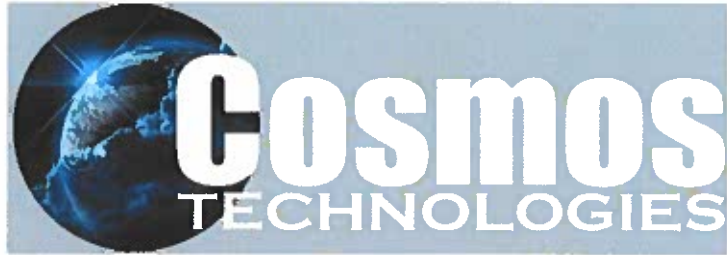
SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management		\$68,029.60				\$94,564.00			\$221,100.00					\$383,693.60
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey								\$990,000.00						\$990,000.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental														\$0.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	



November 2, 2021

Mr. Jason McBride
Wade Trim
Three Gateway Center
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

RE: Letter of Commitment
PWSA Wet Weather Program Manager

Dear Mr. McBride:

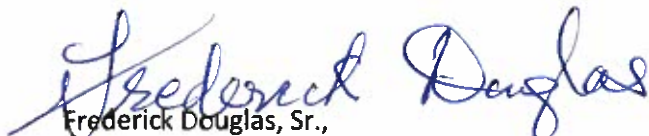
Cosmos Technologies Inc. (Cosmos) is pleased to be part of the team with Wade Trim for the above-referenced project.

We understand that Cosmos will provide General Civil Engineering Support and Field Services Support for flow monitoring. Our contract value is \$338,330.00.

Cosmos is a certified Minority/Disadvantaged Business Enterprise (Certification I.D. 1098).

If you require any additional information, please do not hesitate to contact me or Holly Douglas at (412) 321-3951 (office) or via email at hdouglas@cosmostechnologiesinc.com. Thank you for the opportunity.

Very truly yours,


Frederick Douglas, Sr.,
President



October 25, 2021

Mr. Jason McBride
Wade Trim
Three Gateway Center
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

**Subject: Letter of Commitment – PWSA Project No.: 2021-OPS-116-0
PWSA Wet Weather Program Manager**

Dear Mr. McBride:

Monaloh Basin Engineers thanks you for the opportunity to team with Wade Trim on the Pittsburgh Water & Sewer Authority (PWSA) Sludge Chamber Pump Project Contract. This letter serves as a commitment by Monaloh Basin Engineers, a certified Disadvantaged Business Enterprise (DBE), to participate in a subconsultant role with Wade Trim with a commitment price of \$990,000, which represents 5.84% of the contract.

We welcome the opportunity to provide you with engineering support service for the following types of projects related to this contract:

- Survey
- CAD Support

We look forward to working with you on this project.

Sincerely,

MONALOH BASIN ENGINEERS

A handwritten signature in black ink that reads "Massy Paul". The signature is written in a cursive, flowing style.

Massy Paul
President

Task Order No. WT-PRGM-09

Task Order Name: Model Development and Calibration for Wet Weather Program Manager Project

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$4842049.98				
MBE:	4%	WBE:	14%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

**PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES**

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+ approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSA's compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA's current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r^2 , PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. **Note that there is a table section for each Task type (budget code).**

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. **Note that the entries in this table are all inclusive of both labor and expenses.**

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task	
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant							
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide							
Enter Staff Role																			
1 PWSA Program Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
2 Program Management		170	220	2027	1544	2040	0	2960	1400	0	0	400			10761.00	\$1,482,340.00	\$52,382.55	\$1,889,835.66	\$3,424,558.21
3 Construction Management															0.00	\$0.00	\$0.00	\$0.00	\$0.00
4 Constructability Reviews															0.00	\$0.00	\$0.00	\$0.00	\$0.00
5 Professional Services															0.00	\$0.00	\$0.00	\$0.00	\$0.00
6 Design Engineering															0.00	\$0.00	\$0.00	\$0.00	\$0.00
7 Design Services During Construction															0.00	\$0.00	\$0.00	\$0.00	\$0.00
8 Planning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
9 Specialty Consultant/Specialty Service															0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Topographic Survey															0.00	\$0.00	\$0.00	\$0.00	\$0.00
11 GIS/CMMS															0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Geotechnical															0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Pipeline Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Environmental															0.00	\$0.00	\$0.00	\$1,260,000.00	\$1,260,000.00
15 Specialty Testing															0.00	\$0.00	\$0.00	\$0.00	\$0.00
16 Other Construction Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
17 Field Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
18 Testing and Specialty Inspections															0.00	\$0.00	\$0.00	\$0.00	\$0.00
19 Final Inspection and Commissioning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL HOURS		170	220	2027	1544	2040	0	2960	1400	0	0	400	0	0	10761.00	\$1,482,340.00	\$52,382.55	\$3,149,835.66	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67							
TOTAL LABOR COST (\$)		\$17,000.00	\$17,600.00	\$121,620.00	\$87,493.33	\$91,800.00	\$0.00	\$103,600.00	\$44,333.33	\$0.00	\$0.00	\$10,666.67	\$0.00	\$0.00					
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00					
TOTAL LABOR BILLING COST (\$)	\$1,482,339.99	\$51,000.00	\$52,800.00	\$364,860.00	\$262,479.99	\$275,400.00	\$0.00	\$310,800.00	\$132,999.99	\$0.00	\$0.00	\$32,000.01	\$0.00	\$0.00					
TOTAL EXPENSES (\$)	\$52,382.55																		
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$3,149,835.66																		
SUBCONSULTANT MARKUP (%)	5.00%																		
TOTAL SUBCONSULTANT COST	\$157,491.78																		
TOTAL FEE (\$)	\$4,842,049.98																		

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking	\$100.00	\$262.55													
hotel	\$12,000.00	\$6,000.00	\$6,000.00	\$2,000.00	\$3,500.00										
meal - breakfast/lunch/dinner	\$2,000.00	\$1,000.00	\$1,000.00	\$500.00	\$700.00										
printing											\$1,200.00				
rental	\$2,000.00	\$1,500.00	\$1,500.00	\$1,000.00	\$500.00										
airfare	\$3,000.00	\$1,500.00	\$1,500.00	\$1,000.00	\$2,500.00										
Total Expenses by Person	\$19,100.00	\$10,262.55	\$10,000.00	\$4,500.00	\$7,200.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,200.00	\$0.00	\$0.00		
Total Expenses for Task															\$52,262.55
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management		\$260,437.10	\$298,375.42				\$308,120.00		\$651,403.14	\$371,500.00				\$1,889,835.66
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental	\$1,090,836.00					\$169,164.00								\$1,260,000.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	



Collective Efforts, LLC
Civil and Environmental Engineers

October 25, 2021

Wade Trim
Three Gateway Center
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

Attn: Mr. Jason J. McBride, PE
Northeast Area Lead, Vice President

Subject: Letter of Commitment
Pittsburgh Water and Sewer Authority Wet Weather Program Management
City of Pittsburgh, Allegheny County, Pennsylvania
CE Proposal No. P-21-13016

Dear Mr. McBride:

Collective Efforts, LLC (Collective Efforts) thanks you for the opportunity to team with Wade Trim on the Pittsburgh Water and Sewer Authority (PWSA) Wet Weather Program Management. This letter serves as a commitment by Collective Efforts, a women-owned business and PAUCP-certified Disadvantaged Business Enterprise (DBE), to participate in a subcontract role with Wade Trim if awarded this contract. We will provide Environmental Impact Assessment Support, As Needed Permitting Support and Guidance, General Engineering Support and Field Services – WQ Field Sampling services with a total commitment price of \$437,675 which represents 2.58% of the contract.

We look forward to working with you and the others on the Wade Trim Team on this project.

Sincerely,

Collective Efforts, LLC

Tammi Halapin, PE
Principal



November 2, 2021

Mr. Jason McBride
Wade Trim
Three Gateway Center
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

RE: Letter of Commitment
PWSA Wet Weather Program Manager

Dear Mr. McBride:

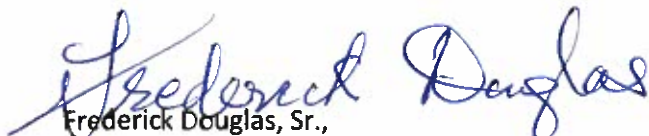
Cosmos Technologies Inc. (Cosmos) is pleased to be part of the team with Wade Trim for the above-referenced project.

We understand that Cosmos will provide General Civil Engineering Support and Field Services Support for flow monitoring. Our contract value is \$338,330.00.

Cosmos is a certified Minority/Disadvantaged Business Enterprise (Certification I.D. 1098).

If you require any additional information, please do not hesitate to contact me or Holly Douglas at (412) 321-3951 (office) or via email at hdouglas@cosmostechnologiesinc.com. Thank you for the opportunity.

Very truly yours,


Frederick Douglas, Sr.,
President

October 25, 2021

Jason McBride
Wade Trim
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

Re: R2O Proposal for PWSA Wet Weather Program Manager
PWSA Project No. 2021-OPS-116-0

Dear Mr. McBride:

R2O Consulting LLC is pleased to provide our proposal for professional engineering service in support of the above referenced project. We are a certified DBE and WBE with the State of Pennsylvania and Allegheny County, and we have attached our certificate for your reference.

Per our discussion, R2O anticipates providing 3.17-percent, or \$538,252 of the project in the performance of the following scope items:

- Assist in Regulatory Strategy
- General engineering support
- As-needed assistance in
 - Flow monitoring/modeling
 - Constructability
 - Cost Estimating

The specific scope of our efforts in supporting the above tasks will be developed in collaboration with you upon award of the contract.

The R2O team is ready and available to begin work upon receipt of a notice-to-proceed and executed subcontractor agreement. We appreciate this opportunity to assist you on this critical PWSA infrastructure project and we look forward to collaborating.

Regards,



Kellie Carpenter Rotunno, PE, BCEE
Chief Executive Officer

Attachments: WBE Certification, Allegheny County



Allegheny County
Department of Equity and Inclusion
204 County Office Building
542 Forbes Avenue
Pittsburgh, PA 15219
Phone: (412) 350-4309 Fax: (412) 350-4915
Email: DEICertification@AlleghenyCounty.US

PWSA Exhibit EB-15

May 11, 2021

Kellie Rotunno
R2O Consulting LLC
11215 Edgewater Drive
Cleveland, OH 44102

RE: Pennsylvania Unified Certification Program
DBE Continued Eligibility Letter

Disadvantaged Business Enterprise (DBE) Certification # 10152
Anniversary Date - Annually on Mar 29

Dear Kellie Rotunno:

The Allegheny County Department of Equity and Inclusion, a certifying participant in the Pennsylvania Unified Certification Program (PA UCP), has reviewed your Annual Affidavit as a Disadvantaged Business Enterprise (DBE) and is pleased to inform you that your firm appears to meet the requirements established by the United States Department of Transportation (US DOT) Code of Regulations. Accordingly, your firm can continue as a Disadvantaged Business Enterprise (DBE) to participate in the program in the following classification(s) only:

Provides engineering services including planning, design, and construction management for infrastructure projects. Experience in hydraulic design for stormwater, sanitary, and drinking water systems. Experience in managing projects involving heavy, civil, and underground structures, including tunnels.

NAICS Code(s):
541330
541370

If you wish to expand your status to include another type of business, you must contact the PA UCP for reevaluation prior to undertaking any projects as a DBE in the expanded area.

In the event of a change in circumstances affecting your ability to meet size, disadvantage, ownership, and control requirements of Part 26 or any material change in the information provided; you must inform the PA UCP by means of a sworn affidavit by the owners, describing in detail the nature of such changes.

You must provide this written "Notice of Change" within 30 days of the occurrence of change. Failure to do so will be deemed a failure to cooperate. We would also remind you that the PA UCP reserves the right to review your firm at any time to ensure compliance with the program.

We are pleased to continue to have you as a DBE and wish you continued success in acquiring work within the DBE program. If you have any questions, please contact 412-350-4309.

Sincerely,

Lisa L. Edmonds, MCA
Chief Equity and Inclusion Officer
Department of Equity and Inclusion

Task Order No. WT-PRGM-10

Task Order Name: Identify and Prioritize Alternatives for Wet Weather Program Manager Project

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$3899998.74				
MBE:	6%	WBE:	0%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSAs compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA's current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r^2 , PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. Note that there is a table section for each Task type (budget code).

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. Note that the entries in this table are all inclusive of both labor and expenses.

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task		
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant								
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide								
1 PWSA Program Costs																0.00	\$0.00	\$0.00	\$0.00	\$0.00
2 Program Management		910	1100	2333	2580	2406	0	3206	3336	400	2100	500				18871.00	\$2,623,900.00	\$49,302.73	\$1,168,377.16	\$3,841,579.89
3 Construction Management																0.00	\$0.00	\$0.00	\$0.00	\$0.00
4 Constructability Reviews																0.00	\$0.00	\$0.00	\$0.00	\$0.00
5 Professional Services																0.00	\$0.00	\$0.00	\$0.00	\$0.00
6 Design Engineering																0.00	\$0.00	\$0.00	\$0.00	\$0.00
7 Design Services During Construction																0.00	\$0.00	\$0.00	\$0.00	\$0.00
8 Planning																0.00	\$0.00	\$0.00	\$0.00	\$0.00
9 Specialty Consultant/Specialty Service																0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Topographic Survey																0.00	\$0.00	\$0.00	\$0.00	\$0.00
11 GIS/CMMS																0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Geotechnical																0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Pipeline Inspection																0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Environmental																0.00	\$0.00	\$0.00	\$0.00	\$0.00
15 Specialty Testing																0.00	\$0.00	\$0.00	\$0.00	\$0.00
16 Other Construction Costs																0.00	\$0.00	\$0.00	\$0.00	\$0.00
17 Field Inspection																0.00	\$0.00	\$0.00	\$0.00	\$0.00
18 Testing and Specialty Inspections																0.00	\$0.00	\$0.00	\$0.00	\$0.00
19 Final Inspection and Commissioning																0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL HOURS		910	1100	2333	2580	2406	0	3206	3336	400	2100	500	0	0	0	18871.00	\$2,623,900.00	\$49,302.73	\$1,168,377.16	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67								
TOTAL LABOR COST (\$)		\$91,000.00	\$88,000.00	\$139,980.00	\$146,200.00	\$108,270.00	\$0.00	\$112,210.00	\$105,640.00	\$14,000.00	\$56,000.00	\$13,333.33	\$0.00	\$0.00						
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00								
TOTAL LABOR BILLING COST (\$)	\$2,623,899.99	\$273,000.00	\$264,000.00	\$419,940.00	\$438,600.00	\$324,810.00	\$0.00	\$336,630.00	\$316,920.00	\$42,000.00	\$168,000.00	\$39,999.99	\$0.00	\$0.00						
TOTAL EXPENSES (\$)	\$49,302.73																			
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$1,168,377.16																			
SUBCONSULTANT MARKUP (%)	5.00%																			
TOTAL SUBCONSULTANT COST	\$58,418.86																			
TOTAL FEE (\$)	\$3,899,998.74																			

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking	\$100.00	\$242.73													
hotel	\$12,000.00	\$6,000.00	\$6,000.00	\$500.00	\$3,300.00										
meal - breakfast/lunch/dinner	\$2,000.00	\$1,000.00	\$1,000.00	\$100.00	\$600.00										
printing															
rental	\$2,000.00	\$1,500.00	\$1,500.00	\$500.00	\$400.00						\$1,000.00				
airfare	\$3,000.00	\$1,500.00	\$1,500.00	\$1,000.00	\$2,500.00										
Total Expenses by Person	\$19,100.00	\$10,242.73	\$10,000.00	\$2,100.00	\$6,800.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$0.00	\$0.00		
Total Expenses for Task															\$49,242.73
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task															\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name →	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification →	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management		\$574,991.00		\$153,786.16	\$235,600.00				\$204,000.00					\$1,168,377.16
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental														\$0.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	



October 25, 2021

Jason McBride, P.E.
Northeast Area Lead, Vice President
Wade - Trim
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

RE: PWSA Wet Weather Program Manager

Dear Jason,

Thank you for the opportunity to join the Wade-Trim team to provide public and stakeholder coordination for the PWSA Wet Weather Program Manager pursuit. We are proud to continue developing our partnership as we work to make Pittsburgh a more sustainability designed & modern city. In addition to our PWSA and regional water and wastewater experience and technical capabilities, E. Holdings, Inc. brings commitment and passion of local staff who understand the issues facing our region.

We understand you anticipate our level of effort to be \$615,145 or 3.63% of the total contract. If you have any questions about the enclosed items or require additional documentation, I can be reached at 412.434.6571 x 1011 or janai.smith@eholdingsinc.com.

Sincerely,
E. HOLDINGS, INC


Janai Williams Smith, Managing Director

Task Order No. WT-PRGM-11

Task Order Name: Stakeholder Coordination Services for Wet Weather Program Manager Project

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$744467.70				
MBE:	51%	WBE:	0%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

**PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES**

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSAs compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA’s current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r², PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. Note that there is a table section for each Task type (budget code).

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. Note that the entries in this table are all inclusive of both labor and expenses.

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task	
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant							
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide							
	Enter Staff Role																		
1 PWSA Program Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
2 Program Management		152	568	0	698	0	0	0	0	0	0	400		1818.00	\$332,580.00	\$13,365.82	\$379,544.65	\$725,490.47	
3 Construction Management														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
4 Constructability Reviews														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
5 Professional Services														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
6 Design Engineering														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
7 Design Services During Construction														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
8 Planning														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
9 Specialty Consultant/Specialty Service														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
10 Topographic Survey														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
11 GIS/CMMS														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
12 Geotechnical														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
13 Pipeline Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
14 Environmental														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
15 Specialty Testing														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
16 Other Construction Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
17 Field Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
18 Testing and Specialty Inspections														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
19 Final Inspection and Commissioning														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
TOTAL HOURS		152	568	0	698	0	0	0	0	0	0	400	0	1818.00	\$332,580.00	\$13,365.82	\$379,544.65		
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67							
TOTAL LABOR COST (\$)		\$15,200.00	\$45,440.00	\$0.00	\$39,553.33	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10,666.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00							
TOTAL LABOR BILLING COST (\$)	\$332,580.00	\$45,600.00	\$136,320.00	\$0.00	\$118,659.99	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32,000.01	\$0.00	\$0.00					
TOTAL EXPENSES (\$)	\$13,365.82																		
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$379,544.65																		
SUBCONSULTANT MARKUP (%)	5.00%																		
TOTAL SUBCONSULTANT COST	\$18,977.23																		
TOTAL FEE (\$)	\$744,467.70																		

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking		\$265.82													
hotel	\$5,100.00	\$1,600.00													
meal - breakfast/lunch/dinner	\$1,000.00	\$400.00													
printing											\$1,000.00				
rental	\$1,000.00	\$500.00													
airfare	\$1,500.00	\$1,000.00													
Total Expenses by Person	\$8,600.00	\$3,765.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$13,365.82
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name →	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification →	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management					\$379,544.65									\$379,544.65
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental														\$0.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	



October 25, 2021

Jason McBride, P.E.
Northeast Area Lead, Vice President
Wade - Trim
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

RE: PWSA Wet Weather Program Manager

Dear Jason,

Thank you for the opportunity to join the Wade-Trim team to provide public and stakeholder coordination for the PWSA Wet Weather Program Manager pursuit. We are proud to continue developing our partnership as we work to make Pittsburgh a more sustainability designed & modern city. In addition to our PWSA and regional water and wastewater experience and technical capabilities, E. Holdings, Inc. brings commitment and passion of local staff who understand the issues facing our region.

We understand you anticipate our level of effort to be \$615,145 or 3.63% of the total contract. If you have any questions about the enclosed items or require additional documentation, I can be reached at 412.434.6571 x 1011 or janai.smith@eholdingsinc.com.

Sincerely,
E. HOLDINGS, INC


Janai Williams Smith, Managing Director

Task Order No. WT-PRGM-12

Task Order Name: Act 537 Plan and LTCP for Wet Weather Program Manger Project

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$1203900.00				
MBE:	0%	WBE:	0%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+ approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSA's compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA's current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r^2 , PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. Note that there is a table section for each Task type (budget code).

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. Note that the entries in this table are all inclusive of both labor and expenses.

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant						
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide						
	Enter Staff Role																	
1 PWSA Program Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00
2 Program Management		340	610	0	960	905	0	1160	1000	0	0	600		5575.00	\$798,575.00	\$7,245.31	\$379,123.50	\$1,184,943.81
3 Construction Management														0.00	\$0.00	\$0.00	\$0.00	\$0.00
4 Constructability Reviews														0.00	\$0.00	\$0.00	\$0.00	\$0.00
5 Professional Services														0.00	\$0.00	\$0.00	\$0.00	\$0.00
6 Design Engineering														0.00	\$0.00	\$0.00	\$0.00	\$0.00
7 Design Services During Construction														0.00	\$0.00	\$0.00	\$0.00	\$0.00
8 Planning														0.00	\$0.00	\$0.00	\$0.00	\$0.00
9 Specialty Consultant/Specialty Service														0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Topographic Survey														0.00	\$0.00	\$0.00	\$0.00	\$0.00
11 GIS/CMMS														0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Geotechnical														0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Pipeline Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Environmental														0.00	\$0.00	\$0.00	\$0.00	\$0.00
15 Specialty Testing														0.00	\$0.00	\$0.00	\$0.00	\$0.00
16 Other Construction Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00
17 Field Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00
18 Testing and Specialty Inspections														0.00	\$0.00	\$0.00	\$0.00	\$0.00
19 Final Inspection and Commissioning														0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL HOURS		340	610	0	960	905	0	1160	1000	0	0	600	0	5575.00	\$798,575.00	\$7,245.31	\$379,123.50	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67						
TOTAL LABOR COST (\$)		\$34,000.00	\$48,800.00	\$0.00	\$54,400.00	\$40,725.00	\$0.00	\$40,600.00	\$31,666.67	\$0.00	\$0.00	\$16,000.00	\$0.00	\$0.00				
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00						
TOTAL LABOR BILLING COST (\$)	\$798,575.01	\$102,000.00	\$146,400.00	\$0.00	\$163,200.00	\$122,175.00	\$0.00	\$121,800.00	\$95,000.01	\$0.00	\$0.00	\$48,000.00	\$0.00	\$0.00				
TOTAL EXPENSES (\$)	\$7,245.31																	
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$379,123.50																	
SUBCONSULTANT MARKUP (%)	5.00%																	
TOTAL SUBCONSULTANT COST	\$18,956.18																	
TOTAL FEE (\$)	\$1,203,900.00																	

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking		\$245.31													
hotel	\$2,500.00														
meal - breakfast/lunch/dinner	\$500.00														
printing											\$2,500.00				
rental	\$500.00														
airfare	\$1,000.00														
Total Expenses by Person	\$4,500.00	\$245.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,500.00	\$0.00	\$0.00		
Total Expenses for Task															\$7,245.31
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task															\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management		\$379,123.50												\$379,123.50
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental														\$0.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	

Task Order No. WT-PRGM-13

**Task Order Name: Environmental Impact Assessment for Wet
Weather Program Manager Project**

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$266486.55				
MBE:	0%	WBE:	52%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

**PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES**

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+ approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSAs compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA's current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r^2 , PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. Note that there is a table section for each Task type (budget code).

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. Note that the entries in this table are all inclusive of both labor and expenses.

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task	
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant							
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide							
	Enter Staff Role																		
1 PWSA Program Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
2 Program Management		0	16	0	0	0	0	0	0	0	0	0	0	16.00	\$3,840.00	\$13.20	\$250,127.00	\$253,980.20	
3 Construction Management														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
4 Constructability Reviews														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
5 Professional Services														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
6 Design Engineering														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
7 Design Services During Construction														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
8 Planning														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
9 Specialty Consultant/Specialty Service														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
10 Topographic Survey														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
11 GIS/CMMS														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
12 Geotechnical														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
13 Pipeline Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
14 Environmental														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
15 Specialty Testing														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
16 Other Construction Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
17 Field Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
18 Testing and Specialty Inspections														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
19 Final Inspection and Commissioning														0.00	\$0.00	\$0.00	\$0.00	\$0.00	
TOTAL HOURS		0	16	0	0	0	0	0	0	0	0	0	0	0	16.00	\$3,840.00	\$13.20	\$250,127.00	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67							
TOTAL LABOR COST (\$)		\$0.00	\$1,280.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00							
TOTAL LABOR BILLING COST (\$)	\$3,840.00	\$0.00	\$3,840.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL EXPENSES (\$)	\$13.20																		
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$250,127.00																		
SUBCONSULTANT MARKUP (%)	5.00%																		
TOTAL SUBCONSULTANT COST	\$12,506.35																		
TOTAL FEE (\$)	\$266,486.55																		

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking		\$13.20													
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$13.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$13.20
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task															\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name →	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification →	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management		\$110,827.00	\$139,300.00											\$250,127.00
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental														\$0.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	



Collective Efforts, LLC
Civil and Environmental Engineers

October 25, 2021

Wade Trim
Three Gateway Center
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

Attn: Mr. Jason J. McBride, PE
Northeast Area Lead, Vice President

Subject: Letter of Commitment
Pittsburgh Water and Sewer Authority Wet Weather Program Management
City of Pittsburgh, Allegheny County, Pennsylvania
CE Proposal No. P-21-13016

Dear Mr. McBride:

Collective Efforts, LLC (Collective Efforts) thanks you for the opportunity to team with Wade Trim on the Pittsburgh Water and Sewer Authority (PWSA) Wet Weather Program Management. This letter serves as a commitment by Collective Efforts, a women-owned business and PAUCP-certified Disadvantaged Business Enterprise (DBE), to participate in a subcontract role with Wade Trim if awarded this contract. We will provide Environmental Impact Assessment Support, As Needed Permitting Support and Guidance, General Engineering Support and Field Services – WQ Field Sampling services with a total commitment price of \$437,675 which represents 2.58% of the contract.

We look forward to working with you and the others on the Wade Trim Team on this project.

Sincerely,

Collective Efforts, LLC

A handwritten signature in blue ink that reads "Karen Napoli for".

Tammi Halapin, PE
Principal

Task Order No. WT-PRGM-14

Task Order Name: Third Party Regionalization Validation for Wet Weather Program Manager Project

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$315814.59				
MBE:	0%	WBE:	0%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

**PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES**

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSAs compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA's current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r^2 , PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. Note that there is a table section for each Task type (budget code).

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. Note that the entries in this table are all inclusive of both labor and expenses.

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task	
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant							
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide							
Enter Staff Role																			
1 PWSA Program Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
2 Program Management		0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	\$0.00	\$0.00	\$300,775.80	\$300,775.80
3 Construction Management															0.00	\$0.00	\$0.00	\$0.00	\$0.00
4 Constructability Reviews															0.00	\$0.00	\$0.00	\$0.00	\$0.00
5 Professional Services															0.00	\$0.00	\$0.00	\$0.00	\$0.00
6 Design Engineering															0.00	\$0.00	\$0.00	\$0.00	\$0.00
7 Design Services During Construction															0.00	\$0.00	\$0.00	\$0.00	\$0.00
8 Planning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
9 Specialty Consultant/Specialty Service															0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Topographic Survey															0.00	\$0.00	\$0.00	\$0.00	\$0.00
11 GIS/CMMS															0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Geotechnical															0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Pipeline Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Environmental															0.00	\$0.00	\$0.00	\$0.00	\$0.00
15 Specialty Testing															0.00	\$0.00	\$0.00	\$0.00	\$0.00
16 Other Construction Costs															0.00	\$0.00	\$0.00	\$0.00	\$0.00
17 Field Inspection															0.00	\$0.00	\$0.00	\$0.00	\$0.00
18 Testing and Specialty Inspections															0.00	\$0.00	\$0.00	\$0.00	\$0.00
19 Final Inspection and Commissioning															0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL HOURS		0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	\$0.00	\$0.00	\$300,775.80	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67							
TOTAL LABOR COST (\$)		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00	\$0.00			
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00							
TOTAL LABOR BILLING COST (\$)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00					
TOTAL EXPENSES (\$)	\$0.00																		
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$300,775.80																		
SUBCONSULTANT MARKUP (%)	5.00%																		
TOTAL SUBCONSULTANT COST	\$15,038.79																		
TOTAL FEE (\$)	\$315,814.59																		

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)														
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0		
PWSA Program Costs															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Program Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Construction Management															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Constructability Reviews															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Professional Services															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															
airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task															\$0.00
Design Engineering															
EXPENSE ITEM															
parking															
hotel															
meal - breakfast/lunch/dinner															
printing															
rental															

airfare															
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task															\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management		\$300,775.80												\$300,775.80
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental														\$0.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	

Task Order No. WT-PRGM-15

Task Order Name: Evaluation of GSI Effectiveness for Wet Weather Program Manager Project

This Task Order Amendment is made as of the Effective Date, by and between **The Pittsburgh Water and Sewer Authority** (the “Authority”) and **Wade Trim, Inc. (Ops)**, (“the Consultant”).

Consultant Firm: Wade Trim, Inc. (Ops)

Contract Name: Wet Weather Program

Agreement between the Authority and the Consultant dated 11.01.2021

Prior Task Order/Amendments Applicable to this Task: N/A

The schedule for the completion of the Services under this Task Order is incorporated herein. The details of the schedule are as follows or as detailed in the separate schedule, attached as Exhibit B. The time limits established by the schedule shall not be exceeded without reasonable cause. The schedule may be amended with the Authority’s written consent as the Task proceeds.

Start Date:	11.01.2021
Completion Date:	10.31.2024

The Authority’s budget is attached hereto as Exhibit C and incorporated herein.

Where the Fee is based on Agreement rates, the Fee may not exceed the budgeted amount. The budget may be amended with the Authority’s written consent.

Fee:	\$507000.00				
MBE:	15%	WBE:	0%	SDVBE:	%

A detailed Scope is attached hereto as Exhibit A and incorporated herein.

Exhibit A: Scope of Services

See Exhibit A

Chief Executive Officer:	Will Pickering
Date Approved:	11.12.2021
Director of Engineering:	Barry King
Date Approved:	11.10.2021
Program Manager:	Kate Mechler
Date Approved:	11.10.2021

Wet Weather Program Manager

2021-OPS-116-0

Project Manager:

Ana Flores

Date Approved:

11.09.2021

PITTSBURGH WATER AND SEWER AUTHORITY
WET WEATHER PROGRAM MANAGER
PWSA PROJECT NO. 2021-OPS-116-0
FINAL SCOPE OF SERVICES

PROJECT OBJECTIVES

The specific objectives of the Wet Weather Program Manager are as follows:

- Assist in developing PWSA's Long Term Control Plan (LTCP) for the control of combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) remediation plan, which will comprise a Wet Weather Plan or one or more similar documents. Provide program management services, advise, and consult with PWSA, its engineering staff, and its legal counsel (including translating technical information into a form useable by counsel) in the negotiation of a consent decree with the United States and Pennsylvania Department of Environmental Protection (DEP) addressing, among other things, the control of CSOs and remediation of SSOs from PWSA's sewer system (a Wet Weather Decree).
- Develop plans for improvements of PWSA sewer system facilities to bring combined sewer overflows into compliance with the CSO Control Policy and to remediate SSOs.
- Perform a level of service peer review and identify the current stormwater level of service the current PWSA system provides.
- Develop a range of alternatives to provide control and management of stormwater and manage basement backups and overland flooding to an appropriate, affordable level of service.
- Assist PWSA and its legal counsel in the coordination of planning, regulatory obligations, and capital improvements with upstream and downstream municipalities and ALCOSAN, where applicable.
- Conduct evaluations to account for the impact of projects implemented under ALCOSAN's consent decree and regionalization program on PWSA's development of CSO and SSO controls, and vice versa.
- Perform engineering and public participation activities in support of the development of a Wet Weather Plan, and obligations arising under municipal orders, enforcement orders, and any Wet Weather Decree entered into by PWSA.
- Develop analyses to assist PWSA's legal counsel in its addressing regulatory and legal issues associated with wet weather planning, including resolution of related enforcement actions.

SUMMARY OF WET WEATHER PLANNING TASKS

Program management services include oversight and coordination of the following activities in support of the development of a Wet Weather Plan or similar planning documents, consisting of a LTCP to control CSOs and a plan to remediate SSOs (collectively, a Wet Weather Plan in connection with the above negotiations), and plans to provide effective stormwater management. The wet weather planning work typically includes those engineering activities required to produce plans and other deliverables to be submitted to regulatory agencies, including the DEP, the Allegheny County Health Department (ACHD), United States Department of Justice,

(DOJ), and the United States Environmental Protection Agency (EPA). Many of the tasks will require familiarity with and the use of guidance documents issued by EPA and DEP. The production of interim work products and the Wet Weather Plan will be in support of negotiating a consent decree, assisting PWSA in complying with the requirements of the Wet Weather Decree and other regulatory requirements arising under the Pennsylvania Clean Streams Law and the federal Clean Water Act (CWA).

The following is a list of the tasks to be performed by the Wet Weather Program Manager.

- Task 1 - Program Management Services
 - Support the negotiation and the development of a consent decree and development of a Wet Weather Plan
 - Provide on-call engineering services
- Task 2 - Data Gathering
 - Review and determine DEP Act 537 Plan update requirements and permitting requirements for conveyance, storage and treatment
 - Review EPA guidance documents relating to CSO and SSO control
 - Review CSO/SSO consent decrees entered by other municipalities, as well as LTCPs and SSO elimination plans developed by other municipalities
 - Map with GIS, delineate and collect field survey data within planning basins.
 - Investigate sewer system and develop a system characterization study for PWSA's combined and sanitary sewer systems
 - Conduct site investigation
 - Evaluate the impact of CSOs on receiving waters
- Task 3 - Model Development and Calibration
 - Monitor flow and hydraulic conditions to inform system characterization and the selection of CSO and SSO controls
 - Develop a hydraulic and hydrologic model for PWSA's combined and sanitary sewers that reflects prior modeling information and additional monitoring data
 - Perform level of service peer review and develop current level of service thematic map
- Task 4 - Alternative identification and prioritization
 - Develop an alternative analysis for the control of CSOs and SSOs, including the development of cost-performance curves to assist in analysis
 - Develop an implementation schedule for CSO and SSO controls informed by and coordinated with a financial impact and affordability analysis
 - Identify CSO and SSO control technical alternatives
- Task 5 - Stakeholder Coordination
 - Coordinate wet weather planning and program development efforts with ALCOSAN and other municipalities in the Pittsburgh Region
 - Coordinate wet weather planning and program development efforts with community outreach and stakeholder engagement initiatives
 - Develop public participation program to inform wet weather planning and program development efforts

- Public participation program
- Task 6 - Final Act 537 Plan and Wet Weather Plan/LTCP and Recommendations
- Task 7 - Conduct environmental impact assessments of projects
- Task 8 – 3rd Party Assessment of Sewer Assets
- Task 9 – Post Construction Evaluation of GI Effectiveness

DETAIL OF WET WEATHER PLANNING TASKS

1. Program Management Services

1.1 Program Management

1.1.1 *General*

- Provide program management services that include oversight and coordination of activities in support of the development of a LTCP to control CSOs and a plan to remediate SSOs.
- A Program Management Plan will be prepared that summarizes the procedures that will be used to manage the program. Our PMP will include Program Scope & Goals, Program Constraints, Program Performance Metrics, Program Organization, Project Controls, Safety, Quality Assurance, Communication Protocols, Environmental & Permits Compliance and Risk Management. A draft Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.
- Ongoing management, coordination with PWSA and team members, communications, and project management activities will be conducted to manage the work.
- Ongoing document management will be conducted to facilitate file sharing between PWSA and our team.
- Develop and manage program schedules. An overall baseline schedule will be developed and updated monthly to reflect the progress of the work.
- Manage quality assurance/quality control of programs. A QA/QC plan will be developed and documented in the PMP. Quality reviews will be documented and conducted on all deliverables.
- Prepare and present periodic status program and project reviews, including establishing formal and informal milestones and performance metrics. Performance metrics will be developed and documented in the PMP. Monthly progress reports that include a summary of work activities completed during the previous period, planned activities for the next period, and critical action items will be prepared and submitted to PWSA as part of our monthly invoicing.
- Conduct meetings with PWSA, its engineering staff, and its legal counsel as needed to discuss the progress of the project and review key deliverables. These meetings may include a project kickoff meeting, as well as meetings with the executive PWSA team to present an executive summary of the progress of the project and key decisions needed to be made. Agendas and presentation materials will be prepared. Meeting summaries will be submitted following the meetings. **A total of 72 progress meetings, 12 miscellaneous meetings and 6 executive sessions have been assumed.**

- Provide planning-level risk management in accordance with industry standards and guidelines. A risk management plan will be prepared and included within the PMP. An initial risk development workshop will be held to review and provide input on the plan and risk register. The risk register will be updated on a quarterly basis and discussed within the regular progress meetings.

Deliverables: Draft and Final Project Management Plan; Meeting Agendas, Presentations and Summaries; Monthly Progress Reports, Schedule and Invoicing; Risk Registers

1.1.2 Regulatory Support

- The purpose of this task will be to advise and consult with PWSA, its engineering staff, and its legal counsel in the negotiation of a consent decree. Meetings will be held to prepare for EPA meetings, discuss matters with EPA and debrief on follow-up items. Agendas, technical work, presentation materials, and meeting summaries will be developed for all meetings.
- **A total of 108 meetings have been assumed over a 36-month period at an average level of effort of 16 hours/meeting for regulatory team preparation and attendance and 100 hours/month for technical support time to develop content, review, documents, and address questions from EPA or others.**
- The purpose of this task is to establish compliance priorities and to provide support to PWSA in the ongoing discussions with US EPA and PA DEP to work towards acceptance of required compliance deliverables, an LTCP 1080+ approach as it is developed. We will provide technical support and guidance for the ongoing negotiations with USEPA and PA DEP under this task by helping to gain regulatory acceptance for PWSA's compliance strategy.
- The goal of this task will be to define strategies to develop the various work approaches, programs, descriptions for capital projects, capital costs/benefits, and schedule implications for presentation to regulatory agencies. We will also review and evaluate any deliverables or documents submitted to US EPA, PA DEP and others as directed that may have impact on the CSO update / Integrated Plan and schedules.
- This task will be managed on a time and material basis as directed by the PWSA and working in conjunction with the legal and rate consulting teams to develop specific products to support regulatory discussion.
- The focus of this task will center on meetings and staff work on development of documents to support the negotiation process and work to gain acceptance for compliance documentation. Much of the work will be driven by evaluation of existing compliance documents, development of PWSA LTCP goals and guiding deliverables to build a case for technical acceptance by US EPA and PA DEP.

Deliverables: Meeting Agendas, Presentations and Summaries; Various correspondence needed to support ongoing discussions

1.1.3 Other Services

A. CMOM Program

The purpose of this task is to develop and document a Capacity, Management, Operation and Maintenance (CMOM) program. We will review existing information on CMOM activities, meet with PWSA to understand the program and develop a recommended plan for PWSA.

PWSA's Capacity, Management, Operations and Maintenance (CMOM) Program forms the foundation for PWSA to meet its customer service demands, sustain infrastructure performance, comply with regulatory requirements, and manage its resources. The objectives of this task are:

- Compile PWSA's current CMOM documentation and assess the program components against industry best practices, PWSA's organizational goals, and applicable regulatory requirements
- Develop a set of priority improvements to address potential gaps identified in the assessment
- Establish a Program Document that, when implemented, provides a proactive defense from regulatory enforcement action and leads to improved system performance and cost savings.

CMOM assessment will benchmark PWSA's current program against likely EPA Region 3 expectations, regulatory precedence, and utility best practices. This review will be focused on the sanitary sewer service area of PWSA and the capacity assurance, management, operations, and maintenance activities specific to that portion of the system. It is assumed that the Nine Minimum Controls (NMC) activities of PWSA cover similar aspects for the combined sewer system and are outside the scope of this effort.

We will assess current programs, policies, and practices. Existing documentation will be compiled and evaluated to establish priority areas for improvement. The assessment will include evaluation of SSO causes, review of existing CMOM documentation, interviews, and field observations.

We will evaluate PWSA's SSO data to develop an understanding of the number and volume of sanitary sewer overflows by cause over the past 5 years (2016-2020). SSOs will also be plotted in GIS to identify any geographic trends. The SSO cause and spatial analysis will allow us to consider how PWSA's CMOM Programs are structured to solve system-specific needs.

We will submit an information request to PWSA to gather existing CMOM-related program documentation, policies and procedures. We will review existing documentation, assess the completeness of the program, and identify potential gaps with accepted best utility practices in the following areas:

- Goals, Visions and Support
- Organization
- System Knowledge
- Capacity Management

- Engineering and Construction
- Asset Inspection and Condition Assessment
- Rehabilitation and Replacement Program
- Maintenance Programs and Procedures
- FOG Program
- SSO Tracking, Analysis and Reporting
- Overflow Emergency Response
- Budgeting
- Training
- Safety
- Customer Service
- Information Management
- Information Systems

We will conduct interviews with PWSA staff over a 5-day period, including personnel from management, engineering, planning, operations and maintenance. During the interviews we will discuss policies and practices related to organizational structure/communications, work management processes, information management processes, inspections; rehabilitation (pipeline, manhole, and removal of illegal connections); fats, oils, and grease (FOG) control; new construction standards and inspections; Emergency Response Procedures; preventative, predictive, and corrective maintenance practices including sewer cleaning; and staff training, knowledge skills, and abilities.

Observation of the operations and maintenance (O&M) crew work practices will validate what was heard during the interview process and identify additional opportunities for improvement. A senior collection system operations expert will spend 2 days in the field observing the way in which crews accomplish O&M tasks such as inspections, CCTV, line cleaning, point repair, root control, pump station maintenance, and emergency response where possible.

The results of the CMOM Program assessment will be presented to PWSA in a workshop with recommendations for improvements. Based on PWSA's feedback and input, an Implementation Plan will be established that identifies areas for improvement, the scope of effort involved by both our and PWSA staff, estimated labor-hours and schedule. The Implementation Plan will focus on improvement that provide maximum benefit to PWSA.

- Describe the Gap Assessment framework including regulatory requirements and effective industry business practices
- Present the SSO cause analysis results
- Confirm PWSA's CMOM Program goals
- Gain input on our assessment of current business practices and programs
- Prioritize areas for improvement. The prioritization process will consider the current program status, as well as the importance of the various programs and practices in meeting PWSA's specific CMOM Program goals
- Develop consensus on improvement areas and priorities.

Based on the results of the workshop, we will develop a CMOM Program Summary, documenting the CMOM assessment, and a Work Plan for high impact improvements to current programs and practices. We will conduct a final consensus workshop to validate the draft CMOM Program summary and allow staff to make adjustments before finalizing the Work Plan. We will finalize the CMOM Assessment to include the agreed upon improvement initiatives and proposed timelines. A draft overall CMOM Plan will be submitted to PWSA for review and comment prior to submittal of a final Plan.

Ongoing support activities such as training, data review, and development of procedures can also be conducted to assist PWSA in implementation of the plan as an additional service.

Deliverables: Draft and Final CMOM Plan

Level of Effort Assumption:

- **Will conduct two (2) workshops and up to 5 days of interviews and field visits with PWSA Staff.**

B. Assist with PWSA's Nine Minimum Controls (NMCs) program

- We will review existing NMC documentation and provide a Technical Memorandum summarizing review comments and recommendations.
- **Ongoing support activities such as training, data review, and development of procedures can be conducted to assist PWSA in implementation as an additional service.**

Deliverables: Draft and Final NMC Review TM

1.2 On-call Engineering Services

1.2.1 General On-Call

To support the development and ongoing progression of the Wet Weather Plan, various engineering services may be required at the request of PWSA. Specific tasks will be identified and a mutually agreeable scope, budget and schedule to complete the task will be developed by Wade Trim and PWSA. In general, examples of the services that may be performed under this task include:

- Conceptual infrastructure studies
- Design and construction engineering services
- Asset management activities
- Value engineering studies
- Oversight of consultants that may perform design and construction engineering services for wet weather projects.
- Coordinate the design of PWSA system improvements developed as part of the wet weather planning efforts with proposed improvements of the ALCOSAN and upstream/downstream municipal systems

An allowance has been established to support these activities. Work will be performed at the approval of PWSA and up to the limit included in this authorization.

Deliverables: To be determined based on nature of approved task activities.

1.2.2 Sewer Condition Assessment

This task has been removed from the scope.

1.2.3 Asset Management

The general objective of this task is to develop the methodology and best practices to assist PSWA better manage their assets. Asset Management (AM) services will focus on aligning strategic objectives with stakeholder level of service expectations to develop a risk-based approach to manage the entire lifecycle of program assets. Collaboration with PWSA staff will be integral to success and initial efforts will focus on understanding current best AM practices, identifying gaps, and developing an actionable roadmap for AM implementation. Implementation items will be prioritized and quick win and near team activities that achievable and provide the most value to PWSA will be identified. AM implementation assistance will be provided based on PWSA requests for assistance. Planned AM Services include:

- Review and assess the existing AM program and system operational documentation and provide a gap analysis relative to utility best practices and develop recommendations
- Develop or Update the PWSA Asset Management Vision to incorporate key wet weather program priorities
- Form and charter an AM team of PWSA key staff that can build and then take on the implementation of the program
- Develop AM program charter and AM methodology and best practices training content
- Conduct AM program evaluation and gap analysis between current and desired future state
- Prepare actionable AM program implementation roadmap that details prioritized AM activities
- Organize, integrate, and embed overall PWSA strategic goals in the AM framework and corresponding LOS goals and evaluation criteria for alternative evaluation
- Develop and enhance PWSA's use and operation of Innovyze Info Asset Manager including training of existing staff.
- Organize system replacement and future CIP data for use in the alternative evaluation
- Coach and mentor PWSA staff using subject matter experts that can provide guidance on continuous AM program development
- The following strategic and tactical topics will be discussed with each of the groups listed above, as applicable, as part of the assessment:
 - Decision Making and Capital Planning
 - CIP Development and Prioritization
 - Design & Construction
 - Funding
 - Information Systems and Data Management
 - Data Systems Tools
 - Organizational Framework
 - Communications

- Risk Management
 - Operations and Maintenance
 - Inventory/Warehouse
 - Maintenance Strategy
 - Operations Strategy
 - Optimization
 - Culture and Change Management
 - Document Management
 - Leadership and Commitment
 - Levels of Service and Performance Evaluation
 - Resource Management
- This task is intended to establish a program that PWSA can run independently. **Ongoing support beyond the budget for this task can be provided to support activities as an additional service.**

Deliverables:

Information Request, copies of meeting materials, draft and final AM program charter, AM training materials, AM gap analysis, AM roadmap and supporting materials developed as part of implementation activities.

1.2.4 Compliance Review of Selected Sewer Improvement Projects

PWSA has identified two (2) sewer improvements projects (Browns Hill Road Pump Station and 31st Ward Sewer System) that PWSA plans to procure outside consultants and start work 12 months from the NTP of this contract. **PWSA will maintain a project manager to provide administrative oversight of outside consultant activities.**

In general, our activities will include:

- Reviewing and providing input on outside design sewer consultant RFPs.
- Conducting 30%, 60%, and 90% compliance reviews to assess ability of the proposed design to meet regulatory requirements.
- Coordination meetings to discuss reviews and responses.

Deliverables: Technical Review Comments

Level of Effort Assumptions:

- **Attendance at up to 8 project meetings total among 2 projects**
- **Technical review of design discipline work and constructability reviews will be conducted by others.**

2. Data Gathering

2.1 Evaluate existing information and analyses

- Review wet weather-related studies in the region, such as the ALCOSAN Clean Water Plan, 2008 Feasibility Report, 2013 PWSA Feasibility Report, 2016 Citywide Green First Plan, Controlling the Source, RAND Climate Change study, PWSA’s current Stormwater Master Planning initiative, and other documents that PWSA deems appropriate.
- Sections in an Existing Data Review TM will be prepared that summarize important findings and information relative to the current study effort.

Deliverables: Draft Existing Data Review TM Sections

2.2 Gather county, state and PWSA system information (sewer maps, inspection data, hydraulic overload problems, ACHD complaints)

2.2.1 Data Gap Analysis

- Relevant data that Allegheny County and State agencies may have will be requested and reviewed.
- PWSA will provide:
 - Existing GIS system database of existing sewer assets and any required sewer maps (critical information includes pipe diameters, lengths, invert elevations, and rim elevations).
 - Inspection and sewer back up complaint data
 - Information on known sewer hydraulic bottlenecks and surface flooding issues
 - Known areas of heavy inflow and infiltration, SSO and CSO locations
- Data relative to sewer and street flooding will be requested from ACHD and information provided reviewed and incorporated into the project GIS database.
- Additional existing collector sewer system information and reporting data will be reviewed. The Existing Data Review TM will be updated with the findings from other tasks. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- A Data Gap Analysis TM will be prepared that summarizes additional data collection and field investigations needed to support the study along with a level of effort. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Existing Data Review TM; Draft and Final Data Gap Analysis Review TM

Level of Effort Assumption:

- **Assumes that the existing PWSA GIS database of sewer data is of sufficient accuracy to support the planning level activities**
- **Assumes approximately 200 staff hours/month for 6 months**

2.2.2 Determination of Critical Areas

- Complaint records provided by PWSA will be reviewed and screened to identify issues related to documented system problems. A map of complaint locations for sewer backups and street flooding will be developed.
- **A significant number of pipes covering the local systems is not included in the current PWSA hydraulic models. It is anticipated that inclusion of all the sewer elements would be a significant undertaking from a data collection, model upgrade and model run time perspective. Therefore, the base models will be expanded to focus only on critical areas that have experienced historically high levels of sewer back-ups and/or street flooding. All system pipes (storm and sanitary) will not be modeled.**

- A desktop hydraulic analysis will be conducted using the existing hydraulic models for sewers included in the PWSA system for a range of storm events to identify the capacity of the existing sewer lines. Major sewers (>18") not included in the model where adequate physical data is available will also be checked for capacity using existing GIS data (topo, manhole depths); standard pipe capacity calculations; and compared to modeled peak flows adjusted on an area weighted basis. The locations of known complaints will be compared to the capacity check to identify likely areas of concern.
- "Critical portions" of the PWSA system will be identified. "Critical portions" include pump stations, trunk sewers, points of overflow activity, basement back-up areas, surface flooding, or areas of excessive infiltration and inflow (I/I). At the time of this scope preparation, the number of critical areas is unknown. **For the purposes of this task, it is assumed that 20 to 30 sewer backup and 6 to 10 stormwater flooding subsheds will be identified for further analysis.**

Deliverables: Draft and Final Critical Areas Definition TM

2.3 Investigate PWSA sewer system

2.3.1 Stream Inflow and Acid Mine Drainage (AMD) Map

- Identify and locate any stream inflow sources and acid mine drainage discharges along the critical portions of the PWSA sewer system using **existing data sources**. The potential sewersheds for stream inflow sources will be identified from the past and pending regional flow monitoring work, and PWSA input.

Deliverables: Draft and Final Stream Inflow and AMD Map

Level of Effort Assumptions:

- **No field work such as stream walks, sampling, or other investigation will be conducted.**

2.3.2 Field Data Collection Allowance

- Upon approval from PWSA, work to conduct additional field data collection activities identified with Task 2.3.1 will be conducted within the available budget included within the field allowance. Field data will be entered into the appropriate asset management databases. Additional field collection efforts shall be conducted as an additional service.
- The proposed field data allowance was developed based on an assumption of 400 days of field survey intended to collect data on approximately 8,000 structures (based on 20 structures/10 hr-day @\$2,200/day including survey and post processing). This data includes limited spot checks of approximately 10% of existing modeled areas and assumes data can be collected from the surface without the need for confined space entry or significant traffic control procedures. **No LIDAR, detailed topographic and surveys on private property or within homes for purposes of determination of basement inverts or first floor elevations**

- A summary of the data collected will be provided in a draft and final Field Data Collection Summary Technical Memorandum.

Deliverables: Draft and Final Field Data Collection Summary TM, Field notes and database

2.4 Coordinate on System Improvements and Technical Alternatives with Others

- Request and coordinate with ALCOSAN/municipalities to obtain information on proposed system improvements for use in study work. This includes information on proposed tunnels and consolidation sewers, CSO regulator, pumping, storage tanks, RTBs, Green Infrastructure, Source Control, WWTP and other improvements that can impact overflows in the PWSA collection system.
- A review will also be conducted of major development and PWSA projects (that would have an impact on planning efforts) to determine which should be advanced into the model. It is assumed that PWSA will provide the hydraulic, as-built and/or survey data relative to these improvement projects. **Assumed no more than 10 sewer improvement projects will be included.**
- A summary of the proposed major improvements that will be included in a Baseline Model to evaluate additional alternatives will be documented in a System Inventory TM. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Planned ALCOSAN, PWSA and upstream/downstream municipal improvements will be considered in related modeling and cost analysis in subsequent tasks.
- Ongoing coordination with ALCOSAN throughout the project will also be tracked under this item.

Deliverables: Draft and Final System Inventory TM

Level of Effort Assumption:

- **Assumes up to a total of 60 meetings with representatives of ALCOSAN, Point of Connection (POC) Groups with municipal officials, and 3 Rivers Wet Weather**
- **Assume no new Clean Water Plan design changes**

2.5 Determine regulatory permitting requirements for conveyance and storage

- We will participate in meetings with DEP to establish or confirm the regulatory permitting requirements and related design standards and control approach to be used in the sizing, performance, and layout of facilities to be proposed, designed, or built as part of PWSA's wet weather planning program. **Assume up to 6 meetings for coordination.**
- To prepare for the discussions, a Draft Regulatory Permitting Requirements TM will be prepared that summarizes current criteria for sewers and facilities for PWSA and regional entities along with proposed criteria for facilities to be sized and designed under this program. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.

Deliverables: Draft and Final Regulatory Permitting Requirements TM

3. Develop and calibrate model(s)

3.1 Water Quality Sampling, Analysis Tool Development and Evaluations

3.1.1 Water Quality Data and Information Compilation, Review and Evaluation

- We will compile and review water quality data and related information for the receiving waters impacted by PWSA wet weather discharges and data on sources of pollutants. This will include:
 - Data collected and provided by PWSA as well as publicly available data. We will also develop a request for data collected by ALCOSAN/3RWW. We will compile water quality data in Excel and/or Access for review and evaluation.
 - Information on the receiving streams, their watersheds/drainage areas, and available modeling for these streams and drainage areas.
 - Additional available data on precipitation, climate, and streamflow may be compiled to support the water quality assessments.
 - Listed impairments and available TMDLs for the receiving streams including pollutants and sources. Other available studies on the receiving streams will be compiled and reviewed.
- This scope of work is based on the understanding that the receiving waters that will be studied for this task are the receiving waters that receive discharges from PWSA-owned CSO outfalls that will not be controlled by the ALCOSAN tunnel construction; these include several Tributary Streams (Chartiers Creek, Nine Mile Run, Saw Mill Run, and Becks Run), and the Main Rivers (Ohio River, Monongahela River, Allegheny River). The primary focus of this task will be on the Tributary Streams, but a summary of the conditions of the Main Rivers within the PWSA service area will be included. We will conduct site visits of the Tributary Streams to assess existing conditions, sediment build-up, stream bank stability, flow restrictions, vegetative cover, and other potential characteristics. Photo documentation of the conditions will be collected.
- **Additional Main River Water quality or other data collection will not be conducted.**
- We will evaluate the available information to characterize existing conditions, spatial and temporal trends, dry versus precipitation event-driven conditions, comparison to water quality standards, and potential cause-effect linkages. We will also assess the ability of existing models to characterize water quality conditions and benefits of control alternatives.
- We will summarize the results of the data compilation, review and evaluation in a technical memorandum. The memorandum will include a data gap analysis including recommendations for additional data collection and model development activities, including cost estimates and potential refinements to the original budget estimates provided. We will submit one draft for review and comment. We will address comments and submit one revised draft for submittal to PWSA. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft Water Quality Existing Data Review TM

3.1.2 Sampling and Analysis

- We will prepare a Sampling and Analysis Plan (SAP) and a Quality Assurance Project Plan (QAPP) to guide the collection of water quality samples to support the characterization of the waterways and sources.
- One draft of the SAP and QAPP will be submitted to PWSA for review and comment. Following PWSA review and comments, we will revise the SAP and QAPP for submission to Pennsylvania Department of Environmental Protection (DEP) and/or the United States Environmental Protection Agency (EPA). Following DEP and EPA review and comment, we will prepare the final SAP and QAPP.
- Sampling activities will include training and orientation with our local, on call sampling team. This work will include site visits to discuss procedures and review sampling locations. This will also include coordination on scheduling of sampling events, tracking wet weather events, and making go/no-go decisions on sampling. We will also coordinate with the analytical laboratory to coordinate bottle shipments, sample deliveries, QA/QC data review, and reporting of results.
- For the purposes of this scope of work, the following assumptions have been made to inform the budgeting of this subtask. The scope and budget will be revisited following completion of the data review and evaluation work. Sampling is anticipated to be conducted between April and October 2022 for the following:
 - **6 locations (2 locations in each of Chartiers Creek, Nine Mile Run, and Becks Run)**
 - **72 total samples (3 baseline, 3 wet events – 3 samples each event for each location)**
 - **Parameters for field measurement: Temperature, pH, Dissolved oxygen, Conductivity**
 - **Base assumptions for parameters to be collected for laboratory analysis: E. coli, TSS, Ammonia, TKN, Nitrates + Nitrites, TP, Ortho**
- Following the initial review of the impairments and stream conditions, the need for additional parameters such as metals, and hardness will be assessed. We will review sampling field notes and laboratory reports following each round of sampling to identify problems or issues needing correction. We will coordinate with the sampling consultant and the laboratory to implement corrective actions.
- Two of the subject watersheds do not have USGS flow gages located on them. Additional flow and/or water level monitoring may be required in these watersheds as well. If needed, effort would be authorized separately.
- Following implementation of the sampling plan, we will perform a data validation review and prepare a memorandum documenting the review.
- We will prepare the project-specific SAP and QAPP, as stated earlier. We will update the water quality characterization with the new data. We will summarize the results of the sampling, analysis, data review, and updated characterization in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and

characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit one draft to PWSA. Following PWSA review and comment, we will prepare the final TM.

Deliverables: Draft and Final Water Quality SAP and QAPP TMs

3.1.3 Water Quality Model Updates

- We will update receiving water models to support the evaluation of water quality assessments. We will update model calibrations using the most recent data (April-October 2022) and will validate model performance. The anticipated receiving waters for modeling and the modeling frameworks are listed below:
 - Chartiers Creek, Nine Mile Run watershed/drainage area: PC-SWMM
 - Saw Mill Run watershed/drainage area: HSPF
 - Becks Run watershed/drainage area: no existing model
 - Main Rivers Model: RMA2 (hydrodynamics)/RMA4 (water quality)
- We will develop estimates of upstream flows and pollutant loads for the calibration period (April-October 2022) based on available data. We will develop meteorological inputs for the calibration period based on available data.
- Calibrations will be performed by applying best engineering judgement to make model calculations as representative of observations as possible. The models will be calibrated using both visual and numerical methods. This effort may employ regressions of observations vs. calculations, minimizing the squares of the residuals of observations vs. calculations, minimizing relative error, minimizing differences in observed vs. calculated means, and minimizing root mean square error, among other methods. For simulations having the appropriate temporal scale, published statistical measures of goodness-of-fit (e.g. percent difference, r², PBIAS) will also be considered in evaluating the strength of the hydrology and water quality calibrations.
- Following calibration, the models will be validated using an independent data set to demonstrate that the model is capable of acceptably reproducing the timing and magnitude of observed data without further changes to the model parameters.
- We will summarize the results of the model updates and calibrations in a technical memorandum. The memorandum will include discussion of data quality and usefulness for model updates and characterization of existing conditions and evaluation of the benefits of control alternatives. We will submit a draft to PWSA for review. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Model Update TM

3.1.4 Water Quality Assessments of Benefits of Control Alternatives

- We will develop and apply the updated and calibrated models to support the assessment of existing conditions and the water quality benefits of control alternatives. We will develop the water quality models for the typical year. We will develop the following water quality model inputs for the simulation of existing conditions for the typical year:
 - Upstream boundary flows and pollutant loads
 - Meteorological inputs, and
 - Sources other than overflows.
- We will characterize water quality conditions for the typical year under existing and baseline conditions. We will assess the relative impact of pollutant sources with respect to attainment of water quality standards for those scenarios. We will prepare an interim technical memorandum documenting the characterization of existing and baseline conditions for the Tributary Watersheds.
- We will apply the water quality models to simulate the water quality benefits of control alternatives. **This scope of work assumes ten (10) separate simulations will be run to assess control alternative benefits.** These may include a combination of simplified control scenarios (for example 25%, 50%, 75%, and 100% reductions of overflows) and specific control alternatives with simulated reductions in overflows from the collection system model.
- For each control alternative simulated, we will evaluate the water quality benefit in terms of pollutant load reduction and improvement in ambient water quality. Attainment of water quality standards will be assessed.
- We will also update the typical year simulation with the final recommended control plan and assess the water quality benefits.
- We will summarize the results of the water quality assessments in a technical memorandum. The memorandum will include discussion of the development of the typical year simulation, water quality characterization of the existing conditions, and water quality benefits of select control alternatives and the final recommended control plan. We will submit one draft to PWSA for review and comment. Following PWSA review and comment, we will prepare the final memorandum.

Deliverables: Draft and Final Water Quality Assessment TM

3.2 Monitor flow and conduct hydraulic modeling

3.2.1 Review existing flow data and models

- We will review flow data and models previously collected by PWSA and ALCOSAN to identify modeling and data needs to support the wet weather planning process. In general, this review will include locations, durations and quality of available flow monitoring data as well as determination of availability of models and the extent and quality of the calibration/verification of these models. **Up to 10 watershed models are assumed to be reviewed as a part of this effort.**

- An Existing Model Review TM will be created to document the available modeling sources and to identify data needs to expand or improve the models. This memo will also identify the various design storms, typical year precipitation, boundary conditions, and model scenarios (Existing, Baseline, Future, etc.) needed to support the project.
- **It is assumed that the starting model version for this project is the ALCOSAN Existing Conditions 2020 Model developed using SWMM version 5.1.012. This model includes a representation of the WWTP, deep and shallow cut interceptors, all diversion structures, combined sewer overflow outfalls and storm, combined and sanitary tributary areas. This model is anticipated to be expanded using historical and current modeling elements that have been developed under various PWSA efforts.**
- A summary of the available historical rainfall, stream level and flow monitoring data will be prepared and included in an Historical Flow Data Review TM. This TM will also document ongoing permanent precipitation, permanent flow meters, and stream gages that are available to support the work. **PWSA will provide available historical precipitation, stream and flow data.** Available data on high water flooding marks will also be summarized in this memo for critical stormwater flooding areas. **Field work to investigate or identify high water marks will not be collected.**
- During this process, we will develop a Model Data File Management procedure and implement to assist with model input and output file management. Procedures and Protocols will be summarized in a Model Data Management TM.

Deliverables: Draft and Final Existing Model Review TM; Draft and Final Historical Flow Data Review TM; Draft and Final Model Data Management TM

3.2.2 Develop a flow monitoring plan and collect flow data

- A detailed Flow Monitoring Plan TM will be developed to support the model expansion and system characterization effort guided by the approach outlined in this section. The Plan is expected to include proposed methods for flow monitoring in Critical Areas and I&I sewersheds with sections that cover, purpose and objectives, monitoring techniques and procedures, data management approach, QA/QC protocols, and maps of proposed deployment locations.
- **It is assumed that PWSA can provide all necessary radar-rainfall data needed to characterize precipitation in the service area.** The radar rainfall information will provide area-weighted rainfall hyetographs for each model subcatchment using existing regional permanent rain gauges. **To supplement this data, we will deploy up to 20 temporary project rain gauges for no more than 9 months.**
- We will deploy sewer system flow meters to screen and prioritize tributary areas to support expansion of the system hydraulic/hydrologic model (Calibration monitoring) and for further I/I investigations (micromonitoring).
- **To support model expansion into Critical Areas, up to 100 calibration meters (with a total installed duration of no more than 9 months) will be**

installed to provide information for model calibration in areas of known performance problems. Monitored subcatchments are planned to be between 20 and 75 acres in size.

- In support of Task 3.4, micromonitoring will be used to break down areas of roughly 100 acres or less for further I/I investigations. Up to 40 micrometers (with a total installed duration of no more than 3 months) will be deployed simultaneously for one or two significant rainfalls per location to determine tributary area I/I response. Areas showing significant response would then be targeted for further investigations. Areas showing little response would be screened from further consideration. Micromonitoring durations will be adjusted based on observed rainfall events.
- In support of Task 3.4, up to 40 calibration meters (with a total duration of no more than 6 months) will be installed to provide information for model calibration areas in sanitary areas. We will use the Task 3.4 prioritization information and preliminary micromonitoring to assist with calibration meter placement.
- It is assumed that flow monitoring will be conducted in the 2022 season between March and November. All data will be collected and stored in a database for use on the project.

Deliverables: Draft and Final Flow Monitoring Plan TM; Rain and Flow Monitoring Database

3.2.3 Expand and calibrate hydrologic and hydraulic model for use in planning

- The H&H hydraulic model will be extended up into the PWSA collection system to represent know problem areas with clusters of reported basement backup and areal flooding issues.
- Additional detail included in the historical version of the PWSA model included within Infoworks may also be added to the model to support this work along with significant known system changes. **Up to 400 staff hours for addition of existing detailed model elements such as major sewer projects or other detailed models has been assumed.**
- In Critical Areas with street flooding, the H&H model will also be expanded using dual drainage network techniques, to capture the movement and depth of overland flows along the street network. Depending upon the location of the problem area there may be a natural open channel also that will be included in the model. **Up to 2,500 model elements (channel segments and surface nodes) are assumed to be included in this model expansion within no more than 6 to 10 sub areas. It is assumed that existing topographic data is sufficient to characterize the street geometry.**
- With the hydraulic network expanded into the collection system, the lumped or consolidated hydrologic representation included in the current Existing Conditions model will also need to be discretized so that the generated flows can be distributed in the detailed expanded hydraulic network. This more detailed hydrologic representation will need to be calibrated using the collected flow and depth data. **Up to 4,500 model elements (sewer pipes**

and manhole junctions) are assumed to be included in this model expansion within no more than 20 to 30 sub areas.

- Revisions and expansions of the model will be documented in a Model Update TM.
- Sanitary areas within the H&H model will be calibrated to the data collected under Task 3.2. RTK parameters will be updated to reflect the findings of the new data collected.
- Targeted subarea calibration of areas tributary to up to 140 flow meter locations will be conducted based on the flow data collected under task 3.2. Continuous calibration/validation is anticipated to be conducted to compare metered vs. modeled predictions of flow, volume, depth and hydrograph shape. Industry standards for determination of acceptable calibration will be applied to determine the reasonableness of the calibrated parameters.
- A technical memorandum will be developed to summarize the results of the model calibration.
- A model review workshop will be held with PWSA to present the results of the calibration and discuss approval of the model for use on subsequent planning efforts.
- Upon approval of the model, files for various scenarios (Existing Conditions, Baseline Conditions (Near Term Projects that will be constructed) and Future Conditions (with Interim and Select Plans) will be developed to support the next stages of modeling. **Models will be run for up to five (5) design storm conditions to support level of service analysis.** Models will be run continuously for the Typical Year. Sensitivity scenarios for use in assessing the impacts of future climate change will also be run. Overflow statistics and level of service impacts will be quantified.

Deliverables: Draft and Final Model Update TM; Draft and Final Model Calibration TM; Model Support Files; Model Results Summaries

3.3 Perform level of service peer review and develop current level of service and range of alternatives for increasing level of service.

- A peer review will be conducted to identify the level of service of similar regional communities. Findings of the review will be summarized in a technical memorandum.
- Stress-test the current PWSA collection system to identify the current level of service provided and develop a level of service thematic map.
 - The primary level of service will be evaluated using the existing hydrologic and hydraulic model and the expansion into critical areas of observed sewer back-ups and street flooding will be used to assess collection system capacity for the interceptors and selected main line sewers.
 - A secondary level of service evaluation will be conducted on main sewers > 18" in diameter using a simplified method that compares pipe capacity to flows from the model that will be apportioned based on area. **It is assumed that existing GIS/sewer data provided by PWSA is sufficient for this purpose.**
 - A third evaluation will be conducted to assess "neighborhood" level of

service along a street within a city block. **Representative neighborhood areas (up to 6) will be selected and evaluated in detail to understand if general level of service deficiencies can be expected based on typical Pittsburgh sewer design practices.** Areas that have adequate existing data from either GIS or record drawings to support the assessment. **PWSA to provide detailed sewer drawings of the selected areas for use in this analysis.**

- **PWSA will determine what the level of service guiding principles will be used for stormwater under a separate contract**
- An alternatives analysis to determine the best approach to provide for increased levels of service will be conducted. In general, this is expected to include conveyance improvements that would include replacing existing storm or sewer piping to increase capacity and reduce water levels in the system and streets. The type, size and general location of improvements will be identified and included on maps to show the options.
- Provide a concept screening cost estimate (AACE Level 5) for bringing the current system up to the appropriate level of service for stormwater and sewer back-ups. Costs for increased conveyance systems to achieve higher capacities will be developed for various levels of service. **It is assumed that no more than two level of service scenarios will be costed.**
- Findings of the evaluation will be summarized in a technical memorandum.
- Determine how increased level of service impacts other wet weather planning objectives, including controls of CSOs and SSOs. A Typical Year simulation will be conducted to determine the results impacts on overflow statistics.
- Model base files for Level of Service Improvement Alternatives will developed to support the next stage of integrated planning evaluations.

Deliverables: Draft and Final Level of Service Peer Review TM; Draft and Final Level of Service Evaluation TM; Existing Level of Service Map

3.4 Develop a plan to identify significant areas of I/I and a strategic plan on how to prioritize locations to reduce I/I

- The PWSA system is essentially a combined system, but the upper reaches of the collection system have separate sewer areas.
- We will review and update on the approach to prioritize investigations previously by PWSA. Using data collected under other tasks, we will seek to identify sanitary areas without significant problems that would require no further investigation. Prioritization will occur at a relatively higher level and be refined as the project progresses. Early micromonitoring is proposed to help define the investigation prioritization.
- **Field work and subsequent data review for activities such as smoke testing, site assessments, manhole inspections, SSES investigations, dye testing, and CCTV inspection to support this task will be conducted by others or as an additional service.**
- PWSA will provide available data on effectiveness of historical projects in reducing I&I after improvements have been made.
- We will review the data collected and provided and use to identify areas subject to

elevated levels of I&I.

- By layering of existing GIS information, we will perform a Prioritization Analysis to produce a table and map with preliminary priority areas. We will review the proposed prioritization with PWSA to get input on the preliminary prioritization approach, the resulting priorities, and provide direction on any necessary adjustments.
- Based on the work, estimates of a range of potential I&I reductions (low, medium and high) for use in planning purposes will be developed for use with planning scenarios under Task 4.
- We will develop draft and final versions of an I&I Prioritization Approach TM, which will document criteria, data used, estimated effectiveness, and a priority list of areas. We will submit the draft TM to PWSA for review.

Deliverables: Draft and Final I&I Prioritization Approach TM

4. Identify and prioritize alternatives

The alternative evaluation is expected to be conducted at varying levels depending on the location and ownership. The most detailed efforts will be focused on outfalls solely owned by PWSA and jointly owned outfalls discharging to tributary streams (Level 1 and 2).

- Level 1 – 38 Outfalls solely owned by PWSA
- Level 2 – 33 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging into the Tributary Water Bodies

For these outfalls, it is assumed that up to 3 technologies will be evaluated for each outfall, costing to a Level 5, performance determined, and a recommended solution provided. Outfall solutions will either be combined or enhanced in up to 3 alternatives per basin.

A lesser detailed level of planning will be conducted for jointly owned outfalls discharging to the Main Rivers (Level 3 and 4).

- Level 3 – 116 CSO Outfalls co-owned by PWSA/ALCOSAN and discharging to the Main Rivers
- Level 4 – 20 CSO Outfalls co-owned by PWSA/ALCOSAN, discharging to the Main Rivers and controlled by the planned Regional Tunnels

For these outfalls, it is assumed that up to 3 technologies will be evaluated for up to 10% of these outfalls, costing to a Level 5, performance determined, and a recommended solution provided. This is not intended to replace but to enhance or supplement the current ALCOSAN Clean Water Plan for these outfalls.

4.1 Identify and screen technical alternatives

- The goal of this task is to identify potential alternatives that will provide compliance with the goals of the wet weather planning process, taking into consideration the ability to adapt to future conditions.
- An Alternatives Brainstorm workshop will be held with PWSA to discuss potential approaches to controlling CSO and SSO in the PWSA service area. The

- workshop will include a review of the planned ALCOSAN improvements, previously planned control recommendations from PWSA efforts, various technologies and strategies that have been reviewed historically and any new or emerging technologies.
- We will review and assess potential **technologies** for controlling SSO and CSO in the PWSA service area. Optimization techniques will be applied to narrow the field of **solutions**.
 - A Technology Screening TM will be prepared that summarizes the potential technologies such as source control, green infrastructure, regulator modifications, storage and conveyance that conducts a high-level screening for applicability to the various areas and provides recommended **outfall solutions** to advance to the basinwide alternative evaluation stage. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - An integrated planning approach will be applied that considers **solutions** basinwide that meet both water quality and level of service requirements determined under Task 3.3.
 - An Alternatives Development TM will be prepared to summarize the alternatives that were considered in the evaluation for each outfall or groupings of outfalls. This TM will summarize basinwide alternatives and the recommended systemwide alternative. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
 - **Six (6) additional Alternatives Workshops with PWSA are planned to discuss the progress and findings from the Alternative Evaluations.**
 - The selected alternative based on the results of Task 4.6 will be further defined (<5% project definition). This work will include development of concept layouts and site investigations to further develop the concept and develop an opinion of cost that is consistent with a AACE Class 4 cost estimate.

Deliverables: Draft and Final Technology Screening TM; Draft and Final Alternatives Development TM

4.2 Identify and screen site development and buffer alternatives

- Initially, a Site Opportunity and Enhancements TM will be prepared to summarize the nature and location of potential opportunities. We will conduct a recommended screening to identify areas with a potential to support effective wet weather controls. A draft TM will be submitted to PWSA for review and comment.
- USEPA-defined Environmental Justice demographic indices will be included into screening evaluation. Sites for alternatives will consider the benefits and impacts to environmental justice communities within the PWSA service area. The potential for providing benefits to these communities through improved wet weather management will be considered along with the direct benefits and impacts of feasible technologies within these communities.
- Our team will meet with stakeholders to identify opportunities for siting of control alternative solutions at locations that may be mutually beneficial for redevelopment or community enhancements. **Up to 16 meetings with stakeholders have been included in the scope for this purpose.**
- For the final recommended alternative identified under Task 4.6, we will update the TM to discuss the potential solution and how it may be enhanced with site

improvements, community benefits, green leave behinds or other features that would create or maintain a beneficial relationship with the various City of Pittsburgh departments, authorities, and key stakeholders (including neighborhood organizations).

Deliverables: Draft, Revised, and Final Site Opportunity and Enhancements TM

Level of Effort Assumptions:

- **Assumes enhanced site evaluations will be prepared to better define project location and site conditions and refine the level of accuracy of the Cost estimate to support a AACE Level 4 cost estimate in conjunction with Task 4.3**
- **Does not include topographic survey, easement acquisition, property acquisition support services, geotechnical exploration, environmental site assessments, or subsurface utility exploration to be included with the site evaluations.**

4.3 Perform a present worth analysis of the feasible alternatives

- A cost tool that can provide estimates for various technologies at an **AACE Level 5** will be developed using unit pricing, engineering judgement and input from recent PWSA and regional projects for purposes of initial technology screening.
- A Costing Approach TM will be developed that summarizes the assumption, development and application of the cost methodology. **Two (2) meetings are included to discuss the approach and development of the tool with PWSA.** A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- Costs will be developed for overall total project and lifecycle costs and include the following elements: Construction, Operating, Site surface development and restoration, Operation and maintenance requirements, Utilities and Land acquisition and rights-of-way. PWSA to provide input on administrative, legal and contingencies to be applied to the overall program cost development.
- Initial costs will be summarized and provided to PWSA for review. These will also be included in the Alternative Evaluation TM.
- Costs for budgeting for the selected alternatives for CSO and SSO improvements in the final Wet Weather Plan will be developed to an **AACE Level 4**. Additional effort to look at proposed projects and site constraints include the following:
 - Site visit
 - Develop project footprint layout using GIS and available lidar topography
 - Screening for property changes
 - Looking at local bidding data for potential cost escalation factors
 - Determine estimated quantities of facilities

Deliverables: Summary of Costs, Updates to the Draft Alternative Evaluation TM.

4.4 Perform a knee of the curve analysis of wet weather controls and water quality benefits

- An analysis comparing costs to performance metrics will developed to assess the

point of providing a value based recommended alternative. This analysis of the costs of varying CSO, SSO and stormwater control alternatives shall be in conformance with the CSO Control Policy and relevant guidance.

- Varying levels of optimization assistance tools will be used to evaluate alternatives to guide development of performance.
- Areas will be prioritized for optimization. Outfalls with planned improvements (by Others) or minor adjustments needed to meet criteria will not be optimized.
- **An optimization software license covering a 24-month period is included in the current budget. It is expected that advanced optimization will be applied to approximately 40 areas.**
- Performance curves will be included in the Alternative Evaluation TM.

Deliverables: Updates to the Draft Alternatives TM

4.5 Analyze financial affordability

- Coordinate with PWSA's financial rate consultant to determine the financial affordability of the proposed improvements to the PWSA system and forecasting the rate on ratepayers.
- Meetings will be held throughout the development of the wet weather plan to discuss progress, cost impacts, affordability considerations and impacts on required schedules for implementation. Two (2) initial workshops are planned to brainstorm the approaches and steps needed to incorporate the affordability analysis into the planning process.
- Based on discussions at the meeting, a work plan will be developed that will guide the steps needed to assess affordability in support of the Wet Weather Plan development. A draft plan will be submitted to the Rate Consultant and PWSA for review.
- All work related to affordability determination including data collection; rate evaluation; assessment of impacts of wet weather projects; level of service projects; ALCOSAN ongoing charges; PWSA ongoing water and sewer system charges; and other factors will be conducted by Others. PWSA will contract separately with Rate Consultant on these services.
- **Up to twelve (12) additional coordination meetings and two (2) workshops are planned to coordinate the work and discuss findings over the duration of the planning.**
- Rate consultant will provide input on initial affordability prior to the start of alternatives and run scenarios for varying levels of level service improvements and necessary stormwater, CSO and SSO control improvements at various stages of the plan development.
- We will review findings provided by Rate Consultant and summarize how the work will be incorporated into the planning and implementation of the WWP.

Deliverables: Draft and Final Affordability Work Plan TM; Draft and Final Affordability Findings TM.

4.6 Conduct non-monetary analysis of alternatives

- An Alternative Evaluation Approach TM will be prepared that summarizes the overall approach to selecting recommended alternatives. The TM will include a discussion on how to score within each non-monetary category, scoring and weighting approaches, and steps that will be taken to develop the scoring. A draft TM will be submitted to PWSA for review and comment prior to submittal of a final TM.
- The non-monetary criteria as provided by PWSA are expected to include:
 - Local planning impacts assessment
 - Environmental justice and community flood resiliency impacts
 - Floodplain impact assessment
 - Odor and noise control assessment
 - Preliminary environmental site assessment
 - Site surface restoration/development
 - Impacts of water quality improvements
 - Co-benefits of green infrastructure projects or other control alternatives
- Additional information such as advantages, disadvantages, risks, schedule impacts and other considerations will be identified as supporting information will be prepared for each alternative.
- **Up to three (3) workshops are expected to be needed to review the approach, conduct the scoring and share the results.**
- Information from Tasks 4.3 on costs would be combined with a summary of total benefits for each alternative to support development of a cost-benefit analysis.
- The results of the evaluation will be summarized in an Alternatives Scoring Technical Memorandum.

Deliverables: Draft and Final Alternative Evaluation Approach TM; Draft and Final Alternatives Scoring TM

4.7 Prepare a schedule for implementation of controls selected to address CSOs and SSOs

- An implementation schedule with appropriate milestones for design, bidding, construction, substantial completion and final completion will be prepared for the recommended projects in the Wet Weather Plan.
- The schedule will be adjusted based on input with regards to affordability and cashflow constraints provided under Task 4.5.

Deliverables: Draft and Final Implementation Schedule

5. Stakeholder coordination and presentations

We will take the lead on developing and participating in a public participation program. **PWSA will provide stormwater messaging developed to date and any foundational information. PWSA staff will be lead presenters during community meetings but would rely on Wade Trim to develop materials and set up meetings.**

We will work with PWSA in preparing an overall public participation plan and public outreach protocol that meets the requirements contained EPA CSO planning and DEP Act 537 guidance documents.

Our goal is to work collaboratively with the project team and PWSA to develop and implement a plan that prioritizes clear, consistent, transparent, and equitable communication with the public and stakeholders to generate consensus. We intend to include specific outreach to identified environmental justice communities to develop relationships with community leaders in those areas and encourage their availability, participation and engagement in meetings.

5.1 Develop Public Engagement Plan (PEP)

- In support of PWSA's existing public outreach efforts, we will work to coordinate and communicate with internal and external stakeholders. We will work with PWSA to create an engagement plan that centers around multiple working group meetings, stakeholder inclusion, agency communication and public information and input held throughout the duration of this process. The goal of the plan is to generate buy in, which can be better achieved by engaging stakeholders throughout the process, collecting input and feedback, and incorporating that feedback.
- **Two meetings will be held with PWSA public relations staff to support development of the plan.** An initial brainstorming session and a follow up meeting to discuss the draft PEP. Ongoing coordination on public relations topics will be covered under the regular PWSA progress meetings.
- A plan will be developed that includes a summary of program and objectives, messaging, identification of stakeholder groups, definition of target audiences, communications approaches, communication tools, implementation steps, and timelines. The Draft Public Engagement Plan will be submitted to PWSA, and comments incorporated into the Final Plan.

Deliverables: Draft and Final Public Engagement Plan

Level of Effort Assumptions:

- **Develop Public Engagement Plan assumes a detailed outline, 2 draft and 1 final version for Wade-Trim and PWSA review and approval. Includes the development and refinement of the comprehensive stakeholder engagement list.**
- **Project Coordination / Management – assumes up to 2 coordination meetings a month and 4 hours of project management/coordination with Wade Trim / PWSA for 36 months.**
- **Documentation – assumes 8 hours per month for document control, project controls and documentation of events.**

5.2 Program Messaging and Branding

This item has been removed from the scope.

5.3 Online Public Engagement

- Online engagement is an important method of communication with the general public about the Wet Weather Program. The goals of online engagement are to

increase the ability to reach a more diverse audience, generate more informed participation, invite a broader range of input, and set the stage for sustained participation. PWSA already has an online presence, and this plan will build upon those existing relationships/followers/contacts.

- A Wet Weather Program webpage will be created to serve as a resource for people to access information, share the plan schedule, see a summary of planning activities, make note of engagement opportunities, review background information (Including relevant maps and data), make connections to social media pages, locate project contact information, subscribe to a mailing (contact) list, and access a comment form.
- Our team will develop a proposed outline of online content to consider for a website approach and submit to PWSA for review and discussion.

Deliverables: Web Site and Social Media Pages and Updates

Level of Effort Assumptions:

- **PWSA will host and manage online content via their existing website**
- **Updates to the website are expected to occur on a quarterly basis, assumes 12 hours per quarter of support**

5.4 In-Person Public Engagement

- Public meetings will be used to inform the public of the planning process and to solicit ideas, input and feedback. This will be an opportunity to promote transparency and foster two-way communication with the public. Public meetings will be held at multiple locations throughout the city. We intend to host a proportional amount of in-person meetings within environmental justice communities to promote engagement within these communities and consider the specific needs in these communities relative to wet weather management.
- Meeting times will vary to maximize the number of attendees that will be available. The public will be encouraged to ask questions and voice their ideas and opinions about the program activities. Our plan for a series of meetings is presented below:

Year 1 - Goals and Initial Community Input

The first series of public workshops will be formatted as a city-wide Listening Series as an interactive, hands-on opportunity to create program awareness, present background on the system and known problem areas, gain an understanding of community priorities, values and concerns. **Four (4) interactive, workshop-style sessions will be conducted** and geographically distributed through the service area – to encourage diverse participation. These meetings would occur early in the planning process.

Year 2 - Review of CSO Technologies, Solutions and the Alternatives Process

The second series of public workshops will be formatted as traditional public meetings. The purpose of this series of meetings will be to present and/or demonstrate potential control strategies, discuss water quality assessments and provide an overview of the alternative evaluation process. **Four (4) meetings will be held.**

Year 3 – Wet Weather Plan Recommendations

The third and final public workshop series will be formal public meetings to present the draft Wet Weather Plan. This will be the final opportunity to provide an overview of the draft WWP, to discuss issues, processes and decisions leading to the plan, and to record formal comments that will be considered when finalizing the Wet Weather Plan. **Four (4) meetings will be held.**

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **20 hours/month for coordination and responding to questions from the public**

5.5 Stakeholder Advisory Group

- An existing PWSA Stormwater Advisory Group (SAG) that has provided input on the PWSA stormwater fee will be convened to introduce them to the Wet Weather Program goals and objectives. This group will be expected to share information about how to get involved in, provide input on, and stay up to date with the planning process with the organizations/stakeholder groups they represent. We intend to work with this group to discuss issues of environmental justice and solicit input for how the Wet Weather Program will evaluate environmental justice.
- This advisory group will meet at key decision points throughout the process (**up to 6 meetings**). Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation and prepare summaries of the discussions.
- In between meetings, representatives of these groups will receive regular updates through email and will be empowered to help the program team in its outreach efforts by sending information about engagement opportunities to their respective memberships, communities, networks, and employees.

Deliverables: Agendas, Presentations and Meeting Summaries

Level of Effort Assumptions:

- **Assumes 4 hours/month monthly coordination and responding to inquiries from SAG.**

5.6 Municipalities/POC Outreach

- Meetings with the existing Saw Mill Run Group and various POC municipality representatives would be convened to discuss issues specific to the municipalities. These meetings will be used to share information about known issues, planned improvements, alternative technologies, and other related matters. **We have assumed up to 24 meetings** with stakeholders in this category over the duration of the program. Our team will coordinate meeting logistics, prepare presentation materials, assist with facilitation, and prepare summaries of the discussions.

Deliverables: Agendas, Presentations and Meeting Summaries

6. Provide Wet Weather and Act 537 Plans

6.1 Wet Weather Plan (Long Term Control Plan)

- A Wet Weather Plan document will be developed that includes sections on Introduction, Background, Purpose, Public Engagement and Participation, System Characterization of Current Conditions, Control Approach, Control Technologies and Screening, Development and Evaluation of Alternatives, Financial Capability, Recommendations, Selection and Implementation Schedule, and Post Construction Compliance Monitoring Plan.
- A draft Wet Weather Plan will be submitted to PWSA for review and comment prior to submittal of a final Report.
- Following PWSA review, comment, resolution of comments and approval of the draft Wet Weather Plan, we will facilitate preparation of the plan for submitting to the agencies for review and approval.
- Following agency review, comment, resolution of comments and approval of the plan, a revised final plan will be submitted.

Deliverables: Draft, Final and Revised Wet Weather Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of Plan
- Assume preparation of up to 100 comment responses received on the Plan

6.2 Act 537 Plan

- An Act 537 Plan document will be developed in accordance with the Act 537 Plan Content and Environmental Checklist and will include sections on previous wastewater planning, physical and demographic analysis and mapping, identification of existing sewage facilities and needs, projections of future growth and land development, identification of alternatives, evaluation of alternatives, institutional evaluation, justification and implementation schedule for selected alternatives (technical and institutional) and an environmental report. The Wet Weather Plan will also be used extensively to form the basis of the Act 537 Plan.
- A draft Act 537 Plan will be submitted for PWSA comments.
- Following PWSA review, comment, resolution of comments and approval of the draft 537 Plan, we will facilitate preparation of the plan for submitting to the City of Pittsburgh under Task 6.3 for review and approval.
- Following approval by the City of Pittsburgh, we will submit for agency review, comment, resolution of comments and approval of the plan. A revised final plan will be submitted.

Deliverables: Draft, Final and Revised Act 537 Plan

Level of Effort Assumptions:

- Assumes two agency coordination meetings to solicit adoption of 537 Plan
- Assume preparation of up to 100 comment responses received on the 537 Plan

6.3 City of Pittsburgh Coordination

- Prior to submittal to the agencies, the Act 537 plan will require a signed and sealed Resolution of Adoption from the City of Pittsburgh. We will assist in the preparation of the appropriate submittals, response to comments and consistency documentation that the appropriate agencies have received, review and concurred with the Act 537 plan throughout the entire process.
- Following PWSA approval of the draft Act 537 Plan, the plan will be submitted to City of Pittsburgh and Allegheny County Planning Commissions for consistency review and comment.
- The Act 537 plan is also required to be posted publicly for a 30-day comment period, with proof of the publication, copies of all comments with responses in each comment included in the final submittal to the agencies.

Deliverables: Public Notice

Level of Effort Assumptions:

- Assume 3 coordination meetings with City of Pittsburgh Officials
- Assume preparation of up to 100 comment responses received on the 537 Plan

7. Develop an environmental impact assessment of recommended Wet Weather Plan

- Once conceptual level wet weather plan facilities have been identified, we will conduct a more detailed environmental review in the form of an Environmental Impact Assessment which further evaluates the community impacts identified during the alternative's evaluation. This assessment will serve as the Uniform Environmental Review.
- A report will be proposed that follows the format laid out in PADEP's Technical Guidance Document 381- 5511-11. The report will discuss the environmental consequences and potential mitigation of the proposed facilities for land use, recreational use of land and streams, water and air quality, noise, odor, vehicular and pedestrian traffic, socio-economic issues, miscellaneous environmental considerations, as well as aesthetic and property impact for use in the Act 537 Plan.
- A draft Report will be submitted for PWSA comments.
- **The number of projects to be evaluated has yet to be defined through the wet weather planning work. For this reason, a total of no more than 20 projects has been assumed that will require assessment.**

Deliverables: Draft and Final Environmental Impact Assessment Report.

8. 3rd Party Assessment of Sewer Assets

- Regionalization involves the voluntary transfer selected municipal sewers and sewer facilities in the service area over to ALCOSAN. This is intended to reduce the financial burden on PWSA and allow ALCOSAN to more directly manage and reduce excess flows into the system. **This will be accomplished by ALCOSAN assuming ownership and maintenance of approximately 60 miles of large, multi-municipal trunk sewers and associated facilities (upstream diversion structures).**

- The purpose of this task will be to review PWSA sewer assets that are proposed to be transferred to ALCOSAN via the regionalization initiative. We will review the assets and provide documentation needed to support transfer.
- This is a study and does not include regionalization negotiation support for the ALCOSAN agreement.
- A Draft PWSA Assets Review TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final Assets Review TM; Applicable support documents.

9. Post Construction Evaluation of GI Effectiveness

- We will evaluate the performance of up to **fifteen (15) Green Infrastructure projects** in various states of design and construction that are being constructed with the intent to reduce stormwater inflow to the sewer system. To support estimates of effectiveness of these projects and potential future similar projects, post construction monitoring of the performance of these projects will need to be conducted.
- **Our team will install flow monitors at up to 30 locations for a period of 8 months to collect on performance.**
- **Data from the 3RWW rain gauge network data and up to 6 site specific rain gauges will be used to document precipitation.**
- **PWSA will provide design reports, modeling and plans produced by others along with historical rainfall and flow data collected prior to the start of the projects for use in comparisons.** Post construction data collected on other projects and any related reports will also be provided.
- We will compare the data and provided an evaluation of the resulting effectiveness of the various projects. A Draft GI Project Effectiveness TM will be submitted to PWSA, and comments incorporated into the Final TM.

Deliverables: Draft and Final GI Flow Monitoring Plan; Draft and Final GI Project Effectiveness TM

GENERAL ASSUMPTIONS

- All deliverables will be provided electronically
- PWSA will provide comments on most deliverables within 14 calendar days; Task 6 deliverable comments will be provided within 30 calendar days
- Comments will be provided by PWSA electronically using document control software
- Meeting duration assumed to be typically 1 to 2 hrs (50% virtual; 50% in person)
- Workshop duration assumed to be typically 4 to 8 hrs (In person)

SCHEDULE

- The project is expected to cover a three-year period with the potential for up to three one (1) year extensions. Extensions of the schedule may impact level of effort.
- The tasks and their general anticipated duration are provided below:

Task	Anticipated Duration
Task 1	36 Months
Task 2	18 Months
Task 3	30 Months
Task 4	18 Months
Task 5	36 Months
Task 6	12 Months
Task 7	12 Months
Task 8	9 Months
Task 9	12 Months

PWSA TASK ORDER/AMENDMENT EXHIBIT C INSTRUCTIONS

**An additional Exhibit C or D may be used if space provided is not sufficient.*

General Instructions

1. **DEFINITION:** A task is a type of service that will be performed in a Task Order or Amendment, for example, it might be Design Engineering, or Construction Management, or Field Inspection. A project budget may contain individual budgets for each type of service. A Task Order or Amendment may provide for one or more type(s) of service. When preparing this Exhibit C, make sure that each type of service is separately annotated, and that the cost of labor and expenses for each type of task (budget code) is distinctly represented. PWSA's goal is to individually track the cost of each type of task or service. Should the amount of staff needed exceed the total number of columns, you may provide an additional completed template for each Exhibit. Just be sure your TO/Amendment Total Fee matches as an accumulative value.
2. See the Budget Codes tab for an explanation of where a Task type should be applied in this Exhibit.
3. Use these Exhibit forms as is. **Do not attempt** to alter them. **If they are altered they will be rejected.** If a change should be considered, discuss with your PWSA point of contact.
4. **Be sure** that all labor rates used in these forms are consistent with the rates used in the Master Services Agreement.

Exhibit C.1

Purpose: Exhibit C.1 identifies the Consultant's staff members who will contribute to each Task type to be provided, their MSA classification, their Task Order role, their anticipated labor hours, and their labor costs.

1. The Consultant's Scope of Services must be defined according to the distinct tasks that apply to a project budget code. The cost to perform each Task must be captured on this Exhibit.
2. On Row 45, enter each Consultant staff member name in a different column.
3. On Row 46, enter each Consultant Staff member's Master Service Agreement classification in a different column.
4. On Row 47, enter each Consultant Staff member's Task Order role in a different column.
5. Enter the hours each staff person will contribute to each task in the rows below each staff person's name. **If it doesn't apply, leave row blank.**
6. Enter the Subconsultant markup as an integer or decimal number (field is coded as a percentage). The spreadsheet will calculate the Total Hours and Total Labor Cost for the Consultant.

Exhibit C.2

Purpose: Exhibit C.2 captures the Consultant's anticipated expenses. Note that there is a table section for each Task type (budget code).

1. Exhibit C.1 will auto-populate each staff person's name in the appropriate row.
2. In Column B enter the type of expense that will be invoiced, e.g. mileage, hotel, auto rental. These fields are editable.
3. The spreadsheet will calculate the total costs by person and by task.
4. Repeat 1 - 3 for each Task type.

Exhibit C.3

Purpose: This table captures the Sub Consultants' anticipated costs and MBE/WBE/VBE/SDVBE classification. Note that the entries in this table are all inclusive of both labor and expenses.

The details of this data must be reflected in the required attached Sub Consultants' proposals.

1. Enter the name of each Sub Consultant firm in the Columns of the table.
2. Enter the cost **by task** of each Sub Consultant firm.
3. The spreadsheet will calculate the total costs by Sub Consultant and by Task.

Exhibit C.4

Purpose: In this Exhibit C.4, the Consultant should enter into lines 4, 5, and 6, as needed, any stipulations PWSA should consider about the Task Order or Amendment proposed budget.

Note that items 1, 2, and 3 are required by PWSA, and cannot be changed.

EXHIBIT C.1: PROPOSED BUDGET FOR EXHIBIT A SCOPE OF SERVICES

STAFF LEVEL OF EFFORT

Task (Budget Code)	HOURS PER COST CODE													Totals Labor Hours	Totals Labor Cost	Totals Expense Cost	Total Sub Consultant Cost	Total Cost by Task
	Enter Staff Name	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant						
	Enter Staff Classification	Principal	Senior Professional	Professional Engineer	Professional Engineer	Professional Engineer	Engineering Associate	Engineering Associate	Engineering Associate	CAD/GIS Technician	CAD/GIS Technician	Project Aide						
1 PWSA Program Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00
2 Program Management		0	20	70	100	120	0	0	350	0	0	100		760.00	\$91,850.00	\$819.99	\$74,600.00	\$167,269.99
3 Construction Management														0.00	\$0.00	\$0.00	\$0.00	\$0.00
4 Constructability Reviews														0.00	\$0.00	\$0.00	\$0.00	\$0.00
5 Professional Services														0.00	\$0.00	\$0.00	\$0.00	\$0.00
6 Design Engineering														0.00	\$0.00	\$0.00	\$0.00	\$0.00
7 Design Services During Construction														0.00	\$0.00	\$0.00	\$0.00	\$0.00
8 Planning														0.00	\$0.00	\$0.00	\$0.00	\$0.00
9 Specialty Consultant/Specialty Service														0.00	\$0.00	\$0.00	\$0.00	\$0.00
10 Topographic Survey														0.00	\$0.00	\$0.00	\$0.00	\$0.00
11 GIS/CMMS														0.00	\$0.00	\$0.00	\$0.00	\$0.00
12 Geotechnical														0.00	\$0.00	\$0.00	\$0.00	\$0.00
13 Pipeline Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00
14 Environmental														0.00	\$0.00	\$0.00	\$320,000.00	\$320,000.00
15 Specialty Testing														0.00	\$0.00	\$0.00	\$0.00	\$0.00
16 Other Construction Costs														0.00	\$0.00	\$0.00	\$0.00	\$0.00
17 Field Inspection														0.00	\$0.00	\$0.00	\$0.00	\$0.00
18 Testing and Specialty Inspections														0.00	\$0.00	\$0.00	\$0.00	\$0.00
19 Final Inspection and Commissioning														0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL HOURS		0	20	70	100	120	0	0	350	0	0	100	0	760.00	\$91,850.00	\$819.99	\$394,600.00	
DIRECT SALARY RATE (\$)		\$100.00	\$80.00	\$60.00	\$56.67	\$45.00	\$40.00	\$35.00	\$31.67	\$35.00	\$26.67	\$26.67						
TOTAL LABOR COST (\$)		\$0.00	\$1,600.00	\$4,200.00	\$5,666.67	\$5,400.00	\$0.00	\$0.00	\$11,083.33	\$0.00	\$0.00	\$2,666.67	\$0.00					
OH RATE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00						
TOTAL LABOR BILLING COST (\$)	\$91,850.01	\$0.00	\$4,800.00	\$12,600.00	\$17,000.01	\$16,200.00	\$0.00	\$0.00	\$33,249.99	\$0.00	\$0.00	\$8,000.01	\$0.00					
TOTAL EXPENSES (\$)	\$819.99																	
SUBCONSULTANT FEE AND EXPENSES * (\$)	\$394,600.00																	
SUBCONSULTANT MARKUP (%)	5.00%																	
TOTAL SUBCONSULTANT COST	\$19,730.00																	
TOTAL FEE (\$)	\$507,000.00																	

*FOR INVOICING PURPOSES MARKUP FEE WILL BE APPLIED TO LINE ITEM AS FOLLOWS: PROGRAM MANAGEMENT- Program Management; CONSTRUCTION MANAGEMENT- Construction Management; ON-CALL/PRE-QUALIFIED- Specialty Consultant

EXHIBIT C.2: PROPOSED EXPENSE SUMMARY FOR EXHIBIT A SCOPE OF SERVICES

	INDIVIDUAL STAFF PERSON NAME (THIS WILL AUTO-FILL IN THE SAME ORDER (LEFT TO RIGHT) AS IN EXHIBIT C.1.)													
	Principal	Senior Professional	Professional Engineer 3	Professional Engineer 2	Professional Engineer 1	Engineering Associate 3	Engineering Associate 2	Engineering Associate 1	CAD/GIS Technician 2	CAD/GIS Technician 1	Administrative Assistant	0	0	
PWSA Program Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Program Management														
EXPENSE ITEM														
parking			\$320.00											
hotel														
meal - breakfast/lunch/dinner											\$499.99			
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$320.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$499.99	\$0.00	\$0.00	
Total Expenses for Task														\$819.99
Construction Management														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task														\$0.00
Constructability Reviews														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task														\$0.00
Professional Services														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Expenses for Task														\$0.00
Design Engineering														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														

airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

Design Services During Construction													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Planning													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Specialty Consultant/Specialty Service													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Topographical Survey													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
GIS/CMMS													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Geotechnical													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00
Pipeline Inspection													
EXPENSE ITEM													
parking													
hotel													
meal - breakfast/lunch/dinner													
printing													
rental													
airfare													
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task													\$0.00

Environmental														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Specialty Testing														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Other Construction Costs														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Field Inspection														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Testing and Specialty Inspections														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00
Final Inspection and Commissioning														
EXPENSE ITEM														
parking														
hotel														
meal - breakfast/lunch/dinner														
printing														
rental														
airfare														
Total Expenses by Person	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Expenses for Task														\$0.00

EXHIBIT C.3: SUBCONSULTANT FEE AND EXPENSE SUMMARY FOR EXHIBIT A- SCOPE OF SERVICES

SUBCONSULTANTS COST*														
Enter Subconsultant Firm Name →	ADS	Brown & Caldwell	Collective Efforts LLC	Confluency	eHoldings Inc.	Cosmos Technologies Inc.	Limnotech	Monaloh Basin Engineers	ms consultants	R2O Consulting LLC				Total Sub Task Cost
Select MBE/WBE/VBE/SDVBE Classification →	N/A	N/A	WBE	N/A	MBE	MBE	N/A	WBE	N/A	WBE				
Task (Budget Cost Code)														
PWSA Program Costs														\$0.00
Program Management						\$74,600.00								\$74,600.00
Construction Management														\$0.00
Constructability Reviews														\$0.00
Professional Services														\$0.00
Design Engineering														\$0.00
Design Services During Construction														\$0.00
Planning														\$0.00
Specialty Consultant/Specialty Service														\$0.00
Topographic Survey														\$0.00
GIS/CMMS														\$0.00
Geotechnical														\$0.00
Pipeline Inspection														\$0.00
Environmental	\$320,000.00													\$320,000.00
Specialty Testing														\$0.00
Other Construction Costs														\$0.00
Field Inspection														\$0.00
Testing and Specialty Inspections														\$0.00
Final Inspection and Commissioning														\$0.00

* See Attached Subconsultant Proposals

Exhibit C.4: ASSUMPTIONS

LIST OF ASSUMPTIONS RELATED TO BUDGET AND EXPENSES - List any conditions the Consultant places on the Budget and Expenses indicated above.

1	Consultant shall notify the Authority's Representative when expenditures based upon the billing of this Task Order reaches 50, 75 and 90% of the total budget, and an estimate of the time and funds necessary to complete the work. If additional funds are requested and not authorized in writing by the Authority's Representative, the Consultant shall reduce the scope of work to complete within the funds available.
2	In no event shall the Consultant's total billings for the services performed under this Task Order exceed the approved Fee amount without the Authority's written authorization and notice that it has approved an increase in the budget limit and funds available.
3	Should a key or non-key staff person not listed on an approved Task Order get assigned to the task, an Action Item to the project manager will suffice to acknowledge the change without an increase to the overall total fee. This MUST be done within 30 days of the assignment, preferably before PWSA receives the invoice for the time in which work was performed. Project Managers have the right to reject or accept the assignment of a staff person with proper justification. The consultant has the right to appeal that decision to the Director of Engineering and Construction.
4	
5	
6	



November 2, 2021

Mr. Jason McBride
Wade Trim
Three Gateway Center
401 Liberty Avenue, Suite 1600
Pittsburgh, PA 15222

RE: Letter of Commitment
PWSA Wet Weather Program Manager

Dear Mr. McBride:

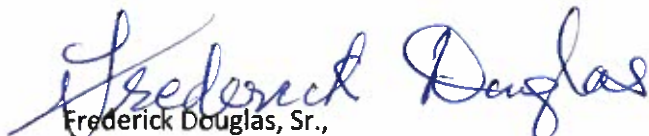
Cosmos Technologies Inc. (Cosmos) is pleased to be part of the team with Wade Trim for the above-referenced project.

We understand that Cosmos will provide General Civil Engineering Support and Field Services Support for flow monitoring. Our contract value is \$338,330.00.

Cosmos is a certified Minority/Disadvantaged Business Enterprise (Certification I.D. 1098).

If you require any additional information, please do not hesitate to contact me or Holly Douglas at (412) 321-3951 (office) or via email at hdouglas@cosmostechnologiesinc.com. Thank you for the opportunity.

Very truly yours,


Frederick Douglas, Sr.,
President

VERIFICATION

I, Edward Barca, hereby state that: (1) I am the Director of Finance for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rejoinder testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 09/26/2023 | 9:24 AM PDT

DocuSigned by:
Edward Barca
415E545AD9514E4...

Edward Barca
Director of Finance
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REJOINDER TESTIMONY OF

BARRY KING, PE

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:
Capital Budget
Microfiltration Plant and Highland Reservoir 1

September 29, 2023

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Barry King and I am the Director of Engineering and Construction for The
4 Pittsburgh Water and Sewer Authority (“PWSA”).

5 **Q. DID YOU PREVIOUSLY PROVIDE TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I submitted Direct Testimony on May 9, 2023 and Rebuttal Testimony on
7 September 8, 2023. (PWSA St. Nos. 4 and 4-R).

8 **Q. WHAT IS THE PURPOSE OF YOUR REJOINDER TESTIMONY?**

9 A. The purpose of my Rejoinder Testimony is to respond to certain statements made in the
10 Surrebuttal Testimony of: Ethan H. Cline on behalf of the Bureau of Investigation and
11 Enforcement (“I&E”) (I&E Statement No. 3-SR); and Terry L. Fought on behalf of the
12 Office of Consumer Advocate (“OCA”) (OCA Statement 6SR).

13 **II. CAPITAL BUDGET**

14 **Q. PLEASE DESCRIBE MR. CLINE’S SURREBUTTAL TESTIMONY**
15 **REGARDING PWSA’S CAPITAL BUDGET.**

16 A. I&E witness Cline continues to recommend that the Commission reduce PWSA’s capital
17 budget by \$32.6 million. The entire basis for this recommendation is Mr. Cline’s review
18 of PWSA’s four-year history of spending less on capital projects than has been budgeted.
19 (I&E Statement No. 3-SR at 20, 28).

20 **Q. PLEASE RESPOND.**

21 A. Using Mr. Cline’s rationale for reducing PWSA’s capital budget by \$32.6 million would
22 mean that the Authority’s capital budget amount, regardless of the level requested, would
23 always be subject to reduction in the event of prior underspending due to factors beyond
24 PWSA’s control. Just because PWSA has not spent its budgeted amounts in prior years

1 does not mean that it should forego planning for future projects, which are included in the
2 Capital Improvement Plan (“CIP”) and are needed to ensure regulatory compliance,
3 operating efficiency, safety, water quality and reliability of service. Of note, in arriving
4 at his recommended reduction, Mr. Cline has not identified any projects in PWSA’s CIP
5 that he believes should be cancelled or delayed. Rather, he opines that PWSA’s plans
6 *may* be too “aggressive.” (I&E Statement No. 3-R at 24). Therefore, presumably, if
7 PWSA had come into this rate case with a \$10 million requested increase in its capital
8 budget, Mr. Cline’s theory of only approving a percentage of that amount – based on
9 prior spending levels – would have equally applied. This rationale is irrelevant to the
10 need for the projects that PWSA is planning for the future. If Mr. Cline believes that
11 PWSA’s capital budget is too high, he should have identified the projects that he views as
12 being on too “aggressive” of a timetable for completion or that he believes PWSA should
13 forego entirely.

14 As I testified in my Rebuttal Testimony, the capital projects that PWSA is
15 planning need to be done. It is not a wish list. The level of capital improvements that
16 PWSA is currently undertaking is necessary and unprecedented due to neglected
17 infrastructure over many years, resigning the program to a “fix as fails” approach to save
18 money in the short term. Spending less than projected over a few years, for unanticipated
19 reasons that were outside of PWSA’s control, is not a valid reason to drastically and
20 arbitrarily reduce the level of spending on capital projects that have been approved by
21 PWSA’s Board. Of note, any unspent monies earmarked for particular improvements do
22 not go into the pockets of shareholders, of which PWSA has none, but rather go back into
23 the water, wastewater and stormwater systems for the benefit of ratepayers, may expedite

1 other capital projects, may pay down debt and may be reserves for a future year, delaying
2 the need for future rate increases. (PWSA St. No. 4-R at 6-10). Therefore, PWSA
3 continues to support its proposed capital budget so that the Authority is able to stay the
4 course in making the necessary improvements and enhancements to its system for the
5 benefit of its customers.

6III. MICROFILTRATION PLANT AND HIGHLAND RESERVOIR 1

7 **Q. PLEASE DESCRIBE MR. FOUGHT’S SURREBUTTAL TESTIMONY**
8 **REGARDING THE MICROFILTRATION PLANT (“MFP”) AND HIGHLAND**
9 **RESERVOIR 1 (“HR1”).**

10 A. Mr. Fought addresses my Rebuttal Testimony regarding his proposal for PWSA to
11 consider covering the Highland 1 Reservoir (“HR1”). In his discussion, he suggests that
12 some of the problems with covering HR1 that were identified in the March 4, 2020
13 memorandum (PWSA Exhibit No. BK-5) have changed or are no longer important.
14 Therefore, he recommends that PWSA’s decision should be reconsidered, to include a
15 neutral, third-party report of covering or not covering HR1 prior to relining HR1. (OCA
16 Statement 6SR at 10-12).

17 **Q. HOW DO YOU RESPOND?**

18 A. At the outset, I note that Mr. Fought simply lists eight problems for which he believes
19 there are now reasonable alternatives or which no longer exist but does not offer any
20 explanation for his views as to why any of those factors have changed. Therefore, I am
21 unable to specifically address his position on each of them. However, I can say that the
22 problems he references from the 2020 memorandum do still remain and there is no
23 reasonable alternative. In fact, as I stated in my Rebuttal Testimony, a decision of
24 whether to cover HR1 is not one that can be made based solely on costs, and that the

1 explanation I offered in 2020 based on the March 4, 2020 memorandum remains true
2 today. (PWSA Statement No. 4-R at 10-11).

3 The feasibility of covering the existing HR1 is not reasonable in terms of
4 constructability, hydraulics, water quality and cost. A particularly compelling factor
5 weighing against Mr. Fought's proposed approach is that the maximum water level in
6 HR1 is too low, so to simply cover it would result in hydraulic pressure issues in the HR1
7 super system. This outcome would require extensive changes to the pressure districts
8 thereby increasing required tank and pump sizes for the super system subdistricts.

9 Further, HR1 is too large. Current industry and environmental standards require a
10 minimum storage of an average day demand plus fire flow and seek to avoid excess
11 storage due to the formation of carcinogenic disinfection by-products ("DBPs"). The
12 total average day demand for the HR1 supersystem is around 28 million gallons.

13 Because the HR1 sub-systems already have storage, the required storage would be less
14 than 28 million gallons. The HR1 is 130 million gallons, which means that potable water
15 would be stored in the reservoir in excess of 10 days before consumption. It is for these
16 reasons that the alternative plan includes the abandonment of HR1 and replacing it with
17 an appropriately sized tank. While the ultimate plan is to replace HR1 with a tank, which
18 also eliminates the need for the MFP, that is a long-term project that falls outside the
19 current five-year CIP.

20 Similarly, relining HR1 is not imminent and will not occur until sometime after
21 2026. I recognize that in OCA Exhibit TLF-2SR, Mr. Fought includes information about
22 the amount of \$704,981 being in PWSA's CIP for the relining of HR1 in 2026.

1 However, that funding was only earmarked for design purposes and the construction
2 project itself will cost millions of dollars.

3 Finally, with respect to Mr. Fought’s comment that the 130.5 million gallons of
4 water in HR1 “may be useful in some system wide emergencies” (OCA Statement 6SR at
5 12), PWSA would not want to have that amount of treated water just sitting in the
6 reservoir due to the health issues associated with excessive water-age and DBPs
7 accumulation.

8 In summary, no need exists for PWSA to devote more ratepayer dollars to
9 studying an issue to which has been fully assessed and addressed. Therefore, PWSA
10 should not be required to obtain a third-party report that addresses the option of covering
11 HR1.

12 **IV. CONCLUSION**

13 **Q. DOES THAT COMPLETE YOUR REBUTTAL TESTIMONY?**

14 **A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.**

VERIFICATION

I, Barry King, hereby state that: (1) I am the Director of Engineering for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rejoinder testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

09/28/2023 | 10:35 AM PDT
Dated: _____

DocuSigned by:
Barry King
F87AE2CE63E04E0

Barry King
Director of Engineering
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REJOINDER TESTIMONY OF

TONY IGWE

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Stormwater

September 29, 2023

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Tony Igwe. I am the Senior Group Manager, Stormwater, for The Pittsburgh
4 Water and Sewer Authority (“PWSA”).

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTMONY IN THIS PROCEEDING?**

6 A. Yes, I submitted Direct Testimony on May 9, 2023, which accompanied the rate filing
7 (PWSA St. No. 5). I also submitted Rebuttal Testimony on September 8, 2023 (PWSA
8 St. No. 5-R).

9 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

10 A. The purpose of my testimony is to respond to the Joint Surrebuttal Testimony of Michael
11 J. McNamara and Theodore J. Dwyer and the Surrebuttal Testimony of Eric Callocchia
12 on behalf of the Pittsburgh School District (“School District”) (School District St. Nos. 1-
13 SR and 2-SR, respectively) regarding certain stormwater topics. Other stormwater issues
14 raised by these witnesses are being addressed in Rejoinder Testimony submitted by Keith
15 Readling (PWSA St. No. 8-RJ).

16 My failure to respond to a specific statement made by other parties’ witnesses
17 should not be viewed as my acceptance of their testimony. Rather, it reflects my belief
18 that a further response in this rejoinder testimony is not warranted, either because it was
19 adequately addressed in my direct testimony, is being addressed by other rejoinder
20 testimony, or because it is a legal matter that is better addressed by counsel in briefs or
21 other pleadings.

22

1 **II. SCHOOL DISTRICT’S PROPOSED STORMWATER DISCOUNT**

2 **Q. WHAT DOES THE SCHOOL DISTRICT PROPOSE IN ITS SURREBUTTAL**
3 **TESTIMONIES REGARDING A “DISCOUNT” TO ITS STORMWATER**
4 **CHARGES?**

5 A. The School District argues that, as an alternative to a full exemption from stormwater
6 charges, they should receive an 85% discount off of its stormwater charges. This is based
7 on the discount provided to low-income residential customers enrolled in PWSA’s Bill
8 Discount Program. (School District St. No. 1-SR at 16-17; School District St. No. 2-SR
9 at 22).

10 **Q. DO YOU AGREE THAT THE SCHOOL DISTRICT SHOULD RECEIVE AN**
11 **85% DISCOUNT OFF ITS STORMWATER CHARGES?**

12 A. No, I do not. As I previously testified, PWSA understands and appreciates the effect that
13 an increase to the stormwater charge may have on entities like the School District.
14 However, the School District’s mission or the fact that its students include some whose
15 families may be low income does not justify any blanket discount on their stormwater
16 charges. Like all other developed properties, the School District must pay its fair share
17 for stormwater management, in the same way as it must pay its other utility bills.

18 School District witness Callocchia analyzed the impact of their proposed discount
19 and testified that “an 85% reduction in the School District’s stormwater rates will result
20 in a maximum rate increase of 1.3%.” (School District St. No. 1-SR at 22). Mr.
21 Callocchia ignores the fact that the amounts the School District does not pay would have
22 to be absorbed by PWSA’s other customers, which include those same low income
23 families the School District uses to justify this proposed discount. While Mr. Callocchia
24 claims that this is a small increase for others to shoulder, it may be a meaningful amount
25 to those individual customers.

1 Importantly, the School District is not unique. There are many entities in
2 PWSA’s service territory that serve low-income individuals or provide other beneficial
3 services to the public. This includes the City of Pittsburgh itself, which the School
4 District has argued should absorb much of the costs for stormwater service (and which is
5 billed and pays for stormwater charges). It also includes many nonprofit organizations,
6 hospitals, public charter schools, a community college, and others. Based on the School
7 District’s logic, countless entities may be entitled to this massive discount, resulting in an
8 even heavier burden on the remaining stormwater customers – including many low or
9 moderate income customers.

10 The School District’s proposal is inherently unfair to the rest of PWSA’s
11 customers, and would create a “slippery slope” leading to a smaller and smaller customer
12 base being left to absorb more than their fair share of stormwater management costs. I
13 am also advised by counsel that providing this discount to the School District would be
14 discriminatory under Section 1304 of the Public Utility Code. The School District’s
15 proposed 85% discount – as well as the originally proposed exemption – should be
16 rejected.

17 I would highlight that PWSA remains willing to assist the School District in
18 exploring ways to qualify for a credit or otherwise reduce the impervious areas on its
19 properties. This would be a much more productive way to lower its stormwater bills, by
20 reducing runoff and thus the demand for stormwater service. In my opinion, the School
21 District is well positioned to seek funding from foundations or other entities to implement
22 stormwater control measures, and PWSA is willing to provide guidance as needed.

23

1 **III. STORMWATER CHARGES FOR CITY STREETS AND SIDEWALKS**

2 **Q. PLEASE RESPOND TO MR. CALLOCCHIA’S SURREBUTTAL TESTIMONY**
3 **REGARDING THE FACT THAT PWSA DOES NOT CHARGE FOR**
4 **STORMWATER SERVICE TO STREETS, ROADS, OR HIGHWAYS. (SCHOOL**
5 **DISTRICT ST. NO. 2-SR AT 13-15).**

6 A. Mr. Callocchia misunderstands my Rebuttal Testimony on this point. I did not claim that
7 City streets, sidewalks, etc. are part of “PWSA’s system” as Mr. Callocchia alleges.
8 Rather, I stated that PWSA does not charge for impervious area within the public right of
9 way “primarily because these facilities are an integral part of *the drainage infrastructure.*”
10 (PWSA St. No. 5-R at 8) (emphasis supplied). As explained in my Direct Testimony,
11 stormwater primarily enters PWSA’s combined wastewater system (which makes up the
12 majority of the system for collecting and conveying stormwater) through storm grates or
13 inlets located in the streets. It is common knowledge that, in order to reach those storm
14 grates or inlets which are located *in the street*, stormwater flows along streets and
15 sidewalks, thus making them a part of the overall drainage infrastructure.

16 Given this fact, PWSA does not charge the City, County or PennDOT for runoff
17 from streets, roads or highways. This is consistent with PWSA’s PUC-approved
18 stormwater tariff. Additionally, as I explained in my Rebuttal Testimony, most
19 stormwater utilities in the United States do not bill for impervious area in public rights of
20 way, and to my knowledge no stormwater utility in Pennsylvania bills for runoff from
21 roadways. The School District has not pointed to any basis for changing PWSA’s
22 approach, which is consistent with the approach typically used across the country and
23 previously found to be reasonable by the Commission.

1 **Q. PLEASE RESPOND TO MR. CALLOCCHIA'S ARGUMENT THAT THE CITY**
2 **IS THE TRUE CUSTOMER OF PWSA'S STORMWATER SERVICE. (SCHOOL**
3 **DISTRICT ST. NO. 2-SR AT 15-16).**

4 A. Mr. Callocchia argues that the City is the true customer for stormwater service, so PWSA
5 should charge the City for stormwater costs, and the City should recover those costs from
6 citizens via a City-wide tax. (School District St. No. 2-SR at 16). I disagree with this
7 claim.

8 Mr. Callocchia bases this argument on his belief stormwater is only providing
9 public benefits, rather than benefits to individual properties. As I discuss below and in
10 my Rebuttal Testimony (PWSA St. No. 5-R at 5), this is incorrect as individual
11 customers do receive discrete, tangible benefits from PWSA's stormwater management.

12 Additionally, if the City were to implement a tax to pay PWSA stormwater
13 charges, this would result in a much smaller group of customers paying more than their
14 fair share for stormwater services, including many low to moderate income residential
15 customers. Many parcels in the City are owned by large nonprofit or governmental
16 entities, such as hospitals, universities, etc. These properties may create significant
17 demand for stormwater service, but because these entities are tax exempt, they would not
18 pay such a City tax and thus would not pay their share for stormwater service. Further, if
19 stormwater charges were recovered by the City through a tax, low-income customers
20 would not have access to the significant assistance available through PWSA's Bill
21 Discount Program. This is unfair and results in charges that are not related to demand for
22 stormwater service. This proposal is unreasonable and should be rejected.

1 **IV. INDIVIDUAL BENEFITS OF STORMWATER MANAGEMENT**

2 **Q. DOES MR. CALLOCCHIA AGREE WITH YOUR STATEMENT REGARDING**
3 **THE DISCRETE, TANGIBLE BENEFITS OF STORMWATER MANAGEMENT**
4 **FOR INDIVIDUAL CUSTOMERS?**

5 A. Mr. Callocchia says that he does not “entirely” agree with my statement and goes on to
6 differentiate between benefits to a “community” versus benefits to an “individual”
7 (School District St. No. 2-SR at 10-11). Regardless of the semantics that are used – i.e.,
8 whether benefits to a community also benefit individuals or vice versa – the point is that
9 PWSA’s stormwater management does benefit individuals in the City of Pittsburgh.
10 Individual customers in Pittsburgh receive a tangible benefit because PWSA manages
11 and/or conveys stormwater runoff from individual properties, and this stormwater
12 management avoids problems that might cause flooding, property damage and water
13 quality issues.

14 **V. COMMUNITY-BASED PUBLIC PRIVATE PARTNERSHIPS**

15 **Q. PLEASE DESCRIBE MR. CALLOCCHIA’S RECOMMENDATION**
16 **REGARDING THE USE OF COMMUNITY-BASED PUBLIC PRIVATE**
17 **PARTNERSHIPS (“CBP3”).**

18 A. Mr. Callocchia recommends that PWSA “be directed to explore CBP3 relationships
19 between now and the next rate request proceeding and report the results of its efforts to
20 the parties in this proceeding” on at least an annual basis. (School District St. No. 2-SR
21 at 12-13).

22 **Q. HOW DO YOU RESPOND?**

23 A. As I noted in my Rebuttal Testimony, PWSA is willing to explore a CBP3 or similar
24 arrangement at the appropriate time, but these processes work best following the
25 development of specific stormwater alternatives. (PWSA St. No. 5-R at 5-6).

26 Nonetheless, it is important to emphasize that PWSA is under no obligation or duty to

1 pursue these arrangements. Further, it is my understanding that these partnerships would
 2 not necessarily eliminate stormwater management costs but would potentially offer
 3 another source of revenue. As Mr. Pickering’s Rebuttal Testimony stated, PWSA has
 4 secured funds from private entities to help to mitigate stormwater costs. (PWSA St. No.
 5 1-R at 15). As to obtaining funds from other sources, it would seem that for the reasons
 6 set forth in Mr. Callocchia’s Surrebuttal Testimony regarding the mission of and the
 7 population served by the School District, it is in a more favorable (sympathetic) position
 8 than PWSA as a public utility is to make such arrangements. Since PWSA’s draft
 9 Stormwater Strategic Plan currently includes a provision to consider these partnerships,
 10 and the School District has identified no requirement for PWSA to pursue CBP3
 11 arrangements, there is no justification for directing PWSA to explore these alternatives or
 12 report the results to the parties.

13 **VI. STORMWATER EXEMPTIONS IN OTHER JURISDICTIONS**

14 **Q. PLEASE DESCRIBE MR. CALLOCCHIA’S TESTIMONY REGARDING**
 15 **STORMWATER PROGRAMS IN THE CITY OF TAKOMA PARK,**
 16 **MARYLAND AND THE CITY OF JACKSONVILLE, FLORIDA.**

17 A. Mr. Callocchia disagrees with my statement that because the stormwater programs in the
 18 City of Takoma Park, Maryland and the City of Jacksonville, Florida are not operated by
 19 regulated public utilities, they fail to support the exemption of certain customers from
 20 paying stormwater charges. He also characterizes PWSA as being “unreasonably
 21 dismissive” of the School District’s point that these jurisdictions show that there are other
 22 ways to address stormwater charges. (School District No. 2-SR at 13, 19-20).

23 **Q. DO YOU HAVE A RESPONSE?**

24 A. Yes. I note that Mr. Callocchia included two sentences in his Direct Testimony – one for
 25 each program – only offering them as examples of jurisdictions that exempt certain

1 property from the imposition of stormwater charges, without any further discussion.
2 (School District St. No. 2 at 25). For instance, he presented no other details about these
3 programs, how the enabling statutes might differ in those jurisdictions or how these
4 particular exemptions might be relevant to PWSA stormwater program and impact the
5 charges paid by other PWSA customers for stormwater management. These examples,
6 which show nothing other than that a city in one state exempts property owned by the
7 government that is used for public purposes and that a city in another state exempts
8 charitable organizations, have no bearing on how PWSA's stormwater charges are or
9 should be structured. Through PWSA's approach, which was approved by the
10 Commission nearly two years ago, all properties within the City of Pittsburgh (except
11 those that are less than 400 square feet) are assessed stormwater charges consistent with
12 the amount of impervious surface on the properties. Under PWSA's PUC-approved
13 stormwater tariff, PWSA does not offer exemptions, and to the extent that PWSA's
14 stormwater rate structure would be changed to exempt certain customer classes or groups,
15 it would be necessary to recover those costs from other ratepayers. PWSA simply cannot
16 support that outcome.

17 **VII. CONCLUSION**

18 **Q. DOES THAT COMPLETE YOUR REJOINDER TESTIMONY?**

19 A. Yes. However, I reserve the right to supplement this testimony as may be appropriate.

VERIFICATION

I, Tony Igwe, hereby state that: (1) I am the Senior Group Manager, Stormwater for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rejoinder testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: 09/28/2023 | 1:30 PM EDT

DocuSigned by:

Tony Igwe

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Tony Igwe
Senior Group Manager, Stormwater
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REJOINDER TESTIMONY OF

JULIE A. MECHLING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
R-2023-3039919 (Stormwater)

TOPICS:

Performance Metrics
Convenience Fees
Collections Agencies
Low-Income Household Water Assistance Program
Infrastructure Improvement Charge

September 29, 2023

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND CURRENT POSITION WITH PWSA.**

3 A. My name is Julie A. Mechling. My position with The Pittsburgh Water and Sewer
4 Authority (“PWSA” or “Authority”) is Director of Customer Service.

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes. I submitted Direct Testimony on May 9, 2023 pre-marked PWSA St. No. 6, which
7 accompanied the rate filing package. On September 8, 2023, written Rebuttal Testimony
8 on behalf of PWSA was served and pre-marked PWSA St. No. 6-R.

9 **Q. WHAT IS THE PURPOSE OF YOUR REJOINDER TESTIMONY?**

10 A. The purpose of my testimony is to respond to the rebuttal testimony of Office of
11 Consumer Advocate (“OCA”) Witnesses Roger Colton and Barbara Alexander;
12 Pittsburgh United’s Our Water Table (“United”) Witness Harry Geller; and, Bureau of
13 Investigation & Enforcement (“I&E”) Witness Anthony Spadaccio. The topics I will be
14 addressing are:

- 15 • Ms. Alexander’s recommendations regarding PWSA’s call abandonment rates
16 and her remaining concerns regarding the use of a third party collection agency.
- 17 • Mr. Colton’s recommendations regarding returned as undeliverable mail and the
18 impact of the Low-Income Water Assistance Program (“LIHWAP”) on proposed
19 changes to PWSA’s Arrearage Forgiveness Program.
- 20 • Mr. Geller’s alternate proposal regarding reimbursement of third party
21 convenience fees for “vulnerable” customers.
- 22 • The practical implementation issues of Mr. Spadaccio’s view that the
23 Commission should not direct PWSA to implement its Infrastructure
24 Improvement Charge as part of this rate case.

25 My failure to respond to a specific statement made by other parties’ witnesses
26 should not be viewed as my acceptance of their testimony. Rather, it reflects my belief
27 that a further response in this rejoinder testimony is not warranted, either because it was

1 adequately addressed in my direct testimony, is being addressed by other rejoinder
2 testimony, or because it is a legal matter that is better addressed by counsel in briefs or
3 other pleadings.

4 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

5 A. No.

6 **II. DETERMINING CALL ABANDONMENT RATES ON AVERAGE**

7 **Q. DOES MS. ALEXANDER CONTINUE TO ADVOCATE THAT PWSA SHOULD**
8 **BE REQUIRED TO IMPLEMENT ITS INTERNAL STANDARDS TO EACH**
9 **QUEUE, INDIVIDUALLY?**

10 A. Yes; PWSA’s current internal standards are applied on an average basis across all call
11 queues consistent with agreements reached in prior rate cases.¹ In this proceeding, Ms.
12 Alexander has evaluated the performance standards of each queue separately and has
13 noted that three of the eight queues,² the collections queue, the permits queue and the
14 stormwater queue, exceeded PWSA’s internal abandonment target rate by a high of 1.8%
15 for the collections queue and a low of .3% for the permits queue. (OCA St. No. 5SR at
16 4). According to Ms. Alexander, she does “not agree that calls from some customers
17 should be handled at a lesser quality of service than calls from other customers on
18 different topics.” (OCA St. No. 5SR at 5).

19 **Q. DO YOU AGREE WITH MS. ALEXANDER’S ASSESSMENT THAT PWSA IS**
20 **TREATING SOME CALLS AT A LESSER QUALITY OF SERVICE?**

21 A. No, I do not. I continue to support the use of an average internal performance metric
22 across all queues because the queues vary in their volume and nature of calls. For

¹ See Section III, E, 7, 1 of Joint Petition for Settlement at Docket No. R-2021-3024773.

² These queues include “General,” “Dispatch,” “Collections,” “Billing and Metering,” “AMI 8920,” “AMI,” “Permits,” and “Stormwater.” See PWSA St. No. 6-R at 9.

1 example, a customer calling with a permitting question may judge that because of the
2 nature of the call, he or she can call back at a more convenient time if the call is not
3 answered immediately. Alternatively, customers with permitting questions have the
4 ability to leave a voice mail message to receive a call back. This option is also enabled in
5 the AMI, Lead Help, and Permits queues. It is important to note that the volume of calls
6 to one queue may be significantly less than another queue, thereby creating an
7 unreasonable standard for the nature of that queue. I continue to support as reasonable
8 PWSA's previously agreed to method of applying its internal performance standards on
9 an average basis across all of the customer queues to account for these differences. Ms.
10 Alexander has not shown how the slight deviation from the overall standard for three
11 specific categories has resulted in inadequate service or a lack of care for some types of
12 calls vs. other types of calls.

13 **III. PAYMENT RESPONSIBILITY FOR CONVENIENCE FEES**

14 **Q. REGARDING THE COST RESPONSIBILITY FOR CONVENIENCE FEES,**
15 **WHAT ALTERNATIVE RECOMMENDATION DOES UNITED WITNESS**
16 **GELLER OFFER IN HIS SURREBUTTAL TESTIMONY?**

17 **A.** PWSA proposed to shift the current responsibility for convenience fees from all
18 ratepayers as a component of our rates to the individual customer when electing an option
19 which charges a convenience fee. In his surrebuttal testimony, Mr. Geller suggests an
20 alternative approach whereby the convenience fees for "vulnerable" low income
21 customers who utilize third party vendors for payment would be reimbursed by PWSA to
22 the individual customer as applied to the customer's bill in the month following incursion
23 of the convenience fee. (United St. No. 1-SR at 17).

1 **Q. DOES PWSA SUPPORT THIS ALTERNATIVE RECOMMENDATION?**

2 A. No. As discussed in my rebuttal testimony, PWSA has never paid or reimbursed
3 customers for fees charged by third party retailers and PWSA does not support changing
4 this process. (PWSA St. No. 6-R at 15). Setting this aside, Mr. Geller’s alternate
5 proposal would be overly burdensome from a technical perspective because PWSA
6 would have to employ a time-consuming manual adjustment process as the operational
7 processes needed to implement such an approach do not exist in PWSA’s current
8 Customer Information System. If we were required to operationalize this approach, it
9 would involve a significant amount of time for our third party billing vendor to
10 implement the process, and the costs of such changes would need to be paid for by
11 PWSA’s ratepayers. Mr. Geller also generally refers to “vulnerable” customers, to the
12 extent he considers this group of customers to include low income customers not
13 participating in PWSA’s Bill Discount Program, PWSA does not have any marker in its
14 current Customer Information System for those customers.

15 **IV. RECOMMENDATION REGARDING RETURNED MAIL**

16 **Q. DOES OCA WITNESS COLTON CONTINUE TO BELIEVE THAT PWSA’S**
17 **MAIL RETURNED AS UNDELIVERABLE IS A SIGNIFICANT CONCERN?**

18 A. Yes, he does. He objects to these characterizations that a returned as undeliverable mail
19 rate of 2% of the monthly bills is not a significant concern. (OCA St. No. 4SR at 2-5).
20 He also clarifies that his proposal would be required when “multiple pieces of mail are
21 returned as undeliverable within a certain time period.” (OCA St. No. 4SR at 5).

1 **Q. IS THERE A REASON WHY “MULTIPLE PIECES OF MAIL” MAY BE**
2 **RETURNED TO PWSA ON A REGULAR BASIS?**

3 A. Yes. In addition to its charges, PWSA is the billing agent for ALCOSAN’s wastewater
4 treatment charges, and PWSA is required to continue to submit these bills each month
5 even for vacant properties or where the owner is deceased. The influx month after month
6 of returned bills for these ALCOSAN charges accounts for a significant portion of the 2%
7 in returned bills that I referenced in my rebuttal testimony. (PWSA St. No. 6-R at 17).
8 As noted in my rebuttal testimony, PWSA has a process in place to search for a more
9 accurate address when bills are returned, and we update the information in our Customer
10 Information System where appropriate; however, we continue to issue bills for
11 ALCOSAN charges even when a property is vacant or the property owner is deceased
12 and the PWSA services are inactive.

13 **V. USE OF COLLECTION AGENCIES**

14 **Q. NOTWITHSTANDING PWSA’S EFFORTS TO ADDRESS CONCERNS**
15 **RELATED TO THE FUTURE USE OF A COLLECTION AGENCY, DOES OCA**
16 **WITNESS ALEXANDER CONTINUE TO NOT SUPPORT THE USE OF THIS**
17 **COLLECTIONS TOOL BY PWSA?**

18 A. Yes. In her surrebuttal testimony, Ms. Alexander posits that the scope of the agreement
19 is too broad based on concerns that a prior customer seeking to re-establish service would
20 be placed in the situation of having to negotiate a payment arrangement of a past debt
21 with the third-party collection agency rather than with PWSA’s in-house customer
22 service representatives. (OCA St. No. 5SR at 10).

23 **Q. DO YOU AGREE THAT THIS POTENTIAL EXISTS?**

24 A. No. I believe Ms. Alexander is thinking of a situation where a prior PWSA customer
25 with an outstanding PWSA debt moves to a new location and attempts to re-establish

1 service at a new location. Because of its lien authority, PWSA keeps all outstanding debt
 2 with the property, not the customer who incurred the debt. Therefore, the collection
 3 agency would only be pursuing debt at a property with the property owner who may or
 4 may not have been the PWSA customer who incurred the debt. The collection agency
 5 would not be working with any active accounts or any applicants for new service.

6 VI. **IMPACT OF LOW-INCOME HOUSEHOLD WATER ASSISTANCE PROGRAM**
 7 **“LIHWAP”) ON PWSA’S ARREARAGE FORGIVENESS PROGRAM**

8 **Q. DOES OCA WITNESS MR. COLTON CONTINUE TO UNDERVALUE THE**
 9 **RECEIPT OF LIHWAP GRANTS AS A REASONABLE BASIS FOR PWSA TO**
 10 **NOT IMPLEMENT CHANGES TO ITS ARREARAGE FORGIVENESS**
 11 **PROGRAM AT THIS TIME?**

12 A. Yes. Mr. Colton appears to undervalue the funding PWSA received through the
 13 LIHWAP to pay for the arrearages of its customers, noting that 12 customers received
 14 grants between January 2023 and May 2023. He also challenges my statement that
 15 LIHWAP funding is continuing. Ultimately, Mr. Colton concludes that the “availability
 16 or non-availability of LIHWAP funding does not affect his modifications.” (OCA St. No.
 17 4SR at 27).

18 **Q. PLEASE EXPLAIN WHY MR. COLTON IS MISTAKEN.**

19 A. As I explained in my rebuttal testimony, LIHWAP grants provide real dollars to PWSA
 20 to satisfy overdue water/wastewater conveyance bills of our customers. This is in
 21 contrast to the modifications of our current program as suggested by Mr. Colton, which
 22 would increase the amount of unpaid charges that would have to be recovered from all
 23 other ratepayers. (PWSA St. No. 6-R at 41). As of September 28, 2023, a total of
 24 \$2,104,851 in LIHWAP grants have been allocated to PWSA to satisfy its customers’
 25 overdue charges. Additional funding may become available as the Department of Human

1 Services (“DHS”) continues to review the applications it has received. There is not a
 2 specific timetable for distribution of the funds based on the applications, and, to date,
 3 DHS processes and distributes the funding on an ongoing basis, even following closure of
 4 the program. Therefore, while DHS is not accepting new applications it continues to
 5 review what it has received and may distribute additional grants to PWSA. Thus, I
 6 strongly disagree with Mr. Colton’s view that this funding source is of no relevance to his
 7 proposal that we modify our existing Arrearage Forgiveness Program consistent with his
 8 suggestions to increase the amount of unpaid arrears that would have to be recovered
 9 from all our ratepayers.

10 **II. IMPLEMENTATION OF INFRASTRUCTURE IMPROVEMENT CHARGE**
 11 **(“ICC”)**

12 **Q. HAVE YOU REVIEWED THE TESTIMONY OF I&E WITNESS SPADACCIO**
 13 **REGARDING IMPLEMENTATION OF THE INFRASTRUCTURE**
 14 **IMPROVEMENT CHARGE?**

15 A. Yes. According to Mr. Spadaccio, the ICC cannot be requested as part of a base rate case
 16 but must be “formally requested outside of the 60 and 90-day window prior to the first
 17 anticipated principal and interest payment.” (I&E St. No. 1-SR at 12).

18 **Q. WHILE PWSA IS ADDRESSING THE MERITS OF THIS CLAIM IN THE**
 19 **REJOINDER TESTIMONY OF MR. BARCA, CAN YOU DISCUSS THE**
 20 **MECHANICS OF CREATING THIS CHARGE?**

21 A. Yes. Separate from the issue of what specific costs are appropriate to bill customers via
 22 PWSA’s proposed ICC, is the issue of undertaking the necessary work within the billing
 23 system and testing to be able to “turn on” the ICC so that approved costs may be billed to
 24 customers via the ICC. PWSA currently does not already have a comparable charge like
 25 the proposed ICC or the CAC which is designed to recover specific costs. The current
 26 Distribution System Improvement Charge (“DSIC”) mechanism is designed to recover a

1 percentage amount of the billed revenue. Because PWSA does not have any existing
2 fixed charge recovery mechanisms in place, it would need to be designed and the billing
3 software changes and testing would need to occur to make the ICC ready to be “turned
4 on”, regardless of whether or not costs are included for recovery in the charge. This is
5 consistent with PWSA’s proposed tariff pages regarding the ICC that show an effective
6 date of February 2024 but an amount of \$0.00 to be charged.³ I would anticipate at least
7 a nine month timeframe necessary to design and have the charge at the ready. I would
8 also note that the Commission approved implementation of our DSIC prior to PWSA
9 receiving approval to begin billing customers for costs via the DSIC. This enabled
10 PWSA to develop the system processes necessary to “turn on” the DSIC and, then, once
11 the Commission approved it as a mechanism to recover the costs of PWSA’s
12 Commission approved Long Term Infrastructure Improvement Plan (“ LTIIP”), PWSA
13 was ready to begin billing customers via the DSIC.⁴ As with the IIC, this approval to
14 have the charge ready to be utilized was necessary from an implementation standpoint.
15 As such, Mr. Spadaccio’s recommendation to wait until some future date to request a
16 recovery of incurred costs on a few months turnaround time is not practical. Thus,
17 regardless of whether or not the Commission determines that a specific timeframe or
18 process is required for PWSA to follow prior to receiving approval for the recovery of
19 specific costs, approval for PWSA to create the mechanism as part of this rate proceeding
20 is necessary and reasonable to enable the opportunity for PWSA to seek future cost
21 recovery through the IIC.

³ See, e.g, PWSA Exh. No. JAM-12 at tariff page 8B.

⁴ PWSA’s Initial Tariff included the Commission approved details regarding PWSA’s DSIC and set the rate at 0% until PWSA received approval in the subsequent rate case to begin assessing a DIC with a 5% cap.

VIII. CONCLUSION

2 Q. **DOES THAT COMPLETE YOUR REJOINDER TESTIMONY?**

3 A. Yes.

VERIFICATION

I, Julie A. Mechling, hereby state that: (1) I am the Director of Customer Service for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rejoinder testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

09/28/2023 | 2:12 PM EDT
Date: _____

DocuSigned by:
Julie A. Mechling
00802B35FAA54E3

Julie A. Mechling
Director of Customer Service
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REJOINDER TESTIMONY OF

KEITH READLING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920 (Water)

R-2023-3039921 (Wastewater)

R-2023-3039919 (Stormwater)

TOPICS:

Stormwater

September 29, 2023

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Exhibit KR-4	PWSA’s Response to School District-V-8 through V-10
Exhibit KR-5	PWSA’s Response to School District-V-6 and V-7

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Keith Readling. I am Executive Vice President of Raftelis Financial
4 Consultants, Inc. (“Raftelis”).

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes, I submitted Direct Testimony on May 9, 2023, which accompanied the rate filing
7 (PWSA St. No. 8). I also submitted Rebuttal Testimony on September 8, 2023 (PWSA
8 St. No. 8-R).

9 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

10 A. The purpose of my testimony is to respond to the Surrebuttal Testimony of Eric M.
11 Callocchia on behalf of the Pittsburgh School District (“School District”) (School District
12 St. No. 2-SR) regarding certain stormwater topics. Other stormwater issues raised by the
13 School District are being addressed in Rejoinder Testimony submitted by Tony Igwe
14 (PWSA St. No. 5-RJ).

15 My failure to respond to a specific statement made by other parties’ witnesses
16 should not be viewed as my acceptance of their testimony. Rather, it reflects my belief
17 that a further response in this rejoinder testimony is not warranted, either because it was
18 adequately addressed in my direct testimony, is being addressed by other rejoinder
19 testimony, or because it is a legal matter that is better addressed by counsel in briefs or
20 other pleadings.

21 **II. METHODS FOR ADDRESSING IMPERVIOUS AREA**

22 **Q. PLEASE RESPOND TO MR. CALLOCCHIA’S SURREBUTTAL TESTIMONY**
23 **ARGUING THAT PWSA SHOULD “INVESTIGATE” USING THE INTENSITY**
24 **OF DEVELOPMENT FACTOR (“IDF”) AND EQUIVALENT HYDRAULIC**
25 **AREA (“EHA”) METHODOLOGIES RATHER THAN EQUIVALENT**

1 **RESIDENTIAL UNIT (“ERU”) TO DETERMINE STORMWATER BILLS.**
2 **(SCHOOL DISTRICT ST. NO. 2-SR AT 16-17).**

3 A. In his Surrebuttal Testimony, Mr. Callocchia argues that IDF or EHA would be more
4 equitable for assigning stormwater costs to parcels because they consider both the
5 impervious and pervious area of each parcel. Since parcel size varies, he believes that
6 parcels that are mostly impervious will create more demand for stormwater service than a
7 parcel with the same amount of impervious area but with a larger lot size and more
8 pervious area that would absorb runoff. (School District St. No. 2-SR at 17). Mr.
9 Callocchia fails to understand how charges are calculated under IDF or EHA. The result
10 of these approaches would be extremely similar to PWSA’s current approach using
11 impervious area in units of ERUs, while also being much more complicated and
12 expensive for PWSA to implement.¹

13 IDF rate structures typically assign an intensity of development factor to a parcel,
14 then multiply that factor by the parcel’s gross area and a rate to calculate the parcel’s
15 stormwater charge. In response to the School District’s Interrogatory V-8, I provided an
16 example of how IDF is applied in Horry County, South Carolina.² As long as the IDF
17 assigned to a parcel is accurate, the end result will be very similar to the impervious area
18 or ERU approach.

19 EHA rate structures compute a parcel’s charge by: (1) multiplying an impervious
20 area rate by a parcel’s impervious area; (2) multiplying a pervious area rate by a parcel’s
21 pervious area; and (3) adding the two amounts together. Foundational to this approach
22 would be to decide how much of the stormwater costs and revenues should be allocable

¹ See PWSA Exh. KR-4, PWSA’s Response to School District-V-9.

² See PWSA Exh. KR-4, PWSA’s Response to School District-V-8.

1 to impervious area versus pervious area. A thoughtfully crafted EHA rate structure
 2 would allocate zero or very little cost and revenue to pervious area because impervious
 3 area is the paramount variable influencing stormwater runoff. An EHA rate structure that
 4 allocated zero or very little cost and revenue to pervious area will be similar to the
 5 impervious area approach.

6 **Q. DO YOU HAVE ANY OTHER RESPONSE TO THE SCHOOL DISTRICT ON**
 7 **THIS TOPIC?**

8 A. As I have testified previously, PWSA carefully considered the structure and approach of
 9 its stormwater rates. The current approach using impervious area in units of ERUs is by
 10 far the most common approach used across the United States, and the Commission has
 11 already approved PWSA's approach as being reasonable. Mr. Callocchia's IDF and EHA
 12 recommendations are solutions in search of a problem, and would be much more
 13 complex, expensive, and confusing to customers if implemented. As such, Mr.
 14 Callocchia's position should be rejected.

15 **III. ERU ROUNDING**

16 **Q. PLEASE RESPOND TO MR. CALLOCCHIA'S CLAIM THAT PWSA'S**
 17 **APPROACH TO ROUNDING FOR ERUS IS "INCONSISTENT." (SCHOOL**
 18 **DISTRICT ST. NO. 2-SR AT 17-18).**

19 A. Mr. Callocchia refers to PWSA's database and process for capturing impervious area as
 20 "inaccurate" and "flawed." Again, Mr. Callocchia ignores or misunderstands how PWSA
 21 captures impervious area.

22 Mapping of impervious surfaces is done by human delineation of impervious
 23 surfaces via photointerpretation using aerial imagery as a backdrop. These impervious
 24 features are created as polygons, overlaid with parcel polygons and intersected to tally
 25 impervious square footage on a parcel-by-parcel basis across the service area. This

1 approach is more likely to under-capture impervious area than over-capture for three
2 reasons. First, imperfect registration between aerial imagery and the parcel polygons
3 sometimes results in slivers of impervious surface being excluded. Second, the human
4 element of the capture process is more likely to err on the side of mistakenly excluding
5 impervious features rather than wrongly creating impervious features where none exist.
6 And third, features smaller than 100 square feet or linear features narrower than four feet
7 in width are often not captured. Examples of each of these scenarios is provided in
8 PWSA Exhibit KR-5, PWSA's response to School District Interrogatory V-6. PWSA's
9 current practice for rounding ERUs is reasonable and accounts for this tendency to under-
10 capture ERUs.

11 Any process for identifying impervious area will never be perfect, but PWSA's
12 process is quite accurate and has previously been determined by the Commission to be
13 reasonable. PWSA follows the process outlined in its PUC-approved tariff for
14 identifying the tier applicable to residential customers or rounding up to integer ERUs for
15 non-residential customers. PWSA's current practice is fair and reasonable and should be
16 maintained.

17 **IV. PROPERTIES ASSESSED STORMWATER CHARGES**

18 **Q. PLEASE RESPOND TO MR. CALLOCCHIA'S STATEMENTS REGARDING**
19 **THE FACT THAT PROPERTIES WITH LESS THAN 400 SQUARE FEET OF**
20 **IMPERVIOUS AREA ARE NOT CHARGED FOR STORMWATER SERVICE.**

21 A. In his Surrebuttal Testimony, Mr. Callocchia wrongly states that "PWSA is already
22 making policy and other distinctions among customers that provide exemptions or deep
23 discounts on stormwater charges." (School District St. No. 2-SR at 18-19). He assumes
24 that because PWSA does not charge properties with less than 400 square feet of

1 impervious area, this is a type of “exemption” intended to help some unspecified group of
2 customers. (*Id.*).

3 These statements are incorrect. The purpose of the 400 square foot minimum of
4 impervious area is to factor in a margin of error that can be expected when calculating
5 impervious area. This approach is intended to correct for small amounts of impervious
6 area that may have been incorrectly assigned to a property based on the aerial imagery
7 and parcel lines. It is not an “exemption” or “deep discount” but rather a recognition of a
8 margin of error in identifying impervious area using aerial imagery.

9 This approach was addressed in PWSA’s 2021 rate case. The Commission found
10 this to be reasonable and approved it as part of PWSA’s stormwater tariff.

11 V. **CONCLUSION**

12 Q. **DOES THAT COMPLETE YOUR REJOINDER TESTIMONY?**

13 A. Yes. However, I reserve the right to supplement this testimony as may be appropriate.

Exhibit KR-4

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories and Requests for Production of Documents
of The School District of Pittsburgh, Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Re: PWSA witness Readling, PWSA St. No. 8-R

Request: School District -V-8 Reference P.5, lines 23-24 and p. 6, line 1: Identify, describe, explain and support your assertions that using IDF and EHA will result in a similar approach to using impervious area. Provide all Documents in support of your answer.

Response: IDF rate structures typically assign an intensity of development factor (the IDF) to a parcel, then multiply that factor times the parcel’s gross land area to get an impervious area, then multiply that impervious area times a rate to get the parcel’s charge. One well-documented stormwater utility that uses IDF is Horry County, SC. A description of that methodology showing what I describe can be found at <https://www.horrycountysc.gov/departments/stormwater/major-initiatives/utility-fee/>. As long as the IDF assigned to a parcel is accurate, the IDF approach will be similar to the impervious area approach.

Were a rate structure to be established using EHA it would compute a parcel’s charge by multiplying an impervious area rate by a parcel’s impervious area and adding that to the parcel’s pervious area rate times it’s pervious area. Foundational to this approach would be to decide how much of the stormwater costs and revenues should be allocable to impervious area versus to pervious area. A thoughtfully crafted EHA rate structure would allocate zero or very little cost and revenue to pervious area because impervious area is the paramount variable influencing stormwater runoff (see my response to V-1 and earlier testimony about impervious area rate structures). An EHA rate structure that allocated zero or very little cost and revenue to pervious area will be similar to the impervious area approach.

Response provided by: Keith Readling

Date response provided: September 21, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories and Requests for Production of Documents
of The School District of Pittsburgh, Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Re: PWSA witness Readling, PWSA St. No. 8-R

Request: School District -V-9 Reference P.5, lines 23-24 and p. 6, line 1: Identify, describe, explain and support your assertions that using IDF and EHA will result in similar numbers, be overly complicated and be more expensive for PWSA to implement than using impervious area. Provide all Documents in support of your answer.

Response: My answer to V-8 shows the results of using an IDF or EHA rate structure would be similar.

In terms of complexity, the IDF approach requires the use of an IDF table and parcel gross area to arrive at a parcel’s charge, rather than just one piece of data when using impervious area. This IDF approach is harder to explain to ratepayers as well. The EHA approach requires a cost allocation be developed to allocate some cost to pervious area, then requires the use of both pervious and impervious area values, plus two rates to arrive at a parcel’s charge. This is more complex and harder to explain than an impervious area rate structure.

Both of these approaches would be more expensive to implement because of the increased number of inputs (and associated data maintenance) into the rate computation and because customer service workload would be higher driven by the complexity of the rate formulas.

Response provided by: Keith Readling

Date response provided: September 21, 2023

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories and Requests for Production of Documents of The School District of Pittsburgh, Set V

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Re: PWSA witness Readling, PWSA St. No. 8-R

Request: School District -V-10 Reference P. 6, lines 7-8: Identify, describe, explain and support your assertions that using IDF and EHA would only primarily benefit properties with 100% impervious area. Provide all Documents in support of your answer.

Response: Many stormwater utilities that use IDF rate structures set the highest IDF value at less than 1.0. For example, Horry County’s highest IDF is 0.95 and Cincinnati MSD’s highest IDF factor is 0.85. A ratepayer in a stormwater utility where their actual percent impervious is higher than the highest factor used for computations will benefit. Since the highest IDF is slightly less than 1.0 in many of these situations, the primary benefit goes to ratepayers at or very near 100% imperviousness.

An EHA rate structure that allocates a percentage of cost and revenue to pervious area, as I described in my response to V-8, will benefit ratepayers at or very near 100% imperviousness, because they will not pay much or anything for pervious area since they have little or none. An EHA rate structure that allocated 5% of cost and revenue to pervious area would benefit a 100% impervious area parcel by 5%.

Response provided by: Keith Readling

Date response provided: September 21, 2023

Exhibit KR-5

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories and Requests for Production of Documents
of The School District of Pittsburgh, Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Re: PWSA witness Reading, PWSA St. No. 8-R

Request: School District -V-6 Reference P. 5, lines 6-9: Identify, describe, explain and support your assertions that mapping of impervious areas results in boundaries being clipped in way that underestimates impervious area or areas might be ignored. Provide all Documents in support of answer.

Response: Mapping impervious surfaces was and is done by human delineation of impervious surfaces via photointerpretation using aerial imagery as a backdrop. These impervious features are created as polygons, overlaid with parcel polygons and intersected to tally impervious square footage on a parcel-by-by parcel basis across the service area. This approach is more likely to under-capture impervious area than over-capture for three reasons:

1. Imperfect registration between aerial imagery and the parcel polygons sometimes results in slivers of impervious surface (shown in transparent blue on all three figures) being excluded. Figure 1 is one such example on Jane Street. Two edges of the building fall outside the parcel footprint and are not captured.
2. The human element of the capture process is more likely to err on the side of mistakenly excluding impervious features than to wrongly create impervious features where none exist. Figure 2 is one such example on Grant Street. The edges of the building are on the parcel but were not captured.
3. Features smaller than 100 square feet in size or linear features narrower than 4 feet in width are often not captured. Figure 3 shows a number of small structures where the impervious area was not captured on a parcel on Dallas Avenue.

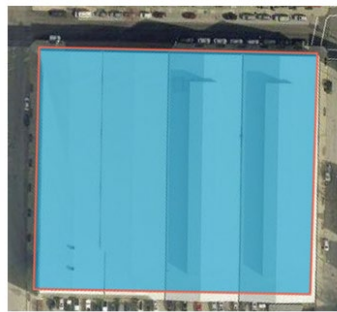


Figure 1



Figure 2



Figure 3

Response provided by: Keith Reading

Date response provided: September 21, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories and Requests for Production of Documents
of The School District of Pittsburgh, Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Re: PWSA witness Readling, PWSA St. No. 8-R

Request: School District -V-7 Reference P. 5, lines 10-11: Identify, describe and explain how you determined that rounding up and down as suggested by School District witness Callocchia will result in a 4% revenue decrease for PWSA. Provide all Documents in support of answer.

Response: Current annualized billings are about \$24,500,000 at today’s rate of \$7.95 per ERU per month, and there are about 20,900 non-residential parcels being billed. Following Callocchia’s suggested “round up or down to the nearest half ERU” approach, the bill for each of the 20,900 non-residential parcels will either stay the same, drop by half an ERU, or drop by a whole ERU. Assuming the measured impervious area is uniformly distributed within each one ERU band, which it largely is, within any one ERU band, say from N to N+1 ERUs, about ¼ of the parcels will see their charge drop by one ERU because they fall in the N to N+0.25 range and will round down to N ERUs (or 2N half-ERUs). About ¼ will see their charge remain unchanged because they fall in the N+3/4 to N+1 range and will continue to round up to N+1 ERUs. The other half of the parcels will fall in the N+1/4 to N+3/4 ERU range and will round to N+1/2 since the proposed new unit is ½ ERU. In total this would be a loss of 10,450 ERUs per month of revenue, which, at today’s rate is $10,450 * 7.95 * 12$ or \$997,000 per year of lost revenue. That lost revenue is $\$997,000 / \$24,500,000$ or about 4%. The rate increase required to make this revenue neutral would be $\$24,500,000 / (\$24,500,000 - \$997,000)$ which is about a 4.2% rate increase.

To verify these derived results, I also applied Callocchia’s suggested “round up or down to the nearest half ERU” approach to the actual parcel data for each parcel, since we have measured impervious area for each. I computed for each parcel how many half ERUs they would be billed under the suggested approach, and at today’s rates the actual loss would be \$984,000 per year, versus the statistical estimated loss of \$997,000 per year. Using this actual number, the rate increase required to maintain revenues would be 4.2%, the same result as that determined from the statistical approach.

Response provided by: Keith Readling

Date response provided: September 21, 2023

VERIFICATION

I, Keith Reading, hereby state that: (1) I am the Executive Vice President, Raftelis Financial Consultants, Consultant to The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my rejoinder testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: 09/28/2023 | 1:20 PM EDT

DocuSigned by:
Keith Reading
6F3B71C3AB01469

Keith Reading
Executive Vice President
Raftelis Financial Consultants

Consultant to:
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

REJOINDER TESTIMONY OF

CHRISTINE M. FAY

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos.

R-2023-3039920	(Water)
R-2023-3039921	(Wastewater)
R-2023-3039919	(Stormwater)

TOPICS:

Revenue Requirement Recommendations of Other Parties
Rating Agency Considerations
Multi-Year Rate Plan
Capital Markets Considerations

September 29, 2023

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. Christine M. Fay. I am a Senior Managing Director and Partner with Public Resources
4 Advisory Group, Inc. (“PRAG”).

5 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?**

6 A. Yes, I submitted Direct Testimony, PWSA St. No. 9, together with accompanying
7 exhibits CF-1 to CF-9 on May 9, 2023, which accompanied the rate filing, and Rebuttal
8 Testimony (PWSA St. 9-R), together with accompanying Exhibits CF-10 to CF-13, on
9 September 8, 2023.

10 **Q. WHAT IS THE PURPOSE OF YOUR REJOINDER TESTIMONY?**

11 A. My rejoinder testimony responds to the various recommendations including financial
12 metrics, revenue, and expense recommendations contained in portions of the surrebuttal
13 testimony submitted by the Bureau of Investigation and Enforcement (“I&E”) and the
14 Office of Consumer Advocate (“OCA”) (together, “the Opposing Parties”).

15 I have attempted to respond to the specific statements and recommendations made
16 by the Opposing Parties’ witnesses. In the event that an issue is not addressed, this should
17 not be viewed as my acceptance of their testimony. Rather it reflects my belief that a
18 further response in this rejoinder testimony is not warranted, either because it was
19 adequately addressed in my prior testimony, was addressed by other prior testimony on
20 behalf of PWSA, or because it is a legal matter that is better addressed by counsel in
21 briefs or other pleadings.

22 **Q. ARE YOU SPONSORING ANY EXHIBITS?**

23 A. No, I am not sponsoring any exhibits.

1 **II. I&E's UPDATED FPPTY REVENUE REQUIREMENT RECOMMENDATION**

2 **Q. DO YOU THINK THE RATING AGENCIES WILL HAVE CONCERNS WITH**
3 **I&E'S UPDATED FPPTY REVENUE REQUIREMENT AND RESULTING**
4 **FINANCIAL METRICS?**

5 A. Yes, as discussed in Mr. Barca's rejoinder testimony (Barca No.2-RJ 3-4), I&E's updated
6 FPPTY total recommended revenue requirement is increased to \$227,685,945 (an
7 increase of \$25,026,204 to current rates) and claims to achieve senior debt service
8 coverage of 1.64x, total debt service coverage of 1.2x and days cash on hand of 289.
9 However, it only achieves these financial metrics by significantly haircutting operating
10 expenses and existing debt service expenses. These same financial metrics drop to senior
11 debt service coverage of 1.35x, total debt service coverage of 0.89x and days cash on
12 hand of 189 without the normalization of expenses. These financial metrics (without
13 normalization) directly violate the Authority's rate covenant with bondholders which
14 would be very alarming to the rating agencies and result in credit downgrades.

15 As discussed in my Rebuttal Testimony (Fay No 9-R at 22), the rating agencies
16 signaled in their most recent reports that they expect the PUC to grant rate increases at or
17 near the requested levels in order for the Authority to continue to fund critical operations
18 and to continue to invest in capital needs given the Authority's aged infrastructure and
19 EPA consent decree.

20 Rather than recommending a revenue requirement sufficient to fund the
21 Authority's escalating operational and capital costs, I&E reduced both of these areas
22 which allows it to claim that the Authority will maintain its financial metrics at
23 reasonable levels. This approach is counter to the rating agencies expectations and strong
24 financial management practices of setting rates sufficient to cover projected operating
25 costs and capital investment needs while maintaining strong financial metrics and could

1 lead the agencies to question the Authority's strong governance practices and credit
2 supportive relationship with the PUC.

3 **III. CREDIT RATING CONSIDERATIONS**

4 **Q. DO YOU HAVE CONCERNS REGARDING THE IMPACT TO THE**
5 **AUTHORITY'S CREDIT RATING BASED ON MR. SPADACCIO'S AND MR.**
6 **MUGRACE'S SUGGESTIONS THAT THE AUTHORITY CAN FILE ANOTHER**
7 **RATE CASE IF THE RECOMMENDED FPFTY REVENUE REQUIRMENT IS**
8 **NOT ADEQUATE?**

9 Yes, Mr. Spadaccio states (I&E St. No. 1-SR at 24) that "If the Authority experiences a
10 revenue deficiency to the point it is unable to issue additional bonds, it can file another
11 rate case." Additionally, Mr. Mugrace suggests (OCA St. No. 1SR at 5) that "PWSA can
12 always seek additional rate relief if needed."

13 If the PUC approves a revenue requirement for FPFTY that is not sufficient to fund
14 Authority operations and pass the additional bonds test to allow the Authority to access
15 the capital markets this would be considered a significant credit negative to the rating
16 agencies. Additionally, rate cases are very time intensive and take months of planning
17 and Authority resources to prepare for. If FPFTY revenues were determined to be
18 deficient and preclude the Authority from accessing the capital markets, based on
19 advisement from counsel, there would be little the Authority could do in FPFTY, as
20 likely a new rate case would not produce results until FY 2025. This would result in poor
21 financial metrics for FPFTY and put the Authority at risk of a rating downgrade. If the
22 Authority had to resort to requesting extraordinary or emergency rate relief this too
23 would be viewed extremely negatively by the bond rating agencies. Therefore, relying
24 on another rate case or an extraordinary rate relief case should not be seen as a viable
25 back-up plan as it would certainly expose the Authority to scrutiny from the rating

1 agencies and jeopardize the Authority's operations, capital investment and overall
2 financial progress.

3 **IV. MYRP**

4 **Q. DO YOU SEE A BENEFIT OF THE MYRP GIVEN MR. SPADACCIO'S**
5 **SUGGESTION OF STRIVING FOR IMPORVED DSCR AND DCOH**
6 **FINANCIAL METRICS OVERTIME?**

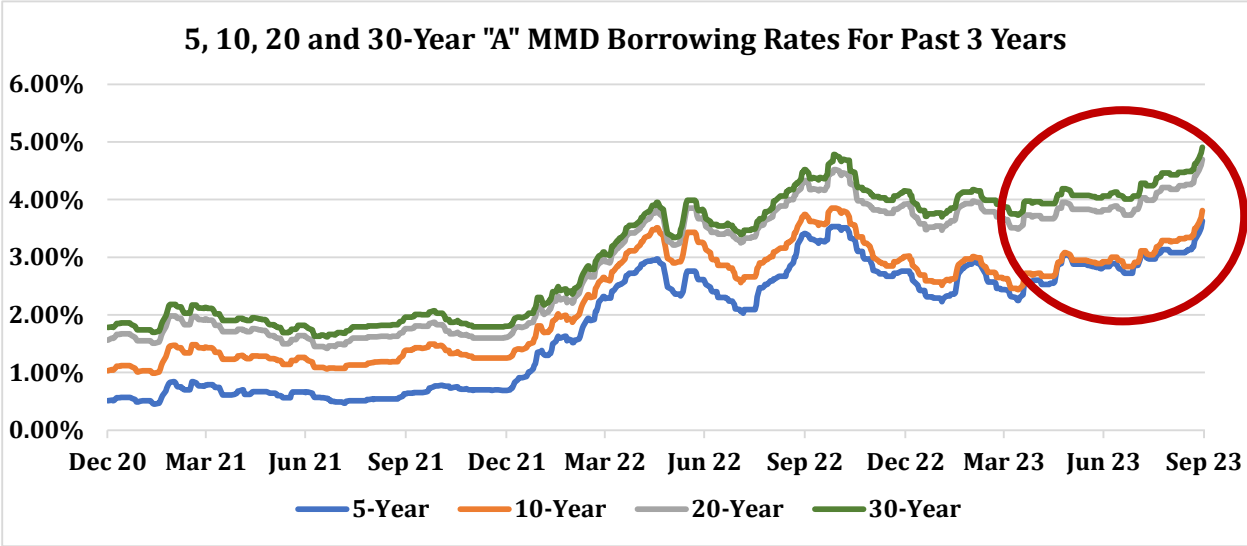
7 A. Yes. In Mr. Spadaccio's surrebuttal (Spadaccio No 1-SR at 19 and 26) he recognizes that
8 the Authority should be striving towards higher debt service coverages and DCOH
9 financial metrics more in line with its peers, but suggests this needs to be done over time
10 in order to not burden rate payers for many prior years of mismanagement. I believe a
11 MYRP would allow for this incremental improvement of the Authority's financial
12 metrics in a phased approach over time consistent with Mr. Spadaccio's suggestion.
13 Unfortunately, I &E opposes any such multi-year plan.

14 **V. CAPITAL MARKETS CONSIDERATIONS**

15 **Q. HAVE MUNICIPAL BORROWING RATES MATERIALLY CHANGED SINCE**
16 **THE FILING OF THE REQUESTED RATE REQUEST?**

17 A. Yes; since the initial filing of this rate request on May 9, 2023, municipal borrowing rates
18 have increased significantly. I have updated the chart from my original testimony (PWSA
19 St. No. 9, page 17 at 3), and specifically call attention to the red-circled region of the
20 below chart. This shows that borrowing rates for A rated credits in the 5-year through 30-
21 year maturities have increased from 98 to 114 basis points (0.90% to 1.14%) from May 9
22 through market close on September 28 which if rates are sustained at these higher levels
23 will result in increased borrowing costs and interest expense for the Authority. These
24 higher levels are not reflected in PWSA's debt service projections for the FPPTY and
25 further support the reasonableness of granting all or substantially all of the Authority's

1 request in order to permit it to continue its modernization improvements and maintain its
2 financial stability.



3
4 *Municipal Market Data (MMD) is the standard index for municipal bonds. MMD publishes various yield
5 curves (1 to 30 years) for different credits/rating categories.
6

7 **VI. CONCLUSION**

8 **Q. DOES THAT COMPLETE YOUR REJOINDER TESTIMONY?**

9 A. Yes; however, I do reserve the right to supplement this testimony as may be appropriate.

VERIFICATION

I, Christine Fay hereby state that: (1) I am Senior Managing Director and Partner with Public Resources Advisory Group, Inc.; (2) I have been retained by The Pittsburgh Water and Sewer Authority and am authorized to present rejoinder testimony on its behalf; (3) the facts set forth in my rejoinder testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C .S. § 4904 (relating to unsworn falsification to authorities).

09/28/2023 | 1:27 PM EDT

Dated

DocuSigned by:

Christine Fay

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Christine Fay, Senior Managing Director and Partner
Public Resources Advisory Group, Inc.

Consultant to:
The Pittsburgh Water and Sewer Authority

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	Docket Nos. R-2023-3039919 (Stormwater)
	:	R-2023-3039920 (Water)
V.	:	R-2023-3039921 (Wastewater)
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	

**TESTIMONY AND EXHIBITS OF
PITTSBURGH WATER AND SEWER AUTHORITY**

Initial Filing	Volumes
Rate Filing Package Dated May 9, 2023	Volume I: Statement of Reasons, Customer Notice of Proposed Rate Changes and Filing Requirements
<i>With below referenced correction previously filed:</i>	
<ul style="list-style-type: none"> • Revised Schedule FR III.2 as filed June 22, 2023 • Second Revised Schedule FR III.1 as filed July 12, 2023 	

Direct Testimony (dated 5/9/23)	Witness	Exhibits
PWSA St. No. 1	Direct Testimony of William J. Pickering	WJP-1, WJP-2
PWSA St. No. 2 (as revised 9/6/23)	Direct Testimony of Edward Barca	EB-1 to EB-9
PWSA St. No. 3	Direct Testimony of William J. McFaddin	None
PWSA St. No. 4	Direct Testimony of Barry King	BK-1 to BK-4
PWSA St. No. 5	Direct Testimony of Tony Igwe	Appendix A, TI-1 to TI-2
PWSA St. No. 6	Direct Testimony of Julie A. Mechling	JAM-1 to JAM-16
PWSA St. No. 7	Direct Testimony of Harold J. Smith	HJS-1 to HJS-2, HJS-1W to HJS-25W, HJS-1WW to HJS-24WW, HJS-1SW to HJS-13SW
PWSA St. No. 8	Direct Testimony of Keith Readling	Appendix A, KR-1 to KR-2
PWSA St. No. 9	Direct Testimony of Christine M. Fay	Appendix A, CF-1 to CF-9

Rebuttal Testimony (dated 9/8/23)	Witness	Exhibits
PWSA St. No. 1-R	Rebuttal Testimony of William J. Pickering	WJP-3 to WJP-4
PWSA St. No. 2-R	Rebuttal Testimony of Edward Barca	EB-10 to EB-14
PWSA St. No. 3-R	Rebuttal Testimony of William J. McFaddin	None
PWSA St. No. 4-R	Rebuttal Testimony of Barry King	BK-5
PWSA St. No. 5-R	Rebuttal Testimony of Tony Igwe	TI-3 to TI-7
PWSA St. No. 6-R	Rebuttal Testimony of Julie A. Mechling	JAM-17 to JAM-24

PWSA Hearing Exhibit No. 1

Rebuttal Testimony (dated 9/8/23)	Witness	Exhibits
PWSA St. No. 7-R	Rebuttal Testimony of Harold Smith	Exhibit A, HJS-1-R to HJS-2-R, HJS-1W-R to HJS-25W-R, HJS-1WW-R to HJS-24WW-R, HJS-1SW-R to HJS-13SW-R
PWSA St. No. 8-R	Rebuttal Testimony of Keith Readling	KR-3
PWSA St. No. 9-R	Rebuttal Testimony of Christine M. Fay	CF-10 to CF-13

Rejoinder Testimony (dated 9/29/23)	Witness	Exhibits
PWSA St. No. 2-RJ	Rejoinder Testimony of Edward Barca	EB-15
PWSA St. No. 4-RJ	Rejoinder Testimony of Barry King	None
PWSA St. No. 5-RJ	Rejoinder Testimony of Tony Igwe	None
PWSA St. No. 6-RJ	Rejoinder Testimony of Julie A. Mechling	None
PWSA St. No. 8-RJ	Rejoinder Testimony of Keith Readling	KR-4 to KR-5
PWSA St. No. 9-RJ	Rejoinder Testimony of Christine M. Fay	None

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PENNSYLVANIA PUBLIC UTILITY COMMISSION	:	
	:	Docket Nos. R-2023-3039919 (Stormwater)
	:	R-2023-3039920 (Water)
V.	:	R-2023-3039921 (Wastewater)
	:	
PITTSBURGH WATER AND SEWER AUTHORITY	:	

JOINT STIPULATION OF THE PITTSBURGH WATER AND SEWER AUTHORITY AND OFFICE OF CONSUMER ADVOCATE


The Pittsburgh Water and Sewer Authority (“PWSA”) and the Office of Consumer Advocate (together, the “Stipulating Parties”) by their respective counsel, hereby enter into a Joint Stipulation with regard to the above-captioned proceeding as follows.

1. The Stipulating Parties agree to the entry of the testimony of each party into the record and each agrees to waive cross of the other party’s witness(es).
2. The Stipulating Parties agree to the entry of the below reference and attached discovery responses into the record:
 - PWSA Responses to OCA-XXI-1 and OCA-XXI-2 and supporting Attachment OCA-XXI-1
 - OCA Responses to PWSA-I-19, PWSA-I-20 and PWSA-II-7.

Dated: October 3, 2023

Respectfully submitted,

/s/ Christy M. Appleby
Christy M. Appleby
Senior Assistant Consumer Advocate
PA Office of Consumer Advocate
555 Walnut Street, 5th Floor, Forum Place
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717.237.6000
717.237.6019 (fax)

*Counsel for
PA Office of Consumer Advocate*

*Counsel for
The Pittsburgh Water and Sewer Authority*

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XXI (21)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XXI-1 Reference PWSA Statement. No. 3-R, page 2, lines 2-7. For each newly metered property, please provide monthly usage and costs/rates by component since being metered and identify the monthly charge that would have been applicable if the property was not metered.

Corrected Response: See attachment OCA-XXI-1. Consistent with PWSA’s Tariff Water – Pa. P.U.C. No. 1, Section A.1, Page No. 9, unmetered City of Pittsburgh accounts should be billed in accordance with the Cooperation Agreement pursuant to 71 P.S. §§ 720.211 to 720.213.

Response provided by: William McFaddin, Director of Operations.

Date response provided: September 22, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XXI (21)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XXI-2 Will PWSA be adjusting its revenue projections to account for revenue from the newly metered properties referenced in PWSA Statement. No. 3-R, page 2? If so, indicate the amount of revenue for each property and how PWSA will account for it in this rate case. If not, explain why not.

Response: PWSA’s revenue projections assumed that all City properties would be metered. Therefore, no revenue projections are being proposed.

Response provided by: Edward Barca, Director of Finance

Date response provided: September 21, 2023

Premise Address	Document Number	Posting Date	Net Due Date	Days of Service	Consumption			Wastewater Conveyance		Wastewater			Total Billed
					in TGALS	Water Minimum	Water Usage	Minimum	Conveyance Usage	ALCOSAN	Stormwater	DSIC	
	50000011890	9/13/2023	10/3/2023	8/1/23-8/31/23	51	\$161.48	\$452.64	\$36.95	\$173.02	\$538.19	\$357.75	\$41.21	\$1,761.24
	50000011889	9/13/2023	10/3/2023	7/1/23-7/31/23	79	\$161.48	\$761.76	\$36.95	\$291.18	\$829.67	\$357.75	\$62.57	\$2,501.36
	50000011888	9/13/2023	10/3/2023	6/1/23-6/30/23	45	\$161.48	\$386.40	\$36.95	\$147.70	\$475.73	\$357.75	\$36.62	\$1,602.63
	50000011887	9/13/2023	10/3/2023	5/2/23-5/31/23	20	\$161.48	\$110.40	\$36.95	\$42.20	\$215.48	\$357.75	\$17.55	\$941.81
	50000011886	9/13/2023	10/3/2023	4/1/23-5/1/23	8	\$161.48	\$0.00	\$36.95	\$0.00	\$90.56	\$357.75	\$9.92	\$656.66
	50000011885	9/13/2023	10/3/2023	3/1/23-3/31/23	9	\$161.48	\$0.00	\$36.95	\$0.00	\$100.97	\$357.75	\$9.92	\$667.07
	50000011876	9/13/2023	10/3/2023	2/3/23-2/28/23	45	\$161.48	\$386.40	\$36.95	\$147.70	\$475.73	\$357.75	\$36.62	\$1,602.63
	50000011963	9/13/2023	10/3/2023	8/1/23-8/31/23	1654	\$269.82	\$18,072.48	\$61.03	\$6,908.14	\$17,225.42	\$174.90	\$1,265.58	\$43,977.37
	50000011962	9/13/2023	10/3/2023	7/1/23-7/31/23	3966	\$269.82	\$43,596.96	\$61.03	\$16,664.78	\$41,293.34	\$174.90	\$3,029.63	\$105,090.46
	50000011961	9/13/2023	10/3/2023	6/13/23-6/30/23	2615	\$159.67	\$28,759.20	\$36.12	\$10,993.10	\$27,229.43	\$174.90	\$1,997.40	\$69,349.82

Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority (PWSA)
Docket Nos. R-2023-3039919 (Stormwater)
R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
2023 Base Rate Case Proceeding

Responses to PWSA
Interrogatories to OCA Set I

19. Does Dr. Pavlovic agree that, to the extent that PWSA's revenues expenses or capital expenditures levels turn out to be different than those currently projected, any resulting gain or loss will be reflected in PWSA's cash balance and will be reflected in future determinations of PWSA's revenue requirement? If not, why not?

Response: Yes, but Dr. Pavlovic does not agree that the state of PWSA's actual cash balance at the end of the proposed MYRP period (2024-2026) in this proceeding is relevant to whether the rates proposed for 2024 -2026 protect ratepayers against unjust and unreasonable rates.

Sponsoring Witness: Karl Pavlovic

Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority (PWSA)
Docket Nos. R-2023-3039919 (Stormwater)
R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
2023 Base Rate Case Proceeding

Responses to PWSA
Interrogatories to OCA Set I

20. Please refer to OCA St. 2 at 8-9:

- (a) Would the MYRP be acceptable to witness Pavlovic if it included the procedures set forth on pages 8 and 9 of his direct testimony regarding Rhode Island?
- (b) Is there a set of procedures and safeguards that, if mandated along with the MYRP, would make the mechanism acceptable to Dr. Pavlovic? If so, please identify those procedures and/or safeguards.

Response:

- (a) No. While Dr. Pavlovic agrees that including the procedures would provide at least some guardrails on PWSA's MYRP, it would not cure all of the deficiencies identified in his direct testimony.
- (b) No. See response to (a) above.

Sponsoring Witness: Karl Pavlovic

Pennsylvania Public Utility Commission
v.
Pittsburgh Water and Sewer Authority (PWSA)
Docket Nos. R-2023-3039919 (Stormwater)
R-2023-3039920 (Water)
R-2023-3039921 (Wastewater)
2023 Base Rate Case Proceeding

Responses to PWSA
Interrogatories to OCA Set II

7. Reference OCA St. 2, page 24 at 7-9, can Mr. Pavlovic elaborate on the capital asset financing that is less expensive than long term debt?

Response: PWSA's non-DSIC PAYGO financing is less expensive than long term debt. See OCA St. No. 2, page 25 lines 12-17 and PWSA St. No. 2, page 27 line 21 to page 28 line 4.

Sponsoring Witness: Karl Pavlovic

**I&E Statement No. 1
Witness: Anthony Spadaccio**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2023-3039920, R-2023-3039921 & R-2023-3039919

Direct Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

**Revenue Requirement
Multi-Year Rate Plan
Credit Rating Agencies
Days Cash on Hand
Debt Service Coverage Ratio
Rate Stabilization Fund
PAYGO
DSIC Increase
Infrastructure Improvement Charge**

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1 **INTRODUCTION OF WITNESS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Anthony Spadaccio. My business address is Pennsylvania Public Utility
4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg, PA
5 17120.

6
7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in the
9 Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial Analyst.

10

11 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND?**

12 A. My educational and employment background is set forth in the attached Appendix A.

13

14 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

15 A. I&E is responsible for representing the public interest in rate and other proceedings
16 before the Commission. I&E's analysis in this proceeding is based on its
17 responsibility to represent the public interest. This responsibility requires balancing
18 the interests of ratepayers, the utility company, and the regulated community as a
19 whole.

20

21 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

22 A. The purpose of my direct testimony is to address the revenue requirement, various
23 financial metrics such as debt service coverage ratio (DSCR), days cash on hand

1 (DCOH), Pay As You Go financing (PAYGO), the Rate Stabilization Fund (RSF),
2 and credit ratings, as well as topics such as the Multi-Year Rate Plan (MYRP),
3 Distribution System Improvement Charge (DSIC), and the Infrastructure
4 Improvement Charge (IIC) for Pittsburgh Water & Sewer Authority (PWSA or
5 Authority) as discussed by William J. Pickering, Chief Executive Officer (PWSA
6 Statement No. 1), Edward Barca, Director of Finance (PWSA Statement No. 2), and
7 Christine M. Fay, Senior Managing Director and Partner with Public Resources
8 Advisory Group, Inc. (PRAG) (PWSA Statement No. 9). I will also present I&E's
9 recommended overall revenue requirement.

10
11 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

12 A. Yes. I&E Exhibit No. 1 contains schedules relating to my testimony.

13
14 **BACKGROUND**

15 **Q. PLEASE PROVIDE SOME BACKGROUND REGARDING THIS**
16 **PROCEEDING.**

17 A. This proceeding represents the fourth time that PWSA has filed a rate case since
18 coming under the Commission's jurisdiction in 2018. The Pennsylvania Public
19 Utility Code was recently amended to add 66 Pa. C.S. §§ 3201-3209 (Chapter 32).
20 Chapter 32 addresses the Commission's jurisdiction over Pennsylvania water and
21 sewer authorities established by cities of the second class under the Municipal
22 Authorities Act. Under Chapter 32, the Commission gained full regulatory

1 jurisdiction over PWSA’s water, wastewater, and stormwater services.¹

2
3 **Q. WHAT IS PWSA REQUESTING IN THIS PROCEEDING?**

4 A. PWSA is requesting the Commission approve its proposal to increase its annual base
5 rates by \$146.1 million over a three-year period. Mr. Pickering opines that although
6 this amount is larger than past requests and may seem like an extraordinary request, it
7 is matched with making extraordinary strides in every area of the Authority’s water,
8 wastewater and stormwater utility operations.² Specifically, the request includes
9 increases of \$46.8 million or 22.5% in the Fully Projected Future Test Year (FPFTY)
10 ending December 31, 2024 (FY 2024), \$45.4 million or 17.8% in FY 2025, and \$53.9
11 million or 17.9% in FY 2026.³ The claimed reasons for this request are capital costs,
12 inflationary budget costs, costs related to the Wet Weather Consent Decree,
13 environmental compliance, decreased consumption, and the ability to meet financial
14 obligations and improve overall financial metrics impacting PWSA’s bond rating.⁴ In
15 addition to the MYRP, PWSA is proposing to increase its internally generated funds
16 by increasing the DSIC cap from 5% of distribution revenues to 7.5% of distribution
17 revenues. Mr. Barca rationalizes this is necessary to accelerate the rate at which
18 Long-term Infrastructure Improvement Plan (LTIIIP) approved capital expenditures
19 can be completed, increase purchasing power that has been negatively impacted by

¹ *Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water and Sewer Authority*, M-2018-264802 et al., Final Implementation Order (entered on March 15, 2018) (“Final Implementation Order”), p. 1.

² PWSA Statement No. 1, p. 3, ln. 12 through p. 4, ln. 3.

³ PWSA Statement No. 1, p. 13, lines 12-14.

⁴ PWSA Statement No. 1, p. 13, lines 15-20.

1 inflation, and to reduce financial leverage.⁵ Finally, PWSA is proposing two new
2 adjustment charges including the Infrastructure Improvement Charge (IIC) to recover
3 debt service on its Pennsylvania Infrastructure Investment Authority (PENNVEST)
4 and the Federal loans from the Water Infrastructure Finance and Innovation Act
5 (WIFIA) and the Customer Assistance Charge (CAC) to recover discounts provided
6 to customers pursuant to the Bill Discount Program, the operations costs for the
7 PGH20 Cares team, the costs of PWSA's Hardship Fund, and past due arrearages
8 forgiven pursuant to PWSA's Arrearage Forgiveness Program.⁶

9
10 **Q. WHAT RATEMAKING METHOD DID THE COMMISSION DIRECT PWSA**
11 **TO USE IN ITS BASE RATE PROCEEDINGS?**

12 A. As discussed by Mr. Barca,⁷ the Commission directed that PWSA use a cash flow
13 ratemaking method as detailed in 52 Pa. Code § 69.2703.⁸

14
15 **Q. DID PWSA USE A CASH FLOW RATEMAKING METHOD IN THIS**
16 **PROCEEDING?**

17 A. Yes.

18
19 **Q. PLEASE EXPLAIN WHAT 52 PA. CODE § 69.2703 ENCOMPASSES.**

20 A. Commission regulations at 52 Pa. Code §§ 69.2701-2703 contain the ratemaking

⁵ PWSA Statement No. 2, p. 27, ln. 23 through p. 28, ln. 15.

⁶ PWSA Statement No. 1, p. 14, ln. 19 through p. 15, ln. 11.

⁷ PWSA Statement No. 2, p. 5, ln. 18 through p. 7, ln. 12.

⁸ *Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water And Sewer Authority*, Docket Nos. M-2018-2640802 & M-2018-2640803, Final Implementation Order, entered March 15, 2018, p. 27-28.

1 elements, procedures, and factors that the Commission will consider in determining
2 just and reasonable rates for PGW. In particular, 52 Pa. Code § 69.2703, which was
3 drafted with PGW in mind, but which also now translates to PWSA, states the
4 following:

- 5 (a) In determining just and reasonable rate levels for PGW, the
6 Commission will consider, among other relevant factors:
- 7 (1) PGW's test year-end and (as a check) projected future levels of
8 nonborrowed year-end cash.
 - 9 (2) Available short term borrowing capacity and internal generation
10 of funds to fund construction.
 - 11 (3) Debt to equity ratios and financial performance of similarly
12 situated utility enterprises.
 - 13 (4) Level of operating and other expenses in comparison to
14 similarly situated utility enterprises.
 - 15 (5) Level of financial performance needed to maintain or improve
16 PGW's bond rating thereby permitting PGW to access the
17 capital markets at the lowest reasonable costs to customers over
18 time.
 - 19 (6) PGW's management quality, efficiency and effectiveness.
 - 20 (7) Service quality and reliability.
 - 21 (8) Effect on universal service.
- 22 (b) The Commission is obligated to establish rate levels adequate to permit
23 PGW to satisfy its bond ordinance covenants, consistent with 66

1 Pa.C.S. § 2212(e) (relating to securities of city natural gas distribution
2 operations).

3 (c) These financial measures will be considered by the Commission in
4 determining just and reasonable rates for PGW under 66 Pa.C.S.
5 (relating to the Public Utility Code) and are consistent with the PGW
6 Management Agreement Ordinance.

7 In accordance with the Commission directive cited above, these requirements
8 should apply to PWSA in this instant proceeding as well.

9

10 **SUMMARY OF I&E OVERALL POSITION**

11 **Q. WHAT IS I&E'S TOTAL RECOMMENDED REVENUE REQUIREMENT?**

12 A. I&E's total recommended revenue requirement for PWSA is \$195,760,896.⁹ This
13 recommended revenue requirement represents a decrease of \$6,898,845 to the FPFTY
14 revenues at present rates of \$202,659,741, which produces a revenue surplus of
15 \$44,661. This total recommended allowance incorporates the analysis in this
16 testimony as well as the analysis and adjustments made in the testimonies of I&E
17 witnesses Vanessa Okum (I&E Statement No. 2), and Ethan Cline (I&E Statement
18 No. 3). A calculation of the I&E recommended revenue requirement is included in
19 I&E Exhibit No. 1, Schedule 1.

20 In accordance with PWSA's Cost of Service Study,¹⁰ this revenue increase
21 should be allocated 66% to water operations, 17% to wastewater operations, and 17%

⁹ I&E Exhibit No. 1, Schedule 1.

¹⁰ PWSA Cost of Service Study Model 5.9.23, RevReq_Alloc tab, Column R, Rows 25-27.

1 to stormwater operations. Therefore, the I&E recommendation corresponds to a
2 decrease of \$4,553,237 to water operations (-\$6,898,845 x 66%), a decrease of
3 \$1,172,804 to wastewater operations (-\$6,898,845 x 17%), and a decrease of
4 \$1,172,804 to stormwater operations (-\$6,898,845 x 17%).

5
6 **MULTI-YEAR RATE PLAN (MYRP)**

7 **Q. WHAT IS A MULTI-YEAR RATE PLAN?**

8 A. Act 58 of 2018 added Section 1330 to Chapter 13 of the Pennsylvania Public
9 Utility Code allowing utilities to seek approval of alternative rate making
10 mechanisms. Section 1330 of Chapter 13 defines a “Multiyear rate plan” as
11 follows:

12 A rate mechanism under which the commission sets base rates
13 and revenue requirements for a multiyear plan period and
14 authorizes periodic changes in base rates, including, but not
15 limited to, adjustments to account for inflation and capital
16 investments without the necessity for base rate proceedings
17 during the approved plan period.¹¹
18

19 **Q. WHAT IS PWSA PROPOSING IN ITS MYRP?**

20 A. As mentioned above, in addition to its original rate increase request of \$46.8
21 million for the FPFTY, PWSA is proposing that the Commission approve a \$45.4
22 million increase in FY 2025 and another \$53.9 million increase in FY 2026.

23
24 **Q. WHAT IS THE BASIS FOR PWSA’S MYRP PROPOSAL**

25 A. In addition to the rationale for the requested rate increases previously mentioned,

¹¹ 66 Pa. C.S. § 1330(f).

1 Mr. Pickering argues that not only would a multiyear rate plan allow PWSA better
2 access to the capital markets, but it would provide more transparency for
3 customers over the three-year period the increases would be implemented. He
4 also opines that the money saved from litigating rate cases would be allocated to
5 operational expenses and capital projects.¹²

6 Further, Ms. Fay explains why she believes the Rating Agencies would
7 react positively toward the MYRP.¹³

8
9 **Q. DO YOU SUPPORT PWSA’S MYRP PROPOSAL?**

10 A. No. PWSA has only recently been subject to regulation by the Commission and
11 has experienced only three base rate cases in that time. While it is possible that a
12 MYRP may be appropriate for some utilities that have long been regulated with
13 regular rate case filings over many years, PWSA has not faced such scrutiny and is
14 still building a record and developing its rapport with the Commission. As
15 mentioned below in the “*Credit Rating Agencies*” section, the rating agencies see
16 PWSA’s relationship with and oversight from the Commission as credit positive.
17 Although significant improvements have been made, I do not believe it is wise for
18 a system that has been mismanaged for decades and is now playing “catch-up” to
19 pursue a rate plan that spans beyond the FPFTY that would prevent the Authority
20 from receiving beneficial oversight.

¹² PWSA Statement No. 1, p. 14, lines 6-8.

¹³ PWSA Statement No. 9, p. 37, ln. 1 through p. 38, ln. 22.

1 Additionally, there are lingering economic impacts from the pandemic and
2 recent inflation trends. Consideration of PWSA’s enormous capital improvement
3 plan and associated capital costs alone illustrates the need for more regulatory
4 oversight, not less.

5 Finally, I&E witnesses Vanessa Okum (I&E Statement No. 2) and Ethan
6 Cline (I&E Statement No. 3) have submitted testimony discussing various other
7 factors that support I&E’s recommended disallowance of the Authority’s proposed
8 MYRP.

9
10 **CREDIT RATING AGENCIES**

11 **Q. HAVE YOU REVIEWED THE MOST RECENT REPORTS FROM CREDIT**
12 **RATING AGENCIES REGARDING THE FINANCIAL POSITION OF**
13 **PWSA?**

14 A. Yes. I have reviewed PWSA’s Moody’s Investors Service (Moody’s) Credit Opinion
15 reports dated October 20, 2022, and May 29, 2023, as well as PWSA’s S&P Global
16 Ratings (S&P) reports, dated October 12, 2022, March 16, 2023, and May 17, 2023,¹⁴
17 which were the most recent reports available to me at the time of this testimony.

18
19 **Q. PLEASE SUMMARIZE THE MOODY’S INVESTORS SERVICE REPORTS**
20 **REGARDING PWSA.**

21 A. Moody’s credit rating for PWSA was revised upwards from “A3 stable” to “A3

¹⁴ PWSA, Filing Requirement FR VII.18, PWSA Exhibits CF-8 and CF-9, and I&E Exhibit No. 1, Schedules 3 & 4.

1 positive” noting, “The Authority’s financial position has also improved considerably
2 over the past several years”¹⁵ This is demonstrated in Moody’s “Key Indicators”
3 tables which show that the Authority’s DCOH went from 26 days in 2017 before
4 coming under the Commission’s jurisdiction to 165 days in 2022, while the annual
5 debt service coverage went from 0.8x to 1.5x during the same period. The A3
6 positive rating falls into the category of upper medium grade obligations and is
7 considered to have low credit risk. The large size, considerable assets, diverse service
8 area, “significant” recent rate increases, and PUC oversight are considered to be the
9 Authority’s credit strengths, while the substantial debt burden, projected capital needs
10 to be funded with debt, and narrow liquidity versus similarly sized peers are among
11 the credit challenges. Moody’s further notes that PWSA’s governance structure has
12 materially improved as a result of the PUC’s oversight since 2018.

13
14 **Q. PLEASE SUMMARIZE THE S&P GLOBAL RATINGS REPORTS**
15 **REGARDING PWSA.**

16 A. As of the October 12, 2022, report, S&P has upgraded PWSA’s first-lien revenue
17 bonds rating from “A” to “A+”, and its subordinate-lien revenue bonds rating from
18 “A-” to “A”, both with a stable outlook. These rating were affirmed in the more
19 recent report issued May 17, 2023. The investment grade A rating implies a strong
20 capacity to meet its financial obligations. Similar to Moody’s, S&P notes its
21 expectation of a credit-supportive relationship between PWSA and the Commission,

¹⁵ I&E Exhibit No. 1, Schedule 3.

1 yet the credit rating agency expresses concerns over the Authority's high leverage and
2 future capital commitments resulting in pressure on its overall financial profile.¹⁶

3
4 **Q. WHAT ARE YOUR COMMENTS REGARDING THE CREDIT RATING**
5 **AGENCY REPORTS?**

6 A. Both credit rating agencies continue to express concern over PWSA's large debt
7 burden, yet both appear confident that the Authority's recently established (April 1,
8 2018) relationship with the Commission and being subjected to regulatory oversight
9 will yield positive results in strengthening its financial position. Sound financial
10 management remains essential going forward, especially considering the vast amount
11 of planned future debt issuances for capital improvement projects. Notably, the
12 Authority's financial position has been trending favorably since coming under the
13 Commission's jurisdiction, which is illustrated by the improving financial metrics and
14 both Moody's and S&P's bond rating upgrades. The debt service coverage ratios and
15 days cash on hand metrics mentioned in these credit reports are discussed below.

16
17 **DAYS CASH ON HAND (DCOH)**

18 **Q. PLEASE EXPLAIN THE DCOH METRIC.**

19 A. The DCOH metric represents the number of days a company can pay its current level
20 of operating expenses with the amount of cash it has available. The formula to
21 calculate DCOH is as follows:

22
$$\text{Cash Available} \div ((\text{Operating Expenses} - \text{Noncash Expenses}) \div 365)$$

¹⁶ PWSA Exhibit CF-9, S&P Global Ratings, RatingsDirect, October 12, 2022 & March 16, 2023 and I&E Exhibit No. 1, Schedule 4.

1 **Q. WHAT IS PWSA’S TESTIMONY REGARDING DCOH?**

2 A. Mr. Barca opines that at present rates, the DCOH is projected to be 70.9 days in the
3 FPFTY, followed by dramatic declines to -60.5 days in FY 2025, and -230.0 in FY
4 2026. He credits the substantial drop in DCOH to increases in required operational
5 and capital spending.¹⁷

6 Similar to Mr. Barca, Ms. Fay asserts that without an appropriate rate increase,
7 the DCOH metric would fall to unacceptable levels and the Authority would be in
8 jeopardy of a credit downgrade, resulting in increased borrowing costs. She also
9 alleges that PWSA’s level of DCOH is depressed and considerably weaker compared
10 to that of its peer utilities.¹⁸

11
12 **Q. DO THE RATING AGENCIES EXPRESS GREAT CONCERN ABOUT**
13 **PWSA’S NUMBER OF DCOH?**

14 A. No. Even Ms. Fay acknowledges Moody’s comments recognizing the Authority’s
15 significant liquidity improvement, noting that although weaker than its peer utilities,
16 “a satisfactory 165 days cash on hand as of fiscal 2022 year end, up from just 23 days
17 cash in 2017.”¹⁹

¹⁷ PWSA Statement No. 2, p. 40, lines 6-14.

¹⁸ PWSA Statement No. 9, p. 12, ln. 3 through p. 13, ln. 17.

¹⁹ I&E Exhibit No. 1, Schedule 3.

1 **Q. WHAT ARE THE RANGES OF DCOH DESCRIBED BY MOODY’S IN ITS**
2 **RATING METHODOLOGY?**

3 A. Moody’s sets the following ranges for each rating categories:²⁰

Aaa	Greater than 250 days
Aa	Greater than 150 days but less than or equal to 250 days
A	Greater than 35 days but less than or equal to 150 days
Baa	Greater than 15 days but less than or equal to 35 days
Ba	Greater than 7 days but less than or equal to 15 days
B and Below	Equal to or less than 7 days

4

5

6 **Q. WHAT DOES S&P SAY ABOUT PWSA’S NUMBER OF DCOH?**

7 A. The S&P Global Ratings March 16, 2023 credit profile states as follows:²¹

8 The system’s liquidity remains an area of consistency and credit
9 strength...All told, cash and equivalents held by PWSA remains
10 sound, usually equivalent to four-six months of operating
11 expenses.
12

13 **Q. WHAT WOULD PWSA’S DCOH BE AT I&E’S PROPOSED RATES?**

14 A. I&E’s proposed rates would result in approximately 293 days of cash on hand.²² This
15 metric falls within Moody’s range for the ‘Aaa’ rating category, which is notably
16 higher than Moody’s overall ‘A3’ rating for PWSA. The DCOH metric, as well as
17 the annual debt service coverage as discussed below, are subfactors of the “Financial

²⁰ PWSA Exhibit CF-6, Moody’s Investors Service, Rating Methodology, US Municipal Utility Revenue Debt Methodology, p. 8, April 13, 2022.

²¹ PWSA Exhibit CF 9, S&P Global Ratings, RaingsDirect, p. 5, Financial Risk, March 16, 2023.

²² I&E Exhibit No. 1, Schedule 2.

1 Strength” factor used in Moody’s “US Municipal Utility Revenue Debt Scorecard
2 Overview”.²³ The “Financial Strength” factor represents 40% of the total weighting
3 factors when considering a utility’s credit profile.

4 Additionally, the 293 DCOH resulting from I&E’s recommendation far
5 exceeds the 100 days current need and is well on its way to surpassing PWSA’s five-
6 year target goal of 300 days as asserted in its Financial Management Policy.²⁴ Again,
7 it is also important to recognize that the Authority has only recently come under the
8 Commission’s jurisdiction, and as indicated by Moody’s and S&P Global and cited
9 above, the DCOH has steadily been improving ever since. Consequently, any fear of
10 a credit downgrade regarding the level of cash on hand is unjustified.

11

12 **DEBT SERVICE COVERAGE RATIO (DSCR)**

13 **Q. WHAT IS THE DEBT SERVICE COVERAGE RATIO?**

14 A. The DSCR is a commonly used indicator that gauges an entity’s ability to pay its
15 outstanding loan principal and interest in full and on time. The DSCR calculation
16 includes dividing the net operating income by the entity’s debt service payments.
17 This calculation is often done on two levels, once to include only senior debt service,
18 and again to cover the entire debt service.

19

20 **Q. WHAT IS PWSA’S CLAIMED DSCR FOR THE FPFTY?**

21 A. The Authority provides a calculation illustrating that at proposed rates, the DSCR for

²³ I&E Exhibit No. 1, Schedule 5, p. 4.

²⁴ PWSA Exhibit EB-5, p. 2.

1 senior debt service would be 1.65x, 1.87x, and 2.02x for the FPFTY, FY 2025, and
2 FY 2026 respectively. Additionally, the DSCR for total debt service coverage would
3 be 1.21x, 1.26x and 1.40x for the FPFTY, FY 2025, and FY 2026 respectively.²⁵

4 Mr. Barca expresses concern that coverage ratios under present rates would
5 fall well below the legal minimum requirements, and, consequently, the Authority
6 would be unable to fully pay its debt obligations.²⁶ He contends that it is critical for
7 PWSA to maintain adequate coverage to remain in a position to have access to the
8 capital markets on acceptable terms.²⁷ Additionally, Mr. Barca argues that without
9 the appropriate rate increase, the Authority would not be able to satisfy the Additional
10 Bonds Test and would be prohibited from issuing bonds, causing a funding shortfall
11 for necessary capital improvements.²⁸ Further, he claims that any excess of revenues
12 over expenses is invested back into the system, which will benefit ratepayers by
13 offsetting future revenue increases.²⁹

14 Ms. Fay explains that the Authority's Financial Management Policy requires
15 coverage of 1.35x for senior debt and 1.15x for overall debt, which is more stringent
16 than the legal covenant, yet she claims is still below the norm for the overall
17 municipal water and sewer utility sector. She suggests that the target of 1.35x should
18 be viewed not as a goal, but as the minimum. Ms. Fay further rationalizes that it is
19 important for PWSA to increase its coverage levels in excess of the legal
20 requirements in order to reduce its over reliance on debt, protect against unforeseen

²⁵ PWSA Cost of Service Study Model 5.9.23, Sufficiency tab, Column K-M, Rows 115 & 119 and PWSA Statement No. 2, p. 43, ln. 15.

²⁶ PWSA Statement No. 2, p. 36, lines 15-22.

²⁷ PWSA Statement No. 2, p. 36, lines 10-12.

²⁸ PWSA Statement No. 2, p. 38, ln. 18 through p. 39, ln. 2.

²⁹ PWSA Statement No. 2, p. 37, lines 6-10.

1 expenses and decreases in expected revenue, and to have the funds required
2 throughout the year to satisfy its financial obligations over and above its debt service,
3 including the City's Co-op payment. Finally, Ms. Fay claims that the FY 2023 rate
4 increase was largely absorbed by escalating operational costs driven by inflation,
5 rendering it unavailable to use towards debt service.³⁰

6
7 **Q. DO THE RATING AGENCIES INDICATE CONCERN ABOUT PWSA'S**
8 **DSCR?**

9 A. No. The Moody's Credit Opinion of May 29, 2023 states:³¹

10 At fiscal 2022 year-end, the Authority reported senior debt
11 service coverage of 1.8 times and total coverage of 1.41 times,
12 well within covenant requirements and satisfactory versus peers.
13 ...Favorably, coverage has continually improved since 2018,
14 when PUC rate oversight went into effect, signaling that rate
15 increases have been effective to maintain sufficient coverage
16 while providing for more normalized operations and investment
17 in system infrastructure.

18 This statement clearly indicates that although Moody's acknowledges the
19 Authority's need to maintain appropriate coverage levels, the credit rating
20 agency is aware of PWSA's legal covenants as well as its steadily improving
21 DSCRs that are well above the legal requirements. It also exhibits confidence
22 in the Commission's oversight.

³⁰ PWSA Statement No. 9, p. 8, ln. 21 through p. 12, ln. 2.

³¹ I&E Exhibit No. 1, Schedule 3.

1 **Q. WHAT ARE THE RANGES OF ANNUAL DEBT SERVICE COVERAGE**
2 **DESCRIBED BY MOODY’S IN ITS RATING METHODOLOGY?**

3 A. Moody’s sets the following ranges for each rating categories:³²

Aaa	Greater than 2.00x
Aa	Greater than 1.70x but less than or equal to 2.00x
A	Greater than 1.25x but less than or equal to 1.70x
Baa	Greater than 1.00x but less than or equal to 1.25x
Ba	Greater than 0.70x but less than or equal to 1.00x
B and Below	Equal to or less than 0.70x

4

5

6 **Q. WHAT DOES S&P SAY ABOUT PWSA’S DSCR?**

7 A. The S&P Global Ratings May 17, 2023, credit profile identifies “[s]trong coverage
8 levels of all-in debt service historically and projected” as one of the factors that
9 support its current rating. S&P further remarks on the financial benefits from
10 unloading the financial burden of providing free service to a portion of the City of
11 Pittsburgh via the 2019 Cooperation Agreement, as well as the credit supportive
12 relationship with the Commission.³³

³² I&E Exhibit No. 1, Schedule 5, p. 8.

³³ PWSA Exhibit CF-9 and I&E Exhibit No. 1, Schedule 4.

1 **Q. ARE YOU AWARE OF ANY ADDITIONAL LITERATURE THAT**
2 **INDICATES WHAT AN IDEAL DSCR SHOULD BE FOR MUNICIPALLY-**
3 **OWNED WATER AND SEWER UTILITIES?**

4 A. Yes. I have provided a Standard & Poor's article³⁴ that illustrates at what level a
5 municipal water and or sewer utility has the ability to repay its debt. The article
6 presents the following analysis regarding what the range of DSCR indicates:

<1.0x	= Insufficient
1.0x to 1.25x	= Adequate
1.26x to 1.50x	= Good
>1.50x	= Strong

7
8

9 **Q. WHAT WOULD PWSA'S DSCRs BE AT I&E'S PROPOSED RATES?**

10 A. I&E's proposed rates would result in DSCRs of 1.70x for senior debt service and
11 1.11x for total debt service coverage.³⁵ These ratios exceed both the legal covenant
12 requirements of 1.25x for senior debt service and 1.10³⁶ for total debt service as well
13 as the requirement from the Authority's Financial Management Policy as mentioned
14 above. I&E's recommendation for senior debt service coverage would be considered
15 'Strong' by the Standard & Poor's analysis above, while the recommendation for total

³⁴ I&E Exhibit No. 1, Schedule 6, p. 4.

³⁵ I&E Exhibit No. 1, Schedule 2.

³⁶ Filing Requirement VII.7, Amended and Restated Trust Indenture Between The Pittsburgh Water and Sewer Authority and The Bank of New York Mellon Trust Company, N.A., Amended and Restated as of November 1, 2017, p. 58, Section 7.01(c)(ii).

1 debt service coverage would be considered ‘Adequate.’ This allows PWSA to at least
2 maintain, if not provide support for the consideration to improve, its credit rating.

3
4 **Q. ARE THERE ADDITIONAL REQUESTS TO CONSIDER THAT WILL**
5 **AFFECT THE OVERALL CLAIMED DSCR AND REQUESTED REVENUE**
6 **INCREASE OTHER THAN STANDARD OPERATING EXPENSES AND**
7 **DEBT SERVICE?**

8 A. Yes. PWSA is claiming continued financing of its Rate Stabilization Fund as well as
9 PAYGO funding and an Infrastructure Improvement Charge, all of which are
10 discussed below.

11
12 **RATE STABILIZATION FUND (RSF)**

13 **Q. WHAT IS THE AUTHORITY’S CLAIM REGARDING ITS RSF?**

14 A. PWSA proposes to add \$25.0 million to its RSF, which is currently funded at \$9.9
15 million.³⁷ This proposal includes adding \$1.0 million in the FPFTY, \$7.0 million in
16 FY 2025, and \$17.0 million in FY 2026.³⁸

17
18 **Q. WHAT IS THE BASIS FOR PWSA’S RSF CLAIM?**

19 A. Mr. Barca explains that this fund is a standard feature of municipal ratemaking and is
20 designed to provide flexibility to meet minimum DSCRs and demonstrate financial
21 stability to the financial community.³⁹

³⁷ PWSA Statement No. 2, p. 41, lines 3-16.

³⁸ PWSA Exhibit WJP-1, p. 1.

³⁹ PWSA Statement No. 2, p. 41, lines 8-10.

1 **Q. DO YOU ACCEPT PWSA’S CLAIM FOR THE RSF IN THIS PROCEEDING?**

2 A. Partially. I believe it is reasonable for PWSA to maintain a small RSF as a financial
3 cushion to deal with unforeseen circumstances and potential debt service deficiencies
4 that could result from those circumstances. Although the RSF is currently funded at
5 \$9.9 million, I support the Authority’s recommendation to add \$1 million to the RSF
6 in the FPFTY. As outlined by Ms. Fay, excess funds after all required payments may
7 be transferred to the RSF, Debt Service Fund, or the Operating Fund to pay for
8 construction or capital projects.⁴⁰ However, as in PWSA’s previous rate cases, I
9 continue to recommend that the funding of PWSA’s RSF be reevaluated in each of
10 PWSA’s subsequent rate cases to determine whether it is prudent and reasonable as
11 PWSA’s operations evolve under the Commission’s jurisdiction. Notably, the
12 Authority’s project unrestricted cash balance at the beginning of the FPFTY (before
13 any potential rate increase), which can be used to support debt service coverage
14 deficiencies, fund capital projects, assist with unexpected operating expenses, etc. is
15 currently \$89.7 million.⁴¹

16

17 **PAYGO**

18 **Q. EXPLAIN PWSA’S CLAIM REGARDING ITS PAYGO FUND.**

19 A. PWSA is requesting \$2.0 million in FY 2025 and another \$10.0 million in FY 2026
20 (for a total of \$12.0 million) from base rates to provide additional funding for capital
21 assets.⁴²

⁴⁰ PWSA Exhibit CF-1.

⁴¹ PWSA Exhibit WJP-1, p. 1.

⁴² PWSA Statement No. 2, p. 23, lines 6-8.

1 **Q. WHAT IS THE BASIS FOR PWSA’S PAYGO CLAIM?**

2 A. Mr. Barca explains that PAYGO funds are internally generated funds that are used to
3 finance capital assets with current year revenues. He argues PAYGO funding is often
4 used in lieu of long-term debt to fund capital assets with shorter useful lives. Further,
5 he claims that PAYGO funding provides financial flexibility within the capital
6 program, is cheaper than the debt service associated with long-term debt, and it can
7 help prevent an overleveraged debt position.⁴³

8

9 **Q. DO YOU ACCEPT PWSA’S CLAIM REGARDING THE PAYGO FUND FOR**
10 **THIS PROCEEDING?**

11 A. No. I recommend the Commission reject the entire PAYGO claim in this proceeding.

12

13 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO REJECT**
14 **PWSA’S PAYGO FUNDING CLAIM?**

15 A. First, I must note that I&E is recommending the rejection of PWSA’s MYRP proposal
16 and there is no PAYGO request in the FPFTY; therefore, there is no dollar amount to
17 reject. Second, it is important to recognize that I&E is supporting the proposal to
18 increase the Authority’s DSIC, which was established in PWSA’s 2020 base rate case
19 from 5% of distribution revenues to 7.5% of distribution revenues. This provides an
20 additional approximately \$15 million⁴⁴ in the FPFTY allowing for additional
21 internally generated funds to support planned infrastructure investments. Further, the

⁴³ PWSA Statement No. 2, p. 27, lines 6-18.

⁴⁴ I&E Exhibit No. 1, Schedule 1.

1 Long-term Infrastructure Improvement Plan (LTIP), which is required for the DSIC,
2 provides a clear picture of how ratepayer funds are being used to fund capital
3 projects, which is a level of spending accountability that is not provided with
4 PAYGO.

5 Third, the Authority has not only continued to secure extremely low-cost
6 (PENNVEST) funding, but it has also been able to secure WIFIA funding, which is
7 the federal equivalent to PENNVEST via the U.S. Environmental Protection Agency.
8 Specifically, Mr. Barca touts the Authority's success in obtaining low-cost funding by
9 noting PENNVEST has granted the Authority \$610.8 million in low-interest loans
10 and \$35.7 million in grants since 2018.⁴⁵ Similarly, Mr. Pickering also mentions the
11 Authority's success in securing PENNVEST funding by pointing out that in April of
12 this year, the Authority received a \$59.1 million low-interest loan which supports the
13 2023-2025 Small and Large Sewer Rehabilitation programs.⁴⁶ Additionally, PWSA
14 has closed on a \$52.5 million WIFIA loan this year⁴⁷ and is estimating to close on
15 \$104.7 million and \$28.5 million WIFIA loans in June of 2024 and June of 2025,
16 respectively. Mr. Barca claims these loans will be used to fund approximately 49% of
17 PWSA's Water Reliability Plan initiative, which includes replacing the clearwell at
18 the Water Treatment Plant.⁴⁸ Further, at the beginning of last year, PWSA was
19 awarded a \$17.5 million grant to replace lead service lines from the City of Pittsburgh

⁴⁵ PWSA Statement No. 2, p. 33, lines 1-4.

⁴⁶ PWSA Statement No. 1, p. 9, lines 1-19.

⁴⁷ I&E Exhibit No. 1, Schedule 7.

⁴⁸ PWSA Statement No. 2, p. 25, lines 9-12.

1 as part of the American Rescue Plan funding.⁴⁹ While I acknowledge that the types of
2 low-cost funding identified above may not always be guaranteed, the use of these
3 funds provides major cost savings to the Authority's ratepayers and is preferable over
4 unrestricted funds such as the Authority's PAYGO requests and should be utilized as
5 much as possible.

6 Finally, as recommended in the testimony of I&E witness Okum (I&E
7 Statement No. 2), normalization of equipment costs for shorter life capital equipment
8 over the anticipated equipment life provides an ongoing level of funding in base rates
9 that is intended to fund these needs prospectively, thereby invalidating the need for a
10 separate unrestricted PAYGO fund.

11
12 **Q. ARE THERE ANY OTHER REASONS TO DENY THE PAYGO CLAIM?**

13 A. Yes. Finally, and perhaps most importantly, as recommended in prior rate cases, the
14 capital expenditures that cannot be funded through the DSIC should be tied to actual,
15 identified expenditures in the FPFTY rather than simply having no restrictions over
16 available funds. To address this concern, the expenditures that Mr. Barca
17 references,⁵⁰ meters, pumps, HVAC equipment, crane equipment, and tank
18 improvements just to name a few, can be normalized over the estimated useful life
19 and included in rates. This same strategy is ideal for recovery of the capital assets
20 previously mentioned.

⁴⁹ PWSA Statement No. 2, p. 20, lines 4-6 and <https://www.pgh2o.com/news-events/news/newsletter/2022-01-28-engineering-report-water-main-lead-service-line-replacement>.

⁵⁰ I&E Exhibit No. 1, Schedule 8.

1 Notably, as cited above, excess funds after all required payments may be
2 transferred to the RSF, Debt Service Fund, or the Operating Fund to pay for
3 construction or capital projects. I&E’s recommendation yields a revenue surplus of
4 \$44,661 which contributes to an ending *Unrestricted* Cash Balance of \$90,792,056⁵¹
5 that can be used accordingly.

6
7 **INFRASTRUCTURE IMPROVEMENT CHARGE (IIC)**

8 **Q. PLEASE SUMMARIZE THE AUTHORITY’S PROPOSED IIC.**

9 A. Mr. Pickering explains that the IIC is intended to expedite the Authority’s ability to
10 obtain additional low-cost loans via PENNVEST and WIFIA by stabilizing the
11 revenue source to ensure the required debt covenants and additional bonds tests can
12 be met in addition to having funds available to pay the annual debt service.⁵²

13 Mr. Barca describes the mechanics of the IIC, claiming it is intended to
14 recover debt service associated with new PENNVEST and WIFIA loans beginning in
15 FY 2025. He claims the charge would be calculated separately, reconciled on a semi-
16 annual basis on filings of supporting schedules with the Commission, and added to
17 the base charges to be combined as one charge on the customer bills. Mr. Barca
18 additionally states that the charge will automatically adjust as PWSA obtains
19 additional funding and debt service increases, and once the loans have reached their
20 full amortization schedule, they will be rolled into the Authority’s base rates in future
21 rate case proceedings.⁵³

⁵¹ I&E Exhibit No. 1, Schedule 1.

⁵² PWSA Statement No. 1, p. 14, ln. 23 through p. 15, ln. 3.

⁵³ PWSA Statement No. 2, p. 48, ln. 18 through p. 49, ln. 9.

1 Similar to Mr. Barca, Ms. Fay notes that the IIC is intended for timely
2 recovery of debt obligations from PENNVEST and WIFIA loans between rate case
3 filings.⁵⁴ Further, she identifies some of the reasons why the IIC is beneficial for
4 PWSA's ratepayers, including transparency of costs and that actual incurred costs will
5 be recovered in place of potentially inaccurate debt service estimates.⁵⁵

6
7 **Q. DO YOU SUPPORT THE AUTHORITY'S IIC PROPOSAL?**

8 A. No. Under advice of counsel, this mechanism lacks the necessary checks and
9 balances and transparency to ratepayers. Specifically, 52 Pa. Code § 69.363(d)
10 dictates:

11 Rate recovery under a 66 Pa.C.S. § 1307(a) PENNVEST
12 automatic adjustment by means of a sliding scale or rates or
13 other method may be approved only after the receipt of the
14 following:

15 (i) DEP inspection.

16 (ii) Final PENNVEST amortization schedule.

17 Further, the explanation Ms. Fay provides to avoid a separate line item(s) to
18 record these loans/charges on customer bills,⁵⁶ is not only contrary to her own claims
19 of the transparency benefit, but also what is required by 52 Pa. Code § 69.363(e),
20 which specifically states:

21 When approved by the Commission, the PENNVEST obligations
22 should be listed on customers' bills as a separate line item.
23 Amounts collected under the Section 1307(a) PENNVEST
24 automatic adjustment by means of sliding scale of rates or other
25 method are subject to reconciliation and refund. Revenues should

⁵⁴ PWSA Statement No. 6, p. 27, lines 18-22.

⁵⁵ PWSA Statement No. 6, p. 30, lines 3-16.

⁵⁶ PWSA Statement No. 6, p. 31, ln. 13 through p. 32, ln. 3.

1 be listed in a separate account dedicated for PENNVEST
2 repayment only. Commingling of funds is discouraged.

3 For the various reasons identified above, I recommend the Commission
4 disallow implementation of the IIC as proposed by PWSA in this proceeding.
5

6 **OVERALL RECOMMENDATION**

7 **Q. WHAT IS I&E'S RECOMMENDATION FOR PWSA'S DSCR AND** 8 **OVERALL REVENUE REQUIREMENT?**

9 A. As a result of the recommended adjustments from I&E witnesses Okum (I&E
10 Statement No. 2) and Cline (I&E Statement No. 3), I&E recommends a decrease in
11 revenues of \$6,898,845 (\$195,760,896 – \$202,659,741)⁵⁷ from the FPFTY revenues
12 at present rates, which results in DSCRs of 1.70x on senior debt and 1.11x on total
13 debt.⁵⁸

14 Due to limitations in the functionality of the PWSA revenue spreadsheet with
15 respect to certain adjustments, certain general adjustments were required in order to
16 develop the I&E overall recommendation. These adjustments are detailed in the
17 footnotes to I&E Exhibit No. 1, Schedule 1. There are pending responses to I&E
18 interrogatories that may alter how these adjustments are reflected, and any changes as
19 to how these adjustments are reflected will be addressed in my surrebuttal testimony.
20

21 **Q. WHAT IS THE BASIS OF I&E'S RECOMMENDATION?**

22 A. The most significant impacts on the recommended revenue requirement are the I&E

⁵⁷ I&E Exhibit No. 1, Schedule 1.

⁵⁸ I&E Exhibit No. 1, Schedule 2.

1 adjustments mentioned above, which are largely due to PWSA's continued variances
2 between projected and actual expenditures.

3 PWSA's bond covenant requires DSCRs of 1.25x on senior debt service and
4 1.10x on total debt service while the Authority's Financial Management Policy
5 requires coverage of 1.35x for senior debt and 1.15x for total debt. I&E's
6 recommended coverage ratios exceed the bond covenant requirements and provide
7 PWSA the opportunity to build financial stability to lessen risks associated with being
8 highly leveraged, increase liquidity, and maintain its credit quality. The I&E
9 recommended revenue decrease of \$6,898,845 results in a total revenue requirement
10 \$195,760,896.⁵⁹

11 As previously indicated, this revenue decrease should be allocated 66% to
12 water operations, 17% to wastewater operations, and 17% to stormwater operations.
13 Therefore, the I&E recommendation corresponds to a decrease of \$4,553,237 to water
14 operations ($-\$6,898,845 \times 66\%$), a decrease of \$1,172,804 to wastewater operations ($-\$6,898,845 \times 17\%$), and a decrease of \$1,172,804 to stormwater operations ($-\$6,898,845 \times 17\%$).

17 Finally, I believe the DSCRs and DCOH, along with the increase in DSIC
18 revenues, will afford PWSA the opportunity to cover necessary expenses, pay its
19 debt, and continue to improve its current financial position and credit ratings. As
20 evidenced by the credit rating agencies discussed above, PWSA's recently established
21 relationship with the Commission as well as its strengthened management team have

⁵⁹ I&E Exhibit No. 1, Schedule 1.

1 allowed the Authority to make notable improvements to these financial metrics in
2 working towards putting the Authority more in line with its peer utilities.

3

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes. However, I reserve the right to supplement my testimony or to revise
6 recommendations if additional issues or facts arise during this proceeding.

ANTHONY D. SPADACCIO, CRRA

PROFESSIONAL EXPERIENCE AND EDUCATION

EMPLOYMENT

Fixed Utility Financial Analyst 2014 – Present	PA Public Utility Commission Bureau of Investigation & Enforcement
Auditor 2012 – 2014	Public School Employee’s Retirement System Bureau of Benefits Administration
Tax Technician 2010 – 2012	PA Department of Labor and Industry Unemployment Compensation Tax Services
Staff Accountant 2006 – 2009	Boyer & Ritter Certified Public Accountants

EDUCATION & TRAINING

EDUCATION/CERTIFICATIONS:

Society of Utility and Regulatory Financial Analysts (SURFA) – 2018
Certified Rate of Return Analyst (CRRA)

Indiana University of Pennsylvania, A.A. Accounting - 2006

The Pennsylvania State University, B.S. Labor and Industrial Relations – 2003

The Pennsylvania State University - The Smeal College of Business - 2003

Certificates of Completion:

Business Management - 20 credits of instruction

General Business - 20 credits of instruction

UTILITY SPECIFIC TRAINING/CONFERENCES:

SURFA Annual Financial Forum – Richmond, VA – 2023

NARUC Staff Subcommittee on Accounting & Finance, Fall 2021 webinar, October 5-7, 2021

NARUC Staff Subcommittee on Accounting & Finance, Spring 2021 webinar, April 6-8, 2021

SURFA Annual Financial Forum – New Orleans, LA – 2018

SURFA Annual Financial Forum – Indianapolis, IN - 2016

Western NARUC Utility Rate School – San Diego, CA - 2015

ANTHONY D. SPADACCIO, CRRA

PROFESSIONAL EXPERIENCE AND EDUCATION

Pennsylvania Public Utility Commission Rate School – Harrisburg, PA – 2014

EXPERIENCE

I have submitted testimony or assisted in the following proceedings:

- Docket No. A-2022-3037047 - Pennsylvania-American Water Company – Acquisition of the Wastewater Collection and Treatment System Assets of the Butler Area Sewer Authority (§1329)
- Docket No. R-2022-3035730 – National Fuel Gas Distribution Corporation*
- Docket No. R-2022-3032764 – Leatherstocking Gas Company LLC*
- Docket No. R-2022-3032369 - Citizens’ Electric Company of Lewisburg, PA*
- Docket Nos. R-2022-3031672 & R-2022-3031673 - Pennsylvania-American Water Company*
- Docket No. R-2022-3031113 – PECO Energy Company – Gas Division*
- Docket No. R-2022-3030661 – Peoples Natural Gas Company, LLC 1307(f)*
- Docket No. R-2021-3030218 – UGI Utilities, Inc. – Gas Division*
- Docket Nos. R-2021-3027385 & R-2021-3027386 – Aqua Pennsylvania, Inc. & Aqua Pennsylvania Wastewater, Inc.*
- Docket No. A-2021-3027268 - Aqua PA Wastewater, Inc. – Acquisition of the Wastewater System Assets of Willistown Township (§1329)*
- Docket No. R-2021-3026682 – City of Lancaster – Water Fund*
- Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779 – Pittsburgh Water & Sewer Authority*
- Docket No. R-2021-3024601 - PECO Energy Company – Electric Division*
- Docket No. R-2021-3023618 – UGI Utilities, Inc. – Electric Division*
- Docket No. R-2020-3022135 – Pike County Light & Power Company (Electric)*
- Docket No. R-2020-3022134 – Pike County Light & Power Company (Gas)*
- Docket No. R-2020-3020919 – Audubon Water Company*

ANTHONY D. SPADACCIO, CRRA

PROFESSIONAL EXPERIENCE AND EDUCATION

- Docket No. R-2020-3020256 – City of Bethlehem – Bureau of Water*
- Docket Nos. R-2020-3019369 & R-2020-3019371 - Pennsylvania-American Water Company*
- Docket Nos. R-2020-3017951, R-2020-3017970 & P-2020-3019019 – Pittsburgh Water & Sewer Authority*
- Docket No. R-2020-3017850 - Peoples Natural Gas Company, LLC 1307(f)*
- Docket No. R-2020-3017846 - Peoples Gas Company, LLC 1307(f)*
- Docket No. R-2020-3017206 – Philadelphia Gas Works*
- Docket No. R-2019-3010955 – City of Lancaster – Sewer Fund*
- Docket No. R-2019-3008948 – Community Utilities of PA, Inc. – Wastewater Division*
- Docket No. R-2019-3008947 – Community Utilities of PA, Inc. – Water Division*
- Docket No. R-2019-3008212 - Citizens’ Electric Company of Lewisburg, PA*
- Docket No. R-2019-3008208 - Wellsboro Electric Company*
- Docket No. A-2019-3006880 – Pennsylvania-American Water Company – Acquisition of the Water Treatment and Distribution System Assets of Steelton Borough Authority (§1329)*
- Docket No. R-2018-3006814 – UGI Utilities, Inc. – Gas Division*
- Docket Nos. A-2018-3003517 & 3003519 - SUEZ Water Pennsylvania, Inc. – Acquisition of the Water and Wastewater Assets of Mahoning Township (§1329)*
- Docket Nos. R-2018-3002645 & 3002647 - Pittsburgh Water & Sewer Authority*
- Docket No. R-2018-3000164 - PECO Energy Company – Electric Division*
- Docket No. R-2018-3000124 - Duquesne Light Company*
- Docket No. R-2018-3000236 - Peoples Natural Gas – Equitable Division 1307(f)*
- Docket No. R-2018-2645296 - Peoples Gas Company LLC 1307(f)*
- Docket No. R-2018-2645278 - Peoples Natural Gas Company, LLC 1307(f)*
- Docket Nos. M-2018-2640802 & 2640803 – Pittsburgh Water & Sewer Authority (Compliance Plan)*
- Docket No. R-2017-2640058 - UGI Utilities, Inc. – Electric Division*

ANTHONY D. SPADACCIO, CRRA

PROFESSIONAL EXPERIENCE AND EDUCATION

- Docket No. A-2017-2606103 - Pennsylvania-American Water Company – Acquisition of Assets of the Municipal Authority of the City of McKeesport (§1329)*
- Docket No. R-2017-2595853 - Pennsylvania-American Water Company*
- Docket No. A-2016-2580061 - Aqua PA Wastewater, Inc. – Acquisition of the Wastewater System Assets of New Garden Township and the New Garden Township Sewer Authority (§1329)
- Docket No. R-2016-2542923 - PNG, LLC – Equitable Division (Rate MLX)*
- Docket No. R-2016-2542918 - Peoples Natural Gas Company, LLC (Rate MLX)*
- Docket No. R-2016-2538660 - Community Utilities of PA, Inc.
- Docket No. R-2016-2531551 - Wellsboro Electric Company*
- Docket No. R-2016-2531550 - Citizens’ Electric Company of Lewisburg, PA*
- Docket No. P-2016-2543140 - Duquesne Light Company (DSP VIII)*
- Docket No. R-2016-2529660 - Columbia Gas of PA, Inc.*
- Docket No. P-2016-2521993 - Columbia Gas of PA, Inc. (DSIC)*
- Docket No. R-2015-2506337 - Twin Lakes Utilities, Inc.
- Docket No. R-2015-2479962 - Corner Water Supply & Service Corp.
- Docket No. R-2015-2479955 - Allied Utility Services, Inc.
- Docket No. R-2015-2470184 - Borough of Schuylkill Haven – Water Dept.
- Docket No. R-2014-2452705 - Delaware Sewer Company*
- Docket No. R-2014-2430945 - Plumer Water Company
- Docket No. R-2014-2427189 - B.E. Rhodes Sewer Company
- Docket No. R-2014-2427035 - Venango Water Company
- Docket No. R-2014-2428745 - Metropolitan Edison Company
- Docket No. R-2014-2428744 - Pennsylvania Power Company
- Docket No. R-2014-2428743 - Pennsylvania Electric Company
- Docket No. R-2014-2428742 - West Penn Power Company

*Testimony Submitted

I&E Exhibit No. 1
Witness: Anthony Spadaccio

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2023-3039920, R-2023-3039921 & R-2023-3039919

Exhibit to Accompany

the

Direct Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

Revenue Requirement
Multi-Year Rate Plan
Credit Rating Agencies
Days Cash on Hand
Debt Service Coverage Ratio
Rate Stabilization Fund
PAYGO
DSIC Increase
Infrastructure Improvement Charge

TABLE I
Pittsburgh Water and Sewer Authority
FPPTY 2024-2026 INCOME SUMMARY
Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

	I&E MODIFIED				
	(A)	(B)	(C)	(D)	(E)
	FPPTY 2024				
PWSA	PWSA	PWSA	I&E	I&E	
Revenue at Current Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates	
INCOME SUMMARY					
	\$	\$	\$	\$	\$
Beginning Unrestricted Cash	89,747,395		89,747,395	0	89,747,395
Revenues:					
User Charge Revenues	196,813,382	39,901,123	236,714,505	(41,892,368) A	194,822,137
Infrastructure Improvement Charge	0	0	0	0	0
Customer Assistance Program Charge	0	0	0	0	0
DSIC Revenues	8,432,305	6,606,157	15,038,462	(11,513,757) B	3,524,705
Other Misc. Revenues	3,566,080	0	3,566,080	0	3,566,080
Subtotal: Total Revenues	<u>208,811,767</u>		<u>255,319,047</u>		<u>201,912,922</u>
Less: Uncollectible Revenues	(5,971,537)		(5,971,537)	0	(5,971,537)
Less: Stormwater Credit Program Cost	(180,489)	0	(180,489)	0	(180,489)
Total Revenues Net of Uncollectible	202,659,741	46,507,280	249,167,021	(53,406,125)	195,760,896
Revenue Requirements:					
O & M Expense	135,911,272		135,911,272	(20,780,822) C	115,130,450
Senior Lien Debt Service (2)	70,718,091		70,718,091	(21,111,546) D	49,606,545
All Other Debt Service (2)	26,214,534		26,214,534	0	26,214,534
Cash-Financed Capital (Base Rates)	0		0	0	0
Cash-Financed Capital (DSIC)	15,038,462		15,038,462	(11,513,757) B	3,524,705
Restricted Reserve Contributions	0		0	0	0
Operating Reserve Contribution	1,000,000		1,000,000	0	1,000,000
Other Expenses (3)					
DWSL	0		0	0	0
Hardship Grant Funding	0		0	0	0
Arrearage Funding	240,000		240,000	0	240,000
Total Revenue Requirements	249,122,360		249,122,360	(53,406,125)	195,716,235
Revenue Surplus / (Deficit)	(46,462,619)		44,661	0	44,661
Fund Balance Transactions					
Contributions (to)/from Operations	1,000,000		1,000,000	0	1,000,000
Contributions (to)/from Rate Stabilization Fund	0		0	0	0
Contributions (to)/from Operating Reserve	0		0	0	0
Ending Unrestricted Cash Balance	44,284,776		90,792,056		90,792,056
KEY FINANCIAL METRICS					
		<u>PWSA Filing</u>		<u>PWSA Filing</u>	
Debt Service Coverage					
Senior (1.25 Requirement)	0.99		1.65		1.70
Total (1.10 Requirement)	0.73		1.21		1.11
Days Cash on Hand (4)	120.8		247.6		293.1
Days Cash on Hand with ALCOSAN (4)	70.73		145.0		159.5

(1) Company Main Brief

(2) Includes Principal and Interest payments on existing and proposed debt.

(3) Several programs funded, including assistance with sewer laterals and components of the customer assistance program.

(4) Calculated using Operating & Maintenance Expenses (excludes non-operating expenses).

A = C + D

B = Difference between the \$32,625,303 adjustment detailed in I&E Statement No. 3 and the \$21,111,546 new debt service in the FPPTY

C = O&M adjustments detailed in I&E Statement No. 2

D = Removal of the new debt service in the FPPTY

*\$21,111,546 new debt service + \$11,513,757 in the DSIC cash financed capital account = the \$32,625,303 capital improvement adjustment in the FPPTY

**The \$11,513,757 reduction to the DSIC cash financed capital account is not an implication that the Authority is not making DSIC approved expenditures

TABLE I(A)
Pittsburgh Water and Sewer Authority
FPFTY 2024-2026 KEY RATIOS
Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

<u>Key Ratio Breakdown</u>	(A)	(B)	(C)
	FPFTY 2024		
	PWSA Revenue at Current Rates \$	PWSA Revenue At Proposed Rates \$	I&E Revenue At Adjusted Rates \$
Debt Service Coverage			
Operating Revenues	208,811,767	255,319,047	201,912,922
Less:			
Adjustments	(5,971,537)	(5,971,537)	(5,971,537)
Net Collected Revenues	202,840,230	249,347,510	195,941,385
Less:			
Current Expenses	(135,911,272)	(135,911,272)	(115,130,450)
Adjustments:			
City Payments	3,419,629	3,419,629	3,419,629
Placeholder			
Placeholder			
Revenues Available for Debt Service	70,348,587	116,855,867	84,230,564
Senior Lien Debt Service	70,718,091	70,718,091	49,606,545
All Other Debt Service	26,214,534	26,214,534	26,214,534
Total Debt Service	96,932,626	96,932,626	75,821,080
Senior Lien Debt Service Coverage	0.99	1.65	1.70
Total Debt Service Coverage	0.73	1.21	1.11
Days Cash on Hand			
Ending Cash Balance	44,284,776	90,792,056	90,792,056
Operating Expenses	135,911,272	135,911,272	115,130,450
Adjustments:			
(Loss) / Gain on ALCOSAN Billings	(2,066,814)	(2,066,814)	(2,066,814)
Add: Adjustments to ALCOSAN	0	0	0
Placeholder			
Net Operating Expenses	133,844,458	133,844,458	113,063,636
Days Cash on Hand (x 365)	120.8	247.6	293.1
Including ALCOSAN			
Add: ALCOSAN Charges	94,684,852	94,684,852	94,684,852
Days Cash on Hand (x 365)	70.7	145.0	159.5

(1) Company Main Brief

(2) Revenue adjusted to meet to Revenue Requirements.

CREDIT OPINION

29 May 2023



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EMEA 44-20-7772-5454

Pittsburgh Water & Sewer Authority, PA

Update to credit opinion following outlook revised to positive

Summary

[The Pittsburgh Water and Sewer Authority](#) ("PWSA" or "the Authority") ([A3 positive](#)) benefits from a large and diverse service area, primarily serving the city of [Pittsburgh](#) ([A1 stable](#)), with notably stable top customers primarily in education and healthcare industries. The Authority has also benefitted from proactive steps to strengthen two key credit areas - its management and governance and its financial position. PWSA's governance structure has been materially improved by oversight from the Pennsylvania Public Utility Commission (PUC), initiated in 2018. Though the PUC's rate approval process is a lengthy 270 days, the commission has committed to allowing for rate increases that will both satisfy bond covenants and allow for needed capital improvements. Further, the PUC has helped to ensure timely system maintenance and routine capital investment, in line with broad industry standards. At the same time, PWSA has taken steps to strengthen its internal management structure and build its workforce; also a credit positive.

The Authority's financial position has also improved considerably over the past several years and continues to strengthen. Liquidity has reached a satisfactory 165 days cash on hand as of fiscal 2022 year-end, up from just 23 days cash in 2017. Debt service coverage has likewise strengthened, to 1.49 times when all liens of debt are considered. These metrics compare well to peers and also to the Authority's own past performance.

Yet certain credit challenges persist and high leverage will be a continued headwind for the Authority going forward. The Authority's current debt burden is significant and material additional debt is expected as the Authority progresses on its capital improvement plan. The Authority's current five year plan assumes an additional \$1 billion in debt, before consideration of a yet-to-be-determined consent order for combined sewer overflow remediation. The Authority's ability to maintain a healthy financial position while increasing leverage will be key to future credit reviews. Future reviews will also consider the potential challenges associated with the expected consent order and its impact on overall leverage and customer affordability.

Credit strengths

- » Diverse, urban Pittsburgh service area, supported by strong "eds & meds" presence
- » Considerable size; system assets include water conveyance and treatment, and sewer conveyance that ties to ALCOSAN
- » Significant, recently implemented rate increases boost revenues; PUC oversight brings improvements and controls

Credit challenges

- » Substantial debt burden; debt ratio is 96% and will continue to grow
- » Narrow, though improved, liquidity versus similarly sized peers
- » Projected \$1.8 billion in capital needs over the next five years, to be primarily funded with debt
- » Consent decree to remediate combined sewer overflows not yet finalized

Rating outlook

The positive outlook reflects the expectation of continued improvement to liquidity and coverage as PWSA progresses in its capital plans and continues to mature in its internal governance structure and relationship with the PUC. The positive outlook also reflects the expectation that, while the settlement of PWSA's consent decree with the EPA is still a large unknown, improved governance controls and a continued track record of adequate rate setting with the PUC will enable PWSA to readily and reasonably manage its future capital plans.

Factors that could lead to an upgrade

- » Substantial improvement in liquidity that is maintained over several reporting periods
- » Meaningful reduction of debt
- » Sustained improvements in debt service coverage

Factors that could lead to a downgrade

- » Material narrowing of debt service coverage and liquidity position
- » Inability to raise rates sufficiently to meet debt service coverage covenants while also funding significant deferred capital improvements
- » Failure to effectively deploy new revenues to address near term infrastructure and operating needs
- » Substantial new or worsening long-term environmental concerns

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Key indicators

Exhibit 1

Pittsburgh Water & Sewer Authority

System Characteristics

Asset Condition (Net Fixed Assets / Annual Depreciation)	40 years
System Size - O&M (in \$000s)	\$184,743
Service Area Wealth: MFI % of US median	92%

Legal Provisions

Rate Covenant (x)	1.10
Debt Service Reserve Requirement	DSRF funded at lesser of standard 3-prong test (Aa)

Management

Rate Management	A
Regulatory Compliance and Capital Planning	A

Financial Strength

	2018	2019	2020	2021	2022
Operating Revenue (\$000)	\$231,734	\$249,049	\$241,997	\$269,121	\$287,166
System Size - O&M (\$000)	\$153,180	\$165,230	\$169,507	\$179,900	\$184,743
Net Revenues (\$000)	\$81,565	\$87,280	\$79,692	\$90,592	\$112,035
Net Funded Debt (\$000)	\$871,040	\$915,696	\$978,458	\$1,064,365	\$1,136,955
Annual Debt Service (\$000)	\$59,406	\$52,010	\$64,774	\$67,796	\$75,038
Annual Debt Service Coverage (x)	1.4x	1.7x	1.2x	1.3x	1.5x
Days Cash on Hand	111.80	142.88	129.65	155.05	165.36
Debt to Operating Revenues (x)	3.76	3.68	4.04	3.95	3.96

Source: Moody's Investors Service, Pittsburgh Water & Sewer Authority

Profile

PWSA is an authority of the city of Pittsburgh, providing water treatment and conveyance to 84% of the city's population of roughly 305,000 residents and sewer conveyance for the entire city.

Detailed credit considerations

Service area and system characteristics: large, stable customer base in Pittsburgh

The Authority provides water distribution and wastewater collection and conveyance for the city of Pittsburgh and neighboring municipalities. The city's diverse economy is a credit positive for the Authority. Favorably, PWSA reported strong revenue collections throughout the coronavirus pandemic and did not experience large scale delinquencies that effected some regional peers, signaling resiliency in the customer base. The Authority's 10 largest customers (3.7% of revenues) include major Pittsburgh institutions, such as the Fox Chapel Water Authority, [Allegheny County \(Aa3 stable\)](#) and the [University of Pittsburgh \(Aa1 stable\)](#). All of the Authority's five largest customers have been in the system for at least 75 years. Notably, given a renegotiated cooperation agreement with the city of Pittsburgh in 2019, most city buildings are now metered for water, with the city paying for water usage - something it had not done previously.

The Authority continues to maintain an ample water supply, providing water to a population of approximately 305,000. The system is permitted to draw up to 100 million gallons per day (MGD) from the Allegheny River, its sole water source, though average demand for water is well below that level, at 70 MGD. The Authority treats drinking water at one plant located on the river, as well as a microfiltration plant at one of its reservoirs. The Authority has capacity to store approximately 3 days' worth of finished water for uninterrupted supply to its customers.

The Authority does not treat wastewater. It transmits all of its sewage to the [Allegheny County Sanitary Authority \(Aa3 stable\)](#). There is no contractual limit to the amount of sewage that can be conveyed, however, during wet weather events, the existing system frequently overflows. ALCOSAN is projecting annual rate increases over the next twenty years that will pass through to PWSA customers.

PWSA has made significant strides in improving its governance and management of its organization as well as its physical assets. Ordinary system updates and routine infrastructure improvements had been sorely lacking at PWSA and years of deferred maintenance have led to cost inefficiencies and exacerbated the natural wear and tear on an already aged system. PUC oversight since 2018 has already served to remediate some of this by establishing guidelines for system improvements based on industry-wide standards. The Authority has also hired more than 167 employees over the last five years - a 68% increase, and has filled key management roles with qualified personnel. This is a significant improvement over Authority operations of just a few years ago where management was mostly outsourced and employment was insufficient to provide for the day to day operations.

The additional operational oversight by the PUC is expected to be a credit positive going forward. Whereas the Authority had used capital deferment as a tool to maintain satisfactory finances and rate increases were heavily influenced by local politics in the past, the PUC has ensured that rate increases are less politicized. Further, while certain capital projects may be slowed to accommodate softening revenue if necessary, a complete sidelining of the capital plan and required maintenance is unlikely.

Debt service coverage and liquidity: recent history of satisfactory financial performance

The Authority's net revenues have been fairly stable since 2018, averaging a net take-down (net revenue / gross revenue) of about 35% over the past five years, as increased revenues have been matched by increased spending for maintenance and capital improvements. PWSA's operating margins are well in line with peers and are expected to remain stable as rate increases and further revenue growth is used to fund needed capital spending and a growing workforce payroll.

At fiscal 2022 year-end, the Authority reported senior debt service coverage of 1.8 times and total coverage of 1.41 times, well within covenant requirements and satisfactory versus peers. Moody's reports a slightly higher 1.87 times senior lien debt service coverage and 1.49 times all-in coverage, based on a net income figure that includes non-operating grant revenue. Favorably, coverage has continually improved since 2018, when PUC rate oversight went into effect, signaling that rate increases have been effective to maintain sufficient coverage while providing for more normalized operations and investment in system infrastructure.

The Authority is expecting an operating surplus of about \$6 million for 2023. PWSA expects all-in coverage to stay in the range of 1.2 times to 1.4 times over the next five years, though the Authority assumes rather significant rate increases in order to keep coverage stable. Moody's expects that the PUC will be supportive of rate increases that will allow for satisfactory coverage levels while PWSA continues to execute its capital plan. Future reviews will consider whether the Authority is able to maintain satisfactory coverage and adhere to projected financial performance while supporting increased leverage to execute the Authority's sizeable capital plan.

Liquidity

The Authority's liquidity is satisfactory, at 165 days unrestricted cash on hand as of fiscal year end 2022, equating to about \$84 million. PWSA's cash position is considerably weaker than national water and sewer system median days cash of 450 days as of 2021, though continues to strengthen. Further, when pass-through revenues and expenditures attributable to ALCOSAN are excluded from O&M, the Authority's days cash metric strengthens to 306 days cash, which is a somewhat more accurate view of liquidity relative to PWSA's own expenditure needs.

Debt and pensions: elevated debt burden continued credit challenge

The Authority continues to face material pressure to improve its infrastructure given years of disinvestment. Coupled with its own consent decree pertaining to combined sewer overflows during wet weather events, which is in negotiation since 2021, the Authority will necessarily add to its already elevated debt burden in the near term. PWSA anticipates roughly \$1.8 billion in capital spending over the next five years, largely funded by debt. This will add to leverage substantially and future credit reviews will focus on the Authority's ability to manage additional debt while maintaining satisfactory cash and coverage metrics; largely dependent on PWSA's ability to increase rates as needed. The Authority's total debt is equal to 96% of fixed assets as of 2022 year-end, well above similarly sized peers. The outstanding debt amortizes slowly, with only 36% of principal scheduled to be repaid in the next 10 years.

Legal security

PWSA's first lien revenue debt benefits from a limited obligation revenue pledge backed by a first lien security interest in and to the revenues of the authority after payment of current expenses.

Debt structure

The majority - 49% - of Authority debt benefits from a first lien pledge on net revenues. Another 7% is subordinate-lien bonds, and the remainder is backed by a third lien, which is shared on a parity basis between PennVest and PNC Bank, NA (A2) which provides a revolving credit facility to PWSA. Roughly 14% of the Authority's current debt outstanding (as of May 2023) is hedged variable rate.

The Authority introduced a new indenture in 2017, which strengthened the rate covenant. The requirement is now 125% of senior debt service coverage plus 110% of subordinate debt service coverage. Free cash is no longer used in the coverage calculation. The debt service reserve is funded at the lesser of the three-pronged test.

The Authority materially reduced its variable rate debt outstanding with its Series 2019 A&B issuance. Variable rate debt has been reduced to 14% of the total debt portfolio today, down from 44% prior to 2019. There is one variable rate issuance outstanding currently - the Authority's senior lien Series 2017C bonds, which were last remarketed in December 2020 and are subject to mandatory tender in December 2023. The bonds were remarketed with a rate indexed to SIFMA. Since the fixed-to-floating rate swaps associated with the 2017C bonds were LIBOR-based, the Authority layered on a basis swap alongside the remarketing in order to convert the variable rate received on the swaps to SIFMA from LIBOR, creating an effective hedge for the bonds. The Series 2023 ABCD issuance eliminates the basis swap, as both the variable rate debt and associated swaps will now be indexed to SOFR. Further the 2023 issuance contemplates a private placement of two-thirds of the variable rate debt with a soft put in 2028. The remaining one-third of variable rate debt will either be fixed for a five-year period or will be refinanced as fully fixed rate bonds with a full swap termination.

[Assured Guaranty Municipal Corp. \(A1 stable insurance financial strength\)](#) insures the Authority's variable rate bonds and all of the Authority's swaps, except the 2020 basis swap, and provides the surety policy for all debt service reserve funds, except the reserve associated with PWSA's 2013 bonds, which is cash funded. This counterparty concentration may adversely impact the Authority should AGM's credit quality deteriorate.

The Authority maintains \$535 million in outstanding PennVest loans as of May 2023 and an \$150 million revolving credit facility, of which \$131 million is currently drawn. The Authority will apply proceeds from its Series 2023 A issuance to pay down the credit line. Given an intercreditor agreement, PennVest and PNC Bank, NA share a third lien priority on system revenues.

Debt-related derivatives

The Authority maintains floating-to-fixed rate swaps in support of its Series 2017C issuance under ISDA Master Agreements with JP Morgan Chase Bank N.A. (Aa2 Sr. Unsecured) (64%) and Merrill Lynch Capital Services (36%), whereby the authority pays a fixed interest rate semiannually (3.79% weighted average) and receives 70% of LIBOR. The Authority layered on a basis swap in 2020 to convert the LIBOR received rate to SIFMA.

AGM provides swap insurance for all swaps. The aggregate swap mark to market is a negative (\$20 million) as of fiscal year end 2022.

The floating-to-fixed rate swaps are included in the parameters of a credit support annex (CSA), though there is no collateral posting requirement unless an Insurer Event occurs. The basis swap is excluded from the CSA. The amortization schedule for each swap mirrors that of the corresponding bonds and the swaps terminate at bond maturity. The basis swap terminates in December 2023 with the next mandatory tender of the Series 2017 C bonds. For all of the swaps, per the 2017 indenture, regularly scheduled swap payments are subordinate to subordinate bond debt service. Early termination is optional for the Authority only, and termination by the counterparty depends upon specified termination events, including the downgrade of PWSA's underlying rating below investment grade. An Authority termination payment would be subordinate to first and second lien debt service payments.

Pensions and OPEB

Most of the Authority's employees participate in the city's pension program. The Authority's share of its pension contribution is now accurately provided for through its renegotiated cooperation agreement with the city. Beginning in 2019, all new full time non-union PWSA employees are eligible to participate in a 401(a) retirement plan and do not have the option of enrolling in the city's municipal pension fund plan.

ESG considerations

Environmental

The Pittsburgh metropolitan area faces a high risk of elevated rainfall levels. Demonstrated elevated rainfall levels in the region have directly impacted PWSA, as wet weather events overwhelm the system's current combined sewer infrastructure. This is the reason for the Authority's consent decree related to combined sewer overflows.

Social

Pittsburgh's population is relatively stable at roughly 301,000 and the five year average annual growth rate of the city's full value is a strong 4.5% as of fiscal 2021, well above the US median of -0.5%. Nevertheless, the city's wealth indicators remain below average with median family income at just 89% of the nation. Poverty is also elevated at 20%. As PWSA has increased rates, it has also implemented a rate relief program for qualifying residents, acknowledging this weakness in its rate base.

Governance

The Authority's current management team has developed a comprehensive plan to bring operations to good working order and to proceed with much needed capital improvements. Strong governance controls at the Authority are evidenced by several years of improved financial performance.

Management views its relationship with the PUC as well as the DEP and EPA as an opportunity for partnership and has proactively sought to engage these agencies as PWSA moves forward with its substantial CIP. This is a definitive, positive change from the Authority's prior actions, and informs our stable outlook on PWSA's current credit profile.

The Authority's Board consists of nine members recommended by a nominating committee, appointed by the Mayor, and approved by City Council. Currently, eight of the nine Board seats are filled. Starting in 2020, city water charges were phased in pursuant to a cooperation agreement; the Authority had provided water to the city at no cost prior to 2020. Among other things, the cooperation agreement also provides for payments between the city and the PWSA to be based upon actual, verifiable, direct expenses, and in accordance with customary utility practices under the PUC Code, and importantly, confirms that payments by the PWSA to the city will continue to be subordinate to all debt obligations of the PWSA.

Pennsylvania's Public Utility Commission began oversight of the authority in April 2018. The PUC is responsible for regulating the Authority's rate making, operating effectiveness, and debt issuance. We expect that the PUC will bring standardization and effective governance to the Authority's future operations. The PUC is required to approve rate increases that will ensure PWSA complies with its bondholder covenants, though we note that the approval process for increases can be lengthy.

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Summary:

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Credit Highlights

Outlook

Credit Opinion

Related Research

Summary:**Pittsburgh Water and Sewer Authority;
Water/Sewer****Credit Profile**

US\$146.058 mil wtr and swr sys first lien rev rfdg bnds ser 2023D due 09/01/2028		
<i>Long Term Rating</i>	A+/Stable	New
US\$144.62 mil wtr and swr sys first lien rev rfdg bnds ser 2023B due 09/01/2040		
<i>Long Term Rating</i>	A+/Stable	New
US\$103.705 mil wtr and swr sys first lien rev bnds ser 2023A due 09/01/2053		
<i>Long Term Rating</i>	A+/Stable	New
US\$0.89 mil wtr and swr sys first lien rev bnds (federally taxable) ser 2023C due 09/01/2024		
<i>Long Term Rating</i>	A+/Stable	New
Pittsburgh Wtr & Swr Auth WTRSWR		
<i>Long Term Rating</i>	A+/Stable	Affirmed

Credit Highlights

- S&P Global Ratings affirmed its 'A+' rating on the Pittsburgh Water and Sewer Authority's (PWSA) first-lien revenue bonds.
- At the same time, S&P Global Ratings also affirmed its 'A' rating on PWSA's subordinate-lien revenue bonds.
- Additionally, we assigned our 'A+' rating to PWSA's upcoming approximately \$400 million water and sewer system first-lien revenue and revenue refunding bonds series A, B, C (federally taxable), and D bonds and remarketing of the 2017C bonds.
- The outlook is stable.
- Total debt outstanding will be approximately \$1.5 billion.

Security

The first-lien bonds are secured by a senior-lien pledge on the net revenues of the authority's waterworks and sanitary sewer system. Bond provisions are credit neutral.

We have applied our primary utility revenue bond criteria to determine the authority's general creditworthiness, and have applied this rating to its senior-lien issues. We rate PWSA's subordinate lien one notch lower, based on the application of our criteria "Assigning Issue Credit Ratings Of Operating Entities" (published May 20, 2015, on RatingsDirect), given the open status of the senior lien and the likelihood that PWSA will continue to use the senior lien from time to time.

Proceeds of the bonds will be used to fund a portion of the system's capital program and refund the authority's series 2013A and B for interest rate savings, which will allow for the remarketing of the 2017C bonds, finance the partial

termination costs of the fixed payer swap associated with the 2017C bonds, and fund the cost of issuing the bonds.

Of the series 2017C bonds, the subseries 1, 2, and 3 will each be associated with a basis swap to the Securities Industry and Financial Markets Association (SIFMA) index rate. The counterpart for this overlay swap is Merrill Lynch Capital Services Inc., with a notional amount of \$216.72 million of the 2017C bonds that are synthetically fixed with a fixed payer swap with JPMorgan Chase Bank N.A. or Bank of America Merrill Lynch N.A. The authority intends to remarket \$146 million of the 2017C bonds into secured overnight financing rate (SOFR) mode and issue \$72 million series 2023D bonds as fixed-rate premium put bonds, as well as partially terminate the fixed payer swap for five years or upsize the series 2013B refunding bonds to refund \$72 million of the 2017C bonds and pay the termination cost of the associated fixed payer swaps to maturity. The decision whether to terminate fully or partially is subject to market conditions. The outstanding basis overlay swap to the Securities Industry and Financial Markets Association (SIFMA) index rate on the series 2017C bonds will be terminated and related costs will be financed with proceeds of the bonds. Although only a point-in-time snapshot and--barring a termination event such as the rating on PWSA falling below 'BBB-'--not an actual liability, those swaps are currently substantially out of the money. Subseries 4 (\$2 million) and the balance on the PNC Bank capital line of credit (\$132 million) are not hedged.

Credit overview

A very conservative approach to long-term planning has enabled management to successfully get three rate increases from the Pennsylvania Public Utility Commission (PaPUC), with the last being for two years (fiscal years 2022 and 2023). These rate increases have enabled management to continue funding the capital improvement program (CIP) while dealing with rising costs from its suppliers. Additionally, management was successful in getting a new stormwater fee approved to assist in funding those projects. Given the capital plan, it is important for rating maintenance that the recently filed rate case be approved at or near the requested levels for fiscal years 2024-2026.

Other factors that support the rating include:

- Pittsburgh's role as the anchor and economic engine for western Pennsylvania, based on an employment base that has reinvented itself from one that once relied heavily on manufacturing and industrial jobs;
- Rates for service that have been pressured over the past decade by the unfunded mandates, and will need to be reviewed by the state's rate regulator, but remain affordable;
- Operational management assessment (OMA) that we view as good, even despite the above-mentioned challenges;
- Strong coverage levels of all-in debt service historically and projected;
- Strong on-balance-sheet liquidity, supported further by the available credit line; and
- Financial management practices and policies we consider good.

The rating is limited by extremely high leverage, with \$1.8 billion in capital commitments identified through fiscal 2027 that are likely to continue to pressure the financial profile.

Environmental, social, and governance

In our view, PWSA has outsized risks related to each of our environmental, social, and governance (ESG) factors, although each of these are generally trending favorably. In previous years, the authority faced scrutiny from local and

state elected officials who voiced concerns over its operations. An auditor general's opinion, released in November 2017, cited "aging and deteriorating infrastructure issues and financial and operational long-term viability issues," and was an important factor in legislation that ultimately placed PWSA under PaPUC oversight as of April 1, 2018. The PaPUC regulates the authority's rates and fees and must approve additional debt. PWSA's management team has worked closely with regulators and other stakeholders, and has already achieved several measures that are likely to improve operations and financial capacity. This includes recent approval of a distribution system improvement charge that will be dedicated to underground infrastructure rehabilitation.

PWSA has also implemented various socially directed programs, such as lead service-line replacements and customer bill-pay assistance programs. We view the latter as a credit quality stabilizer that could allay affordability concerns. PWSA's own environmental compliance mandates, as well as drinking water efficiency, are key programs in PWSA's capital budget and have been the major generators for the need to consider additional rate adjustments; the authority has the ability to administratively pass through and recover costs from its wholesale wastewater treatment provider. PWSA, under its Green First plan, is also piloting approximately a dozen projects to experiment with different approaches to green infrastructure and overflow reduction that could also present capital budget cost savings.

Outlook

The stable outlook reflects our expectation that when PWSA does need to propose a rate case to the PaPUC, there will generally be a credit-supportive relationship, observed by both the timing and magnitude of rate adjustments that PWSA is likely to request, versus what the PaPUC ultimately grants. We are assuming that the financial profile will be further stabilized by the sufficiency test in the rate covenant, which does not allow for the use of cash transfers. We will also likely keep in place the one-notch distinction between the first- and subordinate-lien debt.

Downside scenario

Should inflationary and supply-chain issues significantly drive up the cost of the CIP, which is expected to be mostly debt funded, and thereby cause additional debt that pressures financial metrics, the rating could be lowered.

Upside scenario

Management has represented that total debt service coverage (DSC) will generally move toward about 1.25x, with on-balance-sheet available reserves equivalent to four to five months' operating expenses. Consistently outperforming financial projections while meeting the long-term challenges presented by an aging system, compounded by regulatory pressures, would be the key to PWSA achieving a higher rating.

Credit Opinion

Enterprise risk

Based on our Operational Management Assessment (OMA), we view PWSA to be good. An assessment of good, in our opinion, implies that overall alignment between the system's operational characteristics and its management is sufficient, although there are areas of opportunity. Management's plans to rehabilitate and build reliability into the operations have improved our view of this assessment. The CIP contains projects that are based on both PWSA's

prioritization and those reflecting consent decrees.

Much of the existing infrastructure was built to serve a much larger population and a workforce different from that of today. While we note, for example, that the city has an essentially unlimited raw-water supply from the Allegheny River and overall system capacity that could support a population several times the size of the current one, it is also the case that the authority's focus remains the renewal and replacement of its aging underground infrastructure. The water distribution system is also an identified area of opportunity, given the high nonrevenue water percentage, which is attributable to line losses. However, under a 2019 cooperation agreement, the city will no longer receive free service, which alone should help improve nonrevenue water. The renegotiated agreement will not affect the capital lease agreement, and PWSA still intends to purchase the system from the city for \$1 in 2025 under the terms of the current agreement.

PWSA can administratively fully pass through and recover Allegheny County Sanitary Authority (ALCOSAN) billings and the surcharge for distribution system improvements. Management instituted stormwater charges in fiscal 2022. For fiscal 2021, the average customer--using 3,000 gallons of both water and sewer service plus ALCOSAN's treatment surcharge--pays about \$121 per month, or 3.3% of median household effective buying income (MHHEBI). As costs increase over time to support the CIP, headroom for affordability, especially for lower-income customers, could diminish.

Financial risk

A Financial Management Assessment (FMA) of good indicates that we consider management's practices currently good, but not comprehensive. The authority maintains many best practices we believe are critical to supporting credit quality, particularly in the finance department. These practices, however, may not be institutionalized or formalized in policy, or may not be as robust as those of comparable utilities with an FMA of strong. The FMA of good includes a long-term financial plan that management intends to implement in partnership with PaPUC to support its identified capital commitments. The authority also has implemented new, more comprehensive, and conservative budgeting assumptions that better capture annual revenue requirements. We understand that the authority's management team regularly tracks budget-to-actual performance, and that the new management team is instituting a number of additional best practices to target consistently higher levels of financial performance.

Pittsburgh Water & Sewer Authority--Economic and financial data

	Most recent	Fiscal year-end			Median (A+)
		2022	2021	2020	
Economic data					
Water customers	65,739				7,244
Sewer customers	--				7,424
MHHEBI of the service area as % of the U.S.	78.0				91.0
Unemployment rate (%)	3.0				4.6
Poverty rate (%)	11.3				12.1
Water rate (6,000 gallons or actual) (\$)	58.96				38.0
Sewer rate (6,000 gallons or actual) (\$)	64.03				42.0
Annual utility bill as % of MHHEBI	3.3				1.1

Pittsburgh Water & Sewer Authority--Economic and financial data (cont.)

	Most recent	Fiscal year-end			Median (A+)
		2022	2021	2020	
Operational Management Assessment	Good				Good
Financial data					
Operating revenues (\$000s)		287,166	269,121	241,997	7,237
Total operating expenses less depreciation (\$000s)		184,743	179,900	169,507	4,216
S&P Global Ratings-adjusted all-in DSC (x)		1.6	1.4	1.2	1.8
Unrestricted cash (\$000s)		101,983	130,630	183,545	5,110
Days' cash of operating expenses		201	265	395	438
Total on-balance-sheet debt (\$000s)		1,212,627	1,146,271	1,066,226	13,879
Financial Management Assessment	Good		--	--	Good

Note: Most recent economic data available from our vendors. MHHEBI--Median household effective buying income. DSC--Debt service coverage.

Related Research

- Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

Ratings Detail (As Of May 17, 2023)

Pittsburgh Wtr & Swr Auth WS (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WS (AGM) <i>Unenhanced Rating</i>	A(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WS (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR <i>Long Term Rating</i>	A+/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed
Pittsburgh Wtr & Swr Auth WTRSWR (AGM) <i>Unenhanced Rating</i>	A+(SPUR)/Stable	Affirmed

Many issues are enhanced by bond insurance.

Certain terms used in this report, particularly certain adjectives used to express our view on rating relevant factors, have specific meanings ascribed to them in our criteria, and should therefore be read in conjunction with such criteria. Please see Ratings Criteria at www.standardandpoors.com for further information. Complete ratings information is available to subscribers of RatingsDirect at www.capitaliq.com. All ratings affected by this rating action can be found on S&P Global Ratings' public website at www.standardandpoors.com. Use the Ratings search box located in the left column.

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RATING METHODOLOGY

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US Municipal Utility Revenue Debt Methodology

This rating methodology replaces the *US Municipal Utility Revenue Debt* methodology published in October 2017. We have added a section on "Other Considerations." We have also made editorial changes to enhance readability. These updates do not change our methodological approach.

Introduction

In this rating methodology, we explain our general approach to assessing credit risk of essential service US municipal utility revenue bonds, including the qualitative and quantitative factors that are likely to affect rating outcomes in this sector.

The primary factors that drive our credit analysis of revenue bonds issued by municipal utilities that provide essential services are the size and health of the system and its service area, the financial strength of its operations, the legal provisions governing its management, and the strength of its rate management and regulatory compliance.

We discuss the scorecard used for this sector. The scorecard¹ is a relatively simple reference tool that can be used in most cases to approximate credit profiles in this sector and to explain, in summary form, many of the factors that are generally most important in assigning issuer-level ratings to issuers in this sector. The scorecard factors may be evaluated using historical or forward-looking data or both.

We also discuss other considerations, which are factors that are assessed outside the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. In addition, some of the methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.² Furthermore, since ratings are forward-looking, we often incorporate directional views of risks and mitigants in a qualitative way.

As a result, the scorecard-indicated outcome is not expected to match the actual rating for each issuer.

¹ In our methodologies and research, the terms "scorecard" and "grid" are used interchangeably.

² A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Our presentation of this rating methodology proceeds with (i) the scope of this methodology; (ii) the sector overview; (iii) the scorecard framework; (iv) a discussion of the scorecard factors; and (v) other considerations not reflected in the scorecard. The appendix shows the full view of the scorecard factors, sub-factors, weights and thresholds.

Scope

This methodology is used to assign ratings to debt instruments where the primary pledge and source of repayment are revenues generated by US municipal utilities providing monopolistic services essential to public health and functional economies. The approach described in this methodology applies to six basic categories of US municipal utilities: water distribution, gas distribution,³ electric distribution,⁴ sanitary sewerage, stormwater disposal, and solid waste disposal.

This methodology does not apply to debt issued by regulated water utilities, regulated electric and gas utilities and networks, electric generation and transmission cooperatives, power generation projects; nor does it apply to other types of public utilities, such as telephone, cable television, or parking. This methodology also does not apply to utility revenue debt whose rating is based on a general promise of a state or local government to pay the debt (e.g., a general obligation pledge or a full faith and credit pledge).⁵

Sector Overview

The pledge and source of repayment for a municipal utility revenue bond is typically defined in a bond resolution or a trust indenture, which acts as a contract between the utility and its bondholders. The resolution or indenture most often includes a lien on the net revenues of the utility system after the payment of regular operating and maintenance expenses.

US municipal utilities provide many different services whose rates or fees are pledged to the repayment of debt. The utilities mostly fall into one or more of six basic categories:

- » **Water utilities** take water from the ground, a river, a lake, or in special cases the ocean, treat it to a potable standard, and distribute it to customers for drinking, cleaning, and commercial, industrial, or agricultural use. These utilities can be involved in any or all of the functions of water supply: water treatment, long-distance transmission and retail water distribution. Some water utilities have no treatment capacity and purchase potable water wholesale.
- » **Gas utilities** take natural gas from a wholesale pipeline, odorize it for safety detection and pressurize it for delivery to customers through a pipe network for uses such as heating, cooking or commercial and industrial applications.
- » **Electric utilities** purchase electricity from wholesale suppliers and deliver it to residential, commercial and industrial customers for a wide range of power uses.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

³ This methodology covers municipal gas distribution utilities. These utilities typically purchase their supply from natural gas producers or intermediaries, and the gas is delivered via natural gas pipeline to the municipality's distributions system. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

⁴ Only those municipal electric utilities that generate less than 20% of their own power are rated using this methodology. We rate public power utilities using different methodologies. For information, see our methodology that discusses US public power electric utilities with generation ownership exposure and also our methodology that discusses US municipal joint action agencies. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

⁵ A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

- » **Sanitary sewer** utilities collect and treat wastewater, discharging it into a waterway or injecting it underground, and landfilling or incinerating the residual sludge. Some sewer utilities with no treatment capacity gather wastewater and transmit it to another utility that treats it.
- » **Stormwater** utilities collect and treat rainwater before discharging it into a body of water such as an ocean or a river. While every city or county addresses stormwater drainage as an integral element of its streets and highways, the stormwater systems that require capital markets financing are typically large in scale and are necessary to avert flooding from heavy seasonal rainfall.
- » **Solid waste** utilities collect residential or commercial refuse and dispose of it through landfills, waste-to-energy plants, or other waste-disposal processes. A solid waste system can be complete or collection-only, relying on another municipal or private entity for long-haul removal and disposal through landfill or incineration.

Essential-service utilities typically operate as departments, boards or independent authorities of US states or local governments.

States and subdivisions of states, such as counties and cities, often issue bonds where the primary pledge and source of repayment are the net revenues generated by a utility system operated directly under government auspices, such as a city water department. In other cases, states or state subdivisions create an independent authority or special purpose district that operates the system and issues the bonds.

The credit quality of essential-service utility revenue bonds has generally been strong, based on the fundamental strength of utilities, which include the following characteristics:

- » The provision of essential services, usually in a government-protected monopoly;
- » Typically unregulated and independent rate-setting authority;
- » The ability to discontinue service to delinquent accounts and in many cases to put a lien on the property for nonpayment;
- » Utility cost burdens that are typically low relative to household income and to tax burdens;
- » A generally strong federal and state regulatory framework that is designed to keep utilities functioning in order to protect public health and achieve environmental goals;
- » A "special revenue" designation that may insulate a utility from a parent's bankruptcy.

Scorecard Framework

The scorecard in this rating methodology is composed of four factors. All of the sub-factors comprise a number of sub-factors. The scorecard also includes 20 notching factors, also known as below-the-line adjustments, which may result in upward or downward adjustments in half-notch or whole notch increments to the preliminary scorecard-indicated outcome.

EXHIBIT 1

US Municipal Utility Revenue Debt Scorecard Overview

Factor	Factor Weighting	Sub-factor	Sub-factor Weighting
System Characteristics	30%	Asset Condition (Remaining Useful Life)	10%
		System Size (O&M)	7.5%
		Service Area Wealth (Median Family Income)	12.5%
Financial Strength	40%	Annual Debt Service Coverage	15%
		Days Cash on Hand	15%
		Debt to Operating Revenues	10%
Management	20%	Rate Management	10%
		Regulatory Compliance and Capital Planning	10%
Legal Provisions	10%	Rate Covenant	5%
		Debt Service Reserve Requirement	5%
Total	100%	Total	100%

Source: Moody's Investors Service

The scorecard does not include or address every factor that a rating committee may consider in assigning ratings in this sector. We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way. Please see the "Other Considerations" section.

Discussion of the Scorecard Factors

In this section, we explain our general approach for scoring each scorecard factor or sub-factor, and we describe why they are meaningful as credit indicators.

To arrive at a scorecard-indicated outcome, we begin by assigning a score for each weighted sub-factor. Based on the scores and weights for each sub-factor, a preliminary scorecard-indicated outcome before notching factors is produced.

We also assess the notching factors. Our assessment of these notching factors may result in upward or downward adjustments to the preliminary outcome that results from the weighted scorecard factors. The most common notching factors related to each of the weighted scorecard factors are discussed below. In some circumstances, there may be notching for a credit event or trend that is not captured by the weighted scorecard sub-factors or the listed notching factors. We may also choose to make adjustments to the historical inputs to reflect our forward-looking views of how these statistics may change.

Below, we discuss each factor and subfactor, as well as the notching factors that we consider within each category of this methodology.

Factor: System Characteristics (30%)

EXHIBIT 2

**System
Characteristics
(30%)**

		Aaa	Aa	A	Baa	Ba	B and Below
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
System Size (7.5%)	Water and/or sewer / Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median

Source: Moody's Investors Service

Why It Matters

This factor on the scorecard assesses a utility's capacity to fund its operations and capital needs based on the health of its capital assets, the size and diversity of its operations, and the strength and resources of its service base.

The scope of this factor is broad. Each of the sub-factors contributes to an analysis of what magnitude of expenditures is necessary to keep the system functioning, and how large, diverse, and flexible the available resources are to meet those expenditures.

Sub-factor: Asset Condition (10%)

Input: Net fixed assets divided by most recent year's depreciation, expressed in years

The condition of a utility's capital assets determines its ability to comply with environmental regulations and continue delivering adequate service with existing resources.

Depreciation is an accounting concept that acts as a proxy for the rate at which a utility's plant and equipment are aging. Central to our analysis of capital adequacy is an assessment of how utilities "fund depreciation," meaning make capital replacements and repairs to address aging plant and equipment.

The consequences of failing to fund depreciation can be costly. Implicit in this measure is the concept of deferred capital investment. Utilities that delay investing in their systems, replacing aging plant and equipment, and modernizing their facilities often find it more expensive to do so later. Capital investments are ordinarily more expensive when deferred.

Further, systems whose facilities deteriorate often run afoul of environmental regulations. The failure to fund depreciation, which will manifest as a declining useful remaining life, can lead to sewage overflows, inflow and infiltration problems, or non-compliant wastewater discharges, resulting in civil fines, litigation, or regulatory consent decrees. These are usually more expensive than funding

depreciation through a prudent multi-year capital plan that replaces assets as they deteriorate or break down.

The inherent differences between types of utilities are manifested in their component parts, which can have very different useful lives. Because a solid waste utility is largely automotive-based, with collection vehicles and earth-moving equipment at the landfill, the useful life of its assets will be well under 20 years, compared to a water utility whose distribution mains and reservoir have useful lives of 40 to 100 years. We generally acknowledge these differences, which may be reflected in our scoring of notching factors.

For utilities whose asset condition ratios are not determinable, such as utilities that utilize cash accounting and do not report net fixed assets or depreciation, we are likely to assess the sufficiency of capital assets based on other available information.

Sub-factor: Service Area Wealth (12.5%)

Input: Median family income of the service area, expressed as a percentage of the US median

Most of the costs of operating a utility and maintaining its capital assets are borne by ratepayers. The income of the residents of the service base conveys the capacity of its rate-payers to bear higher rates to fund operations and capital upgrades.

Utilities that serve lower-income ratepayers may have more difficulty implementing higher rates, if utility costs consume a considerable share of residents' budgets. The US Environmental Protection Agency (EPA) considers wastewater costs exceeding 2% of median household income to be a heavy burden, for example, a threshold that would be reached more quickly for a utility serving lower-income ratepayers.

We believe MFI is the best proxy for the wealth of a service base, but other indicators such as the poverty rate, unemployment, home foreclosures, per capita income, and median home value supplement our analysis of ratepayer capacity.

Sub-factor: System Size (7.5%)

Input: Most recent year operations and maintenance expenditures, expressed in dollars

Larger systems tend to be more diverse and enjoy economies of scale. The size of a system implies the flexibility and resilience not only of its operations, but also of its service base.

Small systems present a number of risks. They are less likely to have redundancies, which allow a system to shut down some of its operations in an emergency or to make repairs without interrupting service. Small standalone water or sewer systems will typically depend upon a single supply of water or a single sewage treatment plant. They are more likely to be exposed to a concentrated customer base. They are more susceptible to the departure of a single large customer. An unexpected capital need is likely to be more costly relative to its annual budget. The collective engineering and scientific expertise is likely to be less robust than a larger system's.

We use different breakpoints for different types of systems in this subfactor, recognizing that not all types of utilities have the same cost structure. For instance, an electric distribution system is more expensive to run than a stormwater system. A distribution-only water system is likely to have a lower,

more predictable cost base, but also depend on an external system for water supply and pay prices largely out of its control.

Utilities that are wholesalers to municipal government customers may exhibit operating stability not captured by size or service area wealth. Many of a utility's risks may be shifted to its municipal customers if their service contracts prevent these customers from switching providers or decreasing payments. If service contracts are so strongly worded and unconditional that municipal customers would have to pay the utility's debt service under any circumstances, then the utility's bonds may effectively represent a claim on the combined credit quality of the municipal governments.

For utilities that are exclusively wholesalers to municipal customers, we typically consider the credit quality of large customers ("participants") and the nature of the participants' pledge to the utility. For bonds secured by a utility's net revenue pledge, we incorporate the strength of the large municipal customers' credit quality as an important factor in the utility's revenue base. For utilities whose pledges are essentially a pass-through of the municipal customers' underlying pledges, we may rate their bonds using our public sector pool programs and financings methodology, recognizing that bondholders enjoy a direct claim on the underlying municipalities' ability and willingness to pay.⁶

Notching Factors Related to System Characteristics

Additional service area economic strength or diversity: We would use this adjustment, upward or downward, if the MFI statistic incompletely or inaccurately depicts that capacity of the service base to bear higher rates.

Significant customer concentration: A large exposure to a single user or industry, or a small number of users, poses substantial risks that might not be captured in MFI. We may notch down if a large share of a utility's revenues comes from one or a small number of customers, or from a single industry. We would be more likely to use this adjustment for volatile, unpredictable, and mobile industries than for longer-standing, more stable ones. We are less likely to consider a wholesale customer as a factor contributing to concentration, as it is purchasing on behalf of end-users.

Revenue per customer greatly over/under regional average: Revenue per customer conveys additional information about users' capacity for higher rates that might not be captured in MFI. We might notch upward or downward if revenue per customer implies higher or lower ability to increase rates than MFI suggests.

Exposure to weather volatility, extreme conditions or market fluctuations: Large amounts of rain that infiltrate pipes or storms that destroy equipment are examples of credit risks that could result in downward notching. Weather can also affect the prices that distribution systems pay third-party providers for electricity or natural gas.

Resource vulnerability: Water, gas, and electric distribution utilities sell a product whose availability can be limited or expensive in some cases. For instance, a water provider in a drought-stricken region may have to purchase expensive third-party water, resulting in declines in billable flow due to conservation efforts. We may notch down if the availability of water, an adequate gas supply, or a dependable source of electricity is vulnerable or in doubt.

Sizeable or insufficient capacity margin: Our useful remaining life calculation is designed to assess the quality of existing capital assets, but it does not measure the adequacy of a system's capacity relative

⁶ A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

to demand. Areas that are growing need more water, gas, and electricity, and place greater demands on wastewater and trash disposal utilities. Systems that are close to capacity may face greater capital costs to expand in the future, suggesting larger debt burdens and posing additional risks that may result in downward notching. Alternately, systems with ample capacity may be notched up, given the lack of capital spending requirements implied by the excess capacity. Further, excess capacity can sometimes imply a revenue-generating opportunity, since utilities can often sell their product or service to other parties. We are less likely to view excess capacity as a positive if it is caused by a declining user base.

Unusual depreciation practices relative to industry norms: Utilities typically have some flexibility to determine the depreciation schedules of their assets. Utilizing unreasonably long useful lives or employing other practices that distort depreciation schedules would also distort our remaining useful life calculation. We may notch down if an unreasonable depreciation schedule is inflating a utility's remaining useful life. Likewise, we may notch up if an unusually rapid depreciation schedule understates remaining useful life.

Factor: Financial Strength (40%)

EXHIBIT 3

Financial Strength (40%)	Aaa	Aa	A	Baa	Ba	B and Below
Annual Debt Service Coverage (15%)	> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)	> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)	< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x

Source: Moody's Investors Service

Why It Matters

The financial health of a utility determines its flexibility to respond to contingencies, resilience against potential short-term shocks, and cushion against a long-term unfavorable trend.

We measure or estimate utilities' financial health by looking at cash and other liquid reserves, the burden that debt places on operations, and the magnitude by which revenues are sufficient to meet expenditures.

Sub-factor: Annual Debt Service Coverage (15%)

Input: Most recent year's net revenues divided by most recent year's debt service, expressed as a multiple

Debt service coverage is a core statistic assessing the financial health of a utility revenue system. The magnitude by which net revenues are sufficient to cover debt service shows a utility's margin to tolerate business risks or declines in demand while still assuring repayment of debt. Higher coverage levels indicate greater flexibility to withstand volatile revenues, unexpected outflows, or customer resistance to higher rates.

Utilities usually enter into a rate covenant under which they pledge to achieve a given level of debt service coverage each year. The covenant helps ensure that the utility utilizes its assets to generate sufficient income to pay bondholders.

The analysis of a utility system's debt service coverage demands ample context. If debt service escalates in future years, then the utility's current net revenues may be sufficient to cover debt service this year, but not in the future. Systems with greater revenue stability can operate comfortably at lower coverage levels. Systems with greater capital needs are likely to incur more debt, which will lead to increased debt service and decreased coverage. The debt service coverage calculation is the basis for a comprehensive analysis of a utility's financial flexibility and trend over the long term.

Rate covenants define a calculation method. These calculation methods vary, for example in the inclusion or exclusion of connection fees. Our coverage calculation will frequently differ from the coverage utilities report for purposes of complying with their rate covenants. Frequently, our analysis will consider several types of coverage, including maximum annual debt service (MADS) coverage, annual debt service coverage, coverage with and without connection fees, and coverage as calculated for the rate covenant. For entry on the scorecard, we include connection fees (when pledged) in revenues, recognizing that these are pledged revenues that are usually generated annually and are an important source of funding for expansion. If connection fees are particularly volatile, or if they represent an inordinate share of revenues, we may adjust below the line.

Sub-factor: Days Cash on Hand (15%)

Input: Unrestricted cash and liquid investments times 365 divided by operating and maintenance expenses, expressed in days

Cash is the paramount resource utilities have to meet expenses, cope with emergencies, and navigate business interruptions. Utilities with a lot of cash and cash equivalents are able to survive temporary disruptions and cash flow shortfalls without missing important payments. A large cash balance can also partially compensate for the lack of a debt service reserve fund. A low cash balance indicates poor flexibility to manage contingencies.

We include in this measure any cash or cash-equivalent that is both unrestricted and liquid. The measure does not include cash held in a debt service reserve fund, unspent bond proceeds, or cash that is restricted for capital.

Sub-factor: Debt to Operating Revenues (10%)

Input: Net debt divided by most recent year's operating revenues, expressed as a multiple

A utility's debt profile determines its leverage and fixed costs. Systems that carry a lot of debt have less ability to reduce costs if demand shrinks, and are generally more challenged to achieve higher debt service coverage.

A greater debt burden may also prohibit a utility from funding necessary capital upgrades, if a covenant prevents the issuer from incurring the debt necessary to fund those upgrades.

"Net debt" is a utility's long-term debt minus its debt service reserve funds.

Notching Factors Related to Financial Strength

Debt service coverage (annual or MADS) below key thresholds: A debt service coverage ratio below 1 times is an important threshold, because coverage below 1 times indicates the utility is not fully covering debt service with income generated from operations. If a utility fails to achieve 1 times coverage, we may notch down to reflect the financial imbalance of the utility's operations. Another key

threshold that would likely prompt us to notch down is if coverage were to fall below the utility's coverage covenant, even if that covenant is higher than 1 times. Management's willingness and ability to operate the system for bondholders' benefit is a crucial credit consideration, and a breach of covenant calls that willingness and ability into question. A coverage level that impedes the issuance of additional bonds under the utility's additional bonds covenant could also prompt us to notch score down, if we think it would prevent the utility from funding necessary capital upgrades.

Constrained liquidity position due to oversized transfers: It is common for utilities to transfer cash to their general governments regularly, either to share overhead costs, make payments in lieu of taxes for occupied property, or to help fund shared infrastructure. It is also common for parent governments to tap utilities' cash to fund General Fund operations. We may notch down if these types of transfers are large and begin to strain its own liquidity. We are more likely to make this adjustment if the general government is operationally reliant on utility transfers and has the authority to increase them, particularly if the general government is struggling financially. Even if a utility has never transferred cash to its parent, such transfers remain a possibility,⁷ one of the reasons for the relationship between a revenue rating and the GO rating of its general government.

Outsized capital needs: A utility with significant capital needs will likely need to incur additional debt not communicated in the existing debt metric. We may notch downward for utilities under regulatory consent decree, or otherwise with great capital needs, that are likely to increase their debt levels.

Oversized adjusted net pension liability relative to debt, or significant actuarial required contribution underpayment: Employees of public utilities are usually members of a municipal pension plan. Most utilities either sponsor their own plan or participate in another entity's plan and are responsible for funding their share of the plan's pension liabilities. We may notch down if this liability is especially large, or if the utility has underfunded its contributions.⁸

Significant exposure to puttable debt and/or swaps, or other unusual debt structure: The risks of a debt portfolio can be magnified if it is significantly composed of puttable debt. Utilities generally set rates with the intention of covering operating expenses and debt service in the current year. A debt put, accelerated amortization under a term-out, or other unexpected calls on a utility's resources can impose immediate and substantial, unbudgeted cash outflows and upend that intention. We may notch down, potentially by several notches, if the composition of a debt portfolio, or cash-flow demands or unfavorable valuation of a swap, indicates a greater degree of risk than the scorecard debt metric.

⁷ Unless the utility's flow of funds is closed-loop. A closed-loop flow of funds is stronger than an open one for this reason.

⁸ For a description of how we calculate or estimate adjusted net pension liability, please see our cross-sector methodology that describes our adjustments to pension data reported by Governmental Accounting Standards Board (GASB) issuers.

Factor: Management (20%)

EXHIBIT 4

Management (20%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Management (10%)	Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory Compliance and Capital planning (10%)	Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning

Source: Moody's Investors Service

Why It Matters

While the legal provisions of the indenture or other bond documents may establish the minimum level of financial margin at which a utility must be run, the utility's management determines the actual level at which it is run.

Utility management refers to the dynamics of setting rates, planning for capital spending, budgeting for annual expenditures, and complying with environmental regulations. All of these factors interplay with one another to determine the credit strength of a utility system.

The scorecard captures two crucial aspects of management: rate-setting and capital planning. These two aspects encompass most of what is important in running a utility: keeping the system in good working order, and paying for it.

Sub-factor: Rate Management (10%)

User rates are the primary, and sometimes only, mechanism utilities employ to pay for their operations.

Ideally, rates increase marginally and steadily, rather than choppily. It is common for utilities to split their rates into a "base" charge (flat rate charged to all users) plus a "volumetric" charge (per unit costs based on flow/usage). Utilities funded to a greater extent by the volumetric charge face greater risks, since volume can be economically sensitive or decline because of a shift in consumption patterns.

Management's track record at setting rates appropriately and increasing them when necessary drives this score. We tend to give higher scores to utilities that set rate structures under which increases are automatic, and do not require annual approval for implementation.

Embedded into this factor is the length of time required to implement a rate increase. Many public utilities enjoy the authority to set their own rates and can enact a rate increase in short order by majority vote of the governing board. Some utilities must give the public a few weeks' or months' notice before increasing rates, or choose to do so by policy or practice. Some utilities require state approval to increase rates. Utilities that need state approval often have to file a rate case subject to public objection, and in some cases the state takes a long time to approve them or denies the full rate increase.

The longer it takes a utility to implement a rate increase, the less flexibility it has to quickly generate new revenues when faced with cash flow shortfalls.

Sub-factor: Regulatory Compliance and Capital Planning (10%)

The public utility sector is heavily regulated. Most public utilities are regulated by federal as well as state agencies.

The EPA enforces the Safe Drinking Water Act for water distribution utilities, the Clean Water Act for sanitary sewer and stormwater utilities, the Resource Conservation and Recovery Act for solid waste disposal systems, and the Clean Air Act for electric utilities. These statutes, and the methods employed to enforce them, are continually evolving, often intensifying over time. Additionally, many states have passed their own environmental regulations and are active enforcers.

This scorecard factor assesses utilities' compliance with relevant regulations and their plans for the capital expenditures required to comply in the future.

In addition to achieving environmental compliance, proper capital planning ensures the continued delivery of the product or service and the ongoing generation of revenues.

In our assessment, we look for indications of potential compliance gaps, such as environmental litigation, a delay in renewing a permit, or a consent decree with a state or federal enforcement body.

Notching Factors Related to Management

Unusually strong or weak capital planning: Continued violations of environmental laws and the associated litigation can impose extraordinary costs on utilities. We may notch down if these costs threaten to overwhelm a system's resources, in the form of a large consent decree, lawsuit, or other costs. Alternately, we may notch up if a utility's capital planning is particularly sophisticated or forward-looking. More sophisticated and forward-looking capital management is more important for systems facing resource vulnerability or extreme weather volatility.

Factor: Legal Provisions (10%)

EXHIBIT 5						
Legal Provisions (10%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Covenant (5%)	> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x		≤ 1.00x
Debt Service Reserve Requirement (5%)	DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF		NO explicit DSRF; OR funded with speculative grade surety	

Source: Moody's Investors Service

Why It Matters

The legal provisions of a public utility revenue bond form the backbone of its security.

When a municipality assigns its General Obligation pledge to a bond, it has promised to use any revenues or resources at its disposal to pay debt service.

A utility revenue bond enjoys no such open-ended pledge, making the legal edifice of the bond critical to bondholder security. Most commonly, the pledge for municipal utility revenue bonds is a lien on the net revenues of the system. Occasionally, bondholders enjoy a lien on the gross revenues of a system. We ordinarily do not consider a gross revenue pledge as materially stronger than a net revenue pledge, because systems need to pay operating and maintenance costs in order to remain functional.

The linchpin of a bond's legal structure is its covenants: the contractual compulsions the municipal utility agrees to when issuing the bonds.

Utilities abide by many different types of covenants. We consider three to be the most important: the rate covenant, the additional bonds test, and the debt service reserve fund. Also crucial in the analysis of a revenue bond's legal structure is whether the flow of funds is open-loop (accessible by another government entity) or closed-loop.

Strong covenants bind the utility to utilize its assets to benefit bondholders by operating with a comfortable financial margin, not taking on too much debt, and maintaining adequate cash available to pay debt service. Weak or nonexistent covenants allow the utility to operate on a thin margin or even at a net loss, incur a lot of leverage, transfer its money to other government entities, or maintain inadequate cash, in ways that are detrimental to bondholders.

Covenants specify the minimum factors management must contractually abide by. Utilities frequently exceed the minimum. Many of our ratings represent the expectation of performance at levels that exceed the covenants.

Sub-factor: Rate Covenant (5%)

Input: Covenant governing net revenues (operating revenues minus operating expenditures net of depreciation) divided by annual debt service, expressed as a multiple

The rate covenant is a pledge to set rates such that net revenues will be sufficient to cover debt service at a prescribed level. For example, a covenant may bind a utility to ensure that net revenues cover debt

service by 1.2 times. If net revenues fall short of this covenant in one year, the utility must raise rates to achieve a compliant coverage level the following year.

The rate covenant takes many forms. Some utilities pledge for net revenues to cover current year annual debt service by a given level. Others pledge to cover average annual debt service throughout the life of the bonds at that level. A strong coverage requirement would be for net revenues to cover maximum annual debt service (MADS) by a certain level.

Some rate covenant formats are materially weaker than this. Some utilities allow a “rolling” calculation, which includes outstanding cash from prior years' surpluses as part of the resources available to cover debt service. Many rate covenants allow connection fees to be included in available operating revenues.

The rate covenant coverage thresholds are based on a covenant that is an annual debt service coverage calculation. Using the notching factors described below, we may adjust, upward or downward, for any departures from this format.

Sub-factor: Debt Service Reserve Requirement (5%)

Input: Debt service reserve requirement

Many issuers agree to hold a specified amount of cash or other resources in a debt service reserve fund (DSRF), which the trustee can tap to pay debt service in the event that net revenues are inadequate. The DSRF covenant ordinarily requires the utility to replenish any draws from the DSRF.

The DSRF protects bondholders by assuring the payment of debt service even if net revenues fall short in one year.

DSRF funds can be funded with cash, or with surety policies from an insurer. We generally consider cash to be superior to a surety, although this is unlikely to materially affect the assigned rating as long as the surety provider is rated investment grade.

One commonly used DSRF requirement is known as the “three-pronged test.” Under tax law, the Internal Revenue Service limits the earning of interest on proceeds of a tax-exempt bond unless the invested proceeds comply with the three-pronged test. Under that test, the DSRF must be the lesser of 10% of principal, MADS, or 1.25 times average annual debt service. A DSRF set at the three-pronged test is usually weaker than one funded at MADS.

Revenue bonds have been issued without a DSRF in the past. This has resulted in a number of utilities with some bonds secured by a DSRF and other parity bonds secured by the same lien but no DSRF. We have rarely distinguished ratings between these parity bonds. The DSRF is a last-resort security measure, and most utilities comply with their coverage covenants and never have to tap their DSRF. We are most likely to distinguish between DSRF-secured bonds and bonds with no DSRF if the system holds narrow liquidity. A system operating with abundant liquidity can use its operating cash to meet debt service shortfalls, effectively executing a similar function to the DSRF. The combination of narrow liquidity and no DSRF exposes bondholders to greater risks of interrupted debt service payments and is therefore more likely to be reflected in ratings.

For a utility whose debt is mostly, but not all, secured by a DSRF, we will still enter the DSRF requirement into the scorecard. For a utility whose debt is mostly not secured by a DSRF, we will adjust the DSRF entry downward.⁹

Notching Factors Related to Legal Provisions

Coverage covenant other than annual debt service: The thresholds for the rate covenant sub-factor is based on net revenue coverage of annual debt service. A “rolling” coverage covenant that includes outstanding cash, or some other modification that weakens the meaning of the covenant, may prompt us to notch down. Conversely, a MADS coverage covenant may prompt us to notch up.

Structural enhancements/complexities: The scorecard is designed to capture covenants as they are most commonly constituted but cannot account for the myriad structures and complexities that arise in bond transactions throughout the sector. Enhancements such as a lock-box structure for debt service may lead us to notch up. Other shortcomings, such as a weak additional bonds test or the inclusion of cash in a coverage covenant, may lead us to notch down. Any characteristic of the legal provisions of a bond transaction may lead us to conclude that the scorecard does not adequately capture its risk profile, resulting notching or on a rating that is different from the scorecard-indicated outcome.

Other Considerations

Ratings may reflect consideration of additional factors that are not in the scorecard, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors include financial controls and the quality of financial reporting; the quality and experience of management; assessments of governance as well as environmental and social considerations; and possible interference from other levels of government. Regulatory, litigation, liquidity and technology risk as well as changes in demographic and macroeconomic trends also affect ratings.

Following are some examples of additional considerations that may be reflected in our ratings and that may cause ratings to be different from scorecard-indicated outcomes.

Environmental, Social and Governance Considerations

Environmental, social and governance (ESG) considerations may affect the ratings of municipal utilities. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.¹⁰

Municipal utilities may be directly exposed to extreme weather events due to climate change, such as flooding or droughts, and this may affect credit quality. Government facilities or investments in physical assets could be affected by physical risks and by other sources of environmental risk. Utility systems providing service to coastal communities or communities that are greatly susceptible to drought are highly exposed to environmental risks. Environmental hazards, such as hurricanes, can result in significant system damage requiring unexpected capital spending for repairs, while longer-term environmental trends, such as rising sea levels or prolonged drought conditions, can cause more prolonged pressure on system budgeting and spending priorities.

⁹ For example, if 1/3 of a utility's debt is secured by a DSRF funded at MADs and 2/3 is not secured by a DSRF at all, we may enter the DSRF requirement as a Baa.

¹⁰ A link to a list of our sector and cross-sector methodologies can be found in the “Moody's Related Publications” section.

Social considerations such as staff turnover, aging workforce, labor shortages or unrest or changes in the demographics of a municipal utility's service area, the income level of its customers and the affordability of housing may influence credit strength.

Some governance considerations are reflected in the Rate Management and Regulatory Compliance and Capital Planning qualitative sub-factors, including revenue-raising flexibility and capital planning. Additional considerations may include debt management, multi-year fiscal planning and the timeliness of information disclosure. Weak or opaque governance can negatively affect a municipal utility's performance, which can reduce customer willingness to support rate increases and can also constrain a municipal utility's access to capital markets. Conversely, very strong governance can lead to high customer satisfaction that reduces public resistance to rate increases and capital investment.

ESG considerations are not always negative, and they can be a source of credit strength in some instances. For example, access to clean water, options for the safe disposal of wastewater, and a strong labor market and generally affordable housing can drive strong revenue trends and foster utility system growth. External support, such as state or federal government funds for natural disaster relief, can help mitigate the credit impact of ESG exposures.

Regulatory Considerations

Issuers in the municipal utility sector are subject to varying degrees of regulatory oversight. Effects of these regulations may entail limitations on operations, higher costs, and higher potential for technology disruptions and demand substitution. Regional differences in regulation, implementation or enforcement may advantage or disadvantage particular issuers.

Our view of future regulations plays an important role in our expectations of future financial metrics as well as our confidence level in the ability of an issuer to generate sufficient cash flows relative to its debt burden over the medium and longer term. Regulatory considerations also play a role in our assessment of an issuer's cost recovery framework, competitiveness and willingness to recover costs with sound financial metrics. In some circumstances, regulatory considerations may also be a rating factor outside the scorecard, for instance when regulatory change is swift.

Likelihood of Receiving Extraordinary or Ongoing Support

Some municipal utilities receive extraordinary support from their component local government or a higher level of government, such as the state, typically to help the municipal utility avoid a default on debt obligations. The circumstances surrounding extraordinary support for a municipal utility are often specific to the situation. In some cases, a state or local government may provide meaningful financial or managerial support to a municipal utility undergoing stress, thereby bolstering a weak fundamental credit profile and materially lowering the risk of a payment default. Conversely, a temporary infusion of funds may bolster financial performance in the short term but leave a municipal utility exposed to rapid financial deterioration if the aid does not continue. We typically assess whether the support will be ongoing and sufficient to stabilize the municipal utility. We also consider the associated benefits or risks of dependence on such support. Alternatively, many municipal utilities receive annual funding or low-interest loans from the federal, state or local government. This type of funding is often earmarked, and we do not consider it to be extraordinary support.

Parent Government Credit Quality

While some public utility systems are independent of a particular municipality,¹¹ municipally-owned utility systems typically have enduring credit linkages with their parent government. Important linkages often include a legal structure that could draw the utility system into a general government municipal bankruptcy, combined or intermingled financial operations, shared debt or pension obligations, and mutual or affiliated governance or management. Additional linkages that typically pertain to municipally-owned utility systems, including common boundaries, a common economic environment, and common demographics and income levels, may also apply to some independent utilities. As a result of these credit linkages, the credit quality of a municipally-owned utility's parent government and that government's ability to meet its general obligations are important considerations in the rating assigned to a municipally-owned utility.

Shared credit characteristics between a municipality and an owned utility often affect the metrics used to assess scorecard factors, including the notching factors. For example, a utility system's practice of transferring excess funds to its parent government is likely to be reflected in the assessment of its financial strength, especially in the Days Cash on Hand sub-factor. However, there can be credit linkages between a utility and its parent government that are not fully reflected in the scorecard. Based on these linkages, a municipally-owned utility's revenue rating is typically not higher than two notches above the issuer or general obligation rating of the parent government. Scenarios where a utility's revenue rating may exceed the issuer or general obligation rating of the parent government would be in cases where there is clear information indicating a de-linkage of credit profiles, for example in a distress scenario where it is clear that debt service will continue to be paid on the revenue debt despite a default or impending default of the municipality's general obligation debt. An additional potential example could be a case where a utility has a meaningfully larger service territory than the parent government's boundaries and benefits from a more robust economic environment than the parent.

Financial Controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. The quality of financial statements may be influenced by internal controls, including the proper tone at the top, centralized oversight of operations, and consistency in accounting policies and procedures. Auditors' reports on the effectiveness of internal controls, auditors' comments in financial reports and unusual restatements of financial statements or delays in regulatory filings may indicate weaknesses in internal controls.

Additional Metrics

The metrics included in the scorecard are those that are generally most important in assigning ratings to issuers in this sector; however, we may use additional metrics to inform our analysis in specific cases. These additional metrics may be important to our forward view of metrics that are in the scorecard or other rating factors.

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in a municipal utility's fundamental creditworthiness, which may cause actual ratings to be lower than the scorecard-indicated outcome. Event risks — which are varied and can include natural disasters, sudden changes in state law or regulation, material litigation, pandemics or cybercrime events — can have a material credit impact on even a stable municipal utility.

¹¹ For example, we typically consider a stand-alone utility authority or special purpose district utility system that is not directly owned by a state or local government to be independent of a municipality.

Treatment of Different Liens on a US Municipal Utility's Net Revenues

It is common for utilities to issue debt secured by different liens on their net revenues. Senior bonds are secured by a first lien on net revenues, and subordinate bonds or loans secured by a subordinate, or junior, lien. Sometimes, utilities will issue debt secured by a third lien or lower.

Our practice is to evaluate the likelihood of default and the expected recovery in the event of default for each lien independently.

This will most commonly result in a rating distinction of one notch for each lien of subordination. In other words, if a municipal utility's senior lien is rated Aa3, its subordinate lien will most likely be rated A1 and the third lien will most likely be rated A2.

The reason for the typical one-notch-per-lien distinction is that subordinate liens are marginally more likely to default than senior liens, and subordinate liens' expected recovery in the event of default would be lower. Senior liens are typically afforded stronger legal protections under utilities' indentures, senior-lien debt service is usually paid earlier in the flow of funds, and the first lien would likely enjoy a better claim in bankruptcy.

For most investment grade municipal utilities, the probability of default for any lien is small, and so the notching distinction is driven primarily by a greater expected loss severity in the unlikely event of a default. This is comparable to our approach for ratings distinctions for different debt classes of investment grade corporations, where ratings distinctions are driven by differences in expected loss severities.¹² In contrast to corporates, however, there often is not an explicit cross-default of senior municipal debt in the event of a subordinate payment default.

In some instances, we may conclude that an investment grade municipal utility's subordinate lien has a default probability and expected loss severity that is nearly as low or just as low as the senior lien (in which case we may not make a ratings distinction), or a default probability and expected loss severity that is materially higher than the senior lien (in which case we may make a ratings distinction of more than one notch).

Such a conclusion would be based on the municipal utility's management of its system with respect to its liens, and the characteristics of the legal framework governing the liens: rate covenants, additional debt provisions, and cross-default and acceleration provisions in a senior lien's variable rate debt resulting from a default on the subordinate lien, for example. If a utility has only a very small amount of senior lien debt, we may choose not to distinguish between liens.

The distinctions among a municipal utility's liens become starker when it faces a material likelihood of default or bankruptcy. For these situations, the different characteristics of the liens are likely to drive greater disparities in default probabilities and expected recoveries for disparate liens. Thus, we are more likely to employ ratings distinctions other than one notch for speculative grade municipal utilities' different liens as the Loss Given Default approach drives more of the analysis.

In nearly all instances, the ratings on the different liens of the same utility will remain closely related. The reason for this is that municipal utilities are actively managed enterprises that continually need to generate net revenues sufficient not only to cover debt service but also to fund capital needs. Even if senior lien coverage is strong, a utility that is unable to pay its junior lien debt service is not generating excess funds for capital investment and does not have capacity for capital borrowing. Thus, while subordinate liens face greater default probability and higher loss expectations based on their first-loss positions, an increased likelihood of default on a subordinate lien implies an increased likelihood of insolvency for the utility as a whole.

For this reason, we enter the debt-oriented inputs into the scorecard on a consolidated basis. For the debt to revenues factor, we enter total debt (senior and junior). For the debt service coverage factor, we enter total debt service coverage. It is the municipal utility's ability to cover all of its debt service with net revenues that determines its viability as a going concern. Even for a senior lien with a large coverage factor by net revenues, a narrow coverage of all debt service implies pressure to maintain healthy operations and generate funds sufficient for capital reinvestment.

¹² For more information, see our cross-sector methodology that describes the alignment of corporate instrument ratings based on differences in security and priority of claim. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Limitations

In the preceding sections, we have discussed the scorecard factors and many of the other considerations that may be important in assigning ratings. In this section, we discuss limitations that pertain to the scorecard and to the overall rating methodology.

» Limitations of the Scorecard

There are various reasons why scorecard-indicated outcomes may not map closely to actual ratings.

The scorecard in this rating methodology is a relatively simple tool focused on indicators for relative credit strength. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

The weights for each factor and sub-factor in the scorecard represent an approximation of their importance for rating decisions across the sector, but the actual importance of a particular factor may vary substantially based on an individual issuer's circumstances.

Factors that are outside the scorecard, including those discussed above in the "Other Considerations" section, may be important for ratings, and their relative importance may also vary from issuer to issuer or from instrument to instrument. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.¹³ Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, and the assignment of short-term ratings.

We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way.

» General Limitations of the Methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Municipal utilities may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for an issuer's future performance; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as scorecard inputs or in other considerations, typically diminishes. Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, disruptive technology, or regulatory and legal actions. In any case, predicting the future is subject to substantial uncertainty.

¹³ A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Appendix: US Municipal Utility Revenue Debt Scorecard

EXHIBIT 6

		Aaa	Aa	A	Baa	Ba	B and Below
Numerical score		0.5 to 1.5	1.5 to 2.5	2.5 to 3.5	3.5 to 4.5	4.5 to 5.5	5.5 to 6.5
System Characteristics (30%)							
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation:	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
System Size (7.5%)	Water and/or Sewer/ Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Service Area Wealth (12.5%)	> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median	
Financial Strength (40%)							
Annual Debt Service Coverage (15%)		> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)		> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)		< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x
Management (20%)							
Rate Management (10%)		Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory Compliance and Capital Planning (10%)		Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning
Legal Provisions (10%)							
Rate Covenant (5%)		> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x		≤ 1.00x ¹⁴
Debt Service Reserve Requirement (5%)		DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety ¹⁵		

Source: Moody's Investors Service

¹⁴ Scores as a Ba.¹⁵ Scores as a Baa.

Adjustments/Notching Factors**Factor: System Characteristics**

Additional service area economic strength or diversity

Significant customer concentration

Revenue-per-Customer greatly over/under regional average

Exposure to weather volatility, extreme conditions or market fluctuations

Resource vulnerability

Sizable or insufficient capacity margin

Unusual depreciation practices relative to industry norms

Other analyst adjustment to System Characteristics (Specify)

Factor: Financial Strength

Debt Service Coverage (Annual or MADS) below key thresholds

Constrained liquidity position due to oversized transfers

Oversized capital needs

Oversized adjusted net pension liability relative to debt, or significant under-payment of actuarial funding requirement

Significant exposure to puttable debt and/or swaps or other unusual debt structure

Other analyst adjustment to Financial Strength factor (Specify)

Factor: Management

Unusually strong or weak capital planning

Other analyst adjustment to Management factor (Specify)

Factor: Legal Provisions

Coverage covenant other than annual debt service

Structural Enhancements/Complexities

Other analyst adjustment to Legal Provisions factor (Specify)

Other

Credit Event/Trend not yet reflected in existing data set

Source: Moody's Investors Service

EXHIBIT 7

Scorecard-Indicated Outcome

Scorecard-Indicated Outcome	Aggregate Numeric Score
Aaa	0.5 to 1.5
Aa1	1.5 to 1.83
Aa2	1.83 to 2.17
Aa3	2.17 to 2.5
A1	2.5 to 2.83
A2	2.83 to 3.17
A3	3.17 to 3.5
Baa1	3.5 to 3.83
Baa2	3.83 to 4.17
Baa3	4.17 to 4.5
Ba1	4.5 to 4.83
Ba2	4.83 to 5.17
Ba3	5.17 to 5.5
B1	5.5 to 5.83
B2	5.83 to 6.17
B3 and below	6.17 to 6.5

Source: Moody's Investors Service

Moody's Related Publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings, please click [here](#).

For further information, please refer to *Rating Symbols and Definitions*, which is available [here](#).

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September 15, 2008

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Key Water And Sewer Utility Credit Ratio Ranges

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Criteria | Governments | U.S. Public Finance: Key Water And Sewer Utility Credit Ratio Ranges

Municipally-owned utilities continue to demonstrate rating stability and solid-investment-grade financial metrics despite concern about current economic conditions and the impact on local governments (see the article, "U.S. Public Finance Report Card: Water Supply Pressures Could Test The Stability Of Providers," dated Feb. 4, 2008, on RatingsDirect).

The representative ranges of ratios for water and/or sewer utility revenue bond issuers below provides an indication, through the use of descriptors, of what constitutes a high to low ratio from an analytical credit perspective. The selected ratios represent key factors Standard & Poor's Ratings Services uses in the credit rating process.

Municipalities may also own and/or operate other enterprises such as electric utilities, solid waste or other systems. While many of the metric addressed below also are part of the analysis for these other enterprises, Standard & Poor's will address key ratios specifically for those enterprises at a later date.

The ratios complement Standard & Poor's periodic updates of historical median ratios for rated utilities. (These medians represent measures of economic, financial, and system indebtedness characteristics.) The statistics will drift up and down during economic cycles because Standard & Poor's analysis is forward looking. In recent years, the medians have tended to outperform analytical guidelines.

However, it is not the case that an issuer must attain certain financial metrics in order to guarantee a certain rating or rating level. Financial condition -- historical, current, and likely future -- is only one of the criteria points for a water and sewer utility revenue bond rating.

Reading Behind The Numbers

Means, particularly for lesser-weighted ratios, may give a false impression in certain cases that deviations from the means may imply the need for a rating change, when in fact we may believe there is analytical comfort in a broad band of numbers for a particular ratio.

Examples of this phenomenon are evident when comparing key ratio ranges to the means for similar ratios. While a credit with a liquidity of six months' cash on hand would be technically "below average," relative to the rated universe of issuers, regardless of system size, we would nevertheless likely view it as having strong cash reserves.

Similarly, an issuer with total debt service coverage of all obligations of 1.4x, meaning pledged revenues are 40% greater than the revenue requirements, would likely be characterized as "good," all other things being equal.

Key Rating Factors

The relative weight of each factor is discussed in detail in Standard & Poor's Criteria section on RatingsDirect (the most recent article was published June 25, 2007). When evaluating water and sewer systems, Standard & Poor's examines six main factors:

- Economic considerations;
- Financial data/capital improvement plan;
- Rate criteria;
- Operational characteristics;
- Management; and
- Legal provisions.

Variation in the relative strengths or weaknesses of any of these factors can influence our opinion of creditworthiness and, accordingly, our ratings. Additionally, there is no dependent relationship between a general obligation (GO) rating and the revenue rating of the same entity. Due to the significance of the service area and economic base in our analysis and the frequent overlap of senior staff at the government and utility levels, the ratings of GO bonds and revenue bonds tend to be close, but there is also significant room for divergence, as seen in the case of Jefferson County, Ala.

A Note of Caution

Ratios do not tell the whole story -- they are only a portion of what Standard & Poor's uses in its analysis. Economic, administrative, structural, and other qualitative factors may outweigh any of these ratios when a rating is assigned. Numbers alone cannot determine an entity's willingness to meet its financial obligations, nor can they reveal a history of reactive or nonexistent rate adjustments or the operating restraints presented by the state/local framework.

The key ratios below do not represent a complete set of the ratios Standard & Poor's uses in its analysis. We also incorporate information from many internal and external databases. Depending on various credit conditions, certain ratios can take on more significance than others. In addition, a municipal entity's trends in any of these ratios may be more important to us than the historical ratios. A rating, after all, is prospective in nature.

Key Ratios

Income Levels – Household/Per Capita Effective Buying Income As A Percentage Of U.S. Level

As is the case with GO debt ratings, wealth and income levels are an important credit factor in our analysis, as they provide insight regarding the economic resources of a utility's service area. It does not necessarily imply the rate base's ability to pay a utility bill or a utility's willingness to make rate adjustments, but we believe it is still one of many important factors. One way to evaluate wealth and income levels is to look at the household/per capita effective buying income of the locality relative to the average U.S. level.

Below 65% Low

65% - 90% Adequate

90% - 110% Good

110% - 130% Strong

Above 130% Very Strong

Debt Service Coverage

Given that there usually are legal covenants that require an issuer to provide some transparent level of security to the bondholders, Standard & Poor's views the minimum level of operating revenues (excluding impact fees and other nonrecurring revenues) available for debt service as generally sufficient, i.e. 1.0x, for all liens. A ratio of less than 1.0x may indicate a mismatch between revenues and revenue requirements, and, possibly, a technical default by the bondholder that may compel further action such as a review of the appropriateness of the current rate schedule and structure.

Wholesale or regional systems, or joint action agencies, which typically provide water or sewer services on a cost-of-service-based rate schedule, will typically have lower coverage, although the criteria for wholesale utilities -- which typically includes an analysis of the system's participants' general creditworthiness -- allows less emphasis to be paid to the wholesaler's financial metrics.

<1.0x Insufficient

1.0x to 1.25x Adequate

1.26x to 1.50x Good

>1.50x Strong

Liquidity

A typical water utility earns most of its revenues -- often more than half -- from May through August. While sanitary sewer systems typically have more constant revenue flows, it is increasingly common for sewer billings to be either tied to water demand, or even be a flat, fixed rate. Because there is usually some fluctuation in cash flows due to seasonal demands, the amount of precipitation, or other economic or customer base trends, we look to whether a utility has some reasonable level of unrestricted cash or equivalents for working capital. In our analysis, Standard & Poor's also gives credit to cash and investments that may be designated, but ultimately available for any lawful purpose such as a renewal and replacement fund or a rate stabilization fund. Generally speaking, a system that simply distributes a third party's treated water to its retail customers, or collects and conveys its sewer flows to a regional sewer treatment facility operated by another entity, has less operating and financial risk, in our view, and may therefore require less working capital.

<30 days Low

30 to 60 days Adequate

60 to 120 days Good

>120 days Strong

Total Debt To Net Property, Plant And Equipment

Simply referred to as "debt to plant," this ratio is an approximation that can be used as a proxy for total system indebtedness. A ratio of 0% means the system has no debt outstanding and 100% means there is as much debt outstanding as net depreciable value of the system's assets, although it is certainly possible for the number to be greater than 100%. Total debt per retail customer account is another useful measure in our view, but when the issuer is a regional or wholesale system, the number of ultimate water meters is not always discernable. System indebtedness is useful for a number of reasons: it can give insight into, for example, whether the system is in the middle of a large growth- or rehabilitation-driven capital program (in which case the debt to plant number is high). It can also be closely tied to the system's rates and capacity for additional debt.

<40% Low

40% to 60% Moderate

60% to 80% Moderately high

>80% High

Top 10 Customers As A Percentage Of Total Operating Revenues

A system's high dependence on one or more of its principal customers for revenue need not constrain its rating. However, the fact a system's business could be affected by the changing fortunes of one of its principal customers should not be overlooked either. Therefore, Standard & Poor's looks at the relative diversity or concentration of operating revenues derived from sales to customers to gain insight into this potential vulnerability.

Examples might include a water-intensive food processor shuttering operations, the expiration of the contract of a large wholesale customer, or a major local employer relocating a facility to somewhere outside the service area. Conversely, if revenue distribution among the principal customers is relatively evenly dispersed, concentration concerns are more likely to be mitigated even if in totality the top customers comprise a large portion of total revenues.

<15% Very diverse

15% to 25% Diverse

26% to 40% Moderately concentrated

>40% Concentrated

Fixed-Charge Coverage

Similar to debt service, fixed-charge coverage is Standard & Poor's internally adjusted coverage calculation that factors into account that some utility systems are distribution-only and/or collection-only, with capital-intensive treatment plants built, owned and operated by another entity. Obligations to those third parties are typically off-balance sheet and often treated as operating expenses, not debt. These may also include raw-water purchases or

other contractual obligations or participation in a joint action agency.

We believe fixed-charge coverage allows a more realistic comparison between "pipes-only" systems and those that also include treatment plants. Standard & Poor's treats any recurring long-term obligation as fixed, especially capacity payments or other minimum demand costs that the system must pay regardless of whether the service is delivered. The adjusted debt service coverage calculation, therefore, removes these fixed charges from operating expenses and instead treats them as if they were debt, allowing for a more meaningful quantitative comparison between these systems and those with actual on-balance sheet debt.

<1.0x Insufficient

1.0x to 1.20x Adequate

1.21x to 1.40x Good

>1.40x Strong

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**Response of Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
RR-3 to RR-17
in Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RR-14-D Reference PWSA Statement No. 2, p. 25, lines 11-12:

- A. Confirm whether the WIFIA Loan #1 of \$52.5 million closed as planned.
- B. If the answer to Part A above is yes, provide the specific terms of the loan.

Response:

- A. Yes
- B. The terms of the loan are below:
 - Loan amount: \$52,475,722
 - Loan Term: 30 years
 - Fixed interest rate of 3.98%
 - Draw down loan as expenses are incurred (similar to a PENNVEST loan)
 - Issued lien: Subordinate
 - PWSA has the option to make interest only payments until 2030 or take advantage of the capitalized interest period until 2030.
 - Both principal and interest payment begin in 2031 with the final payment made in 2060.

Response provided by: Edward Barca, Director of Finance

Date Response provided June 14, 2023

**Response of Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
RR-3 to RR-17
in Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RR-3-D Reference PWSA Statement No. 2, p. 27, lines 6-18. Identify the specific capital assets PWSA intends to acquire with PAYGO funds, not including assets identified in the Long-Term Infrastructure Improvement Plan to be funded with the Distribution System Improvement Charge.

Response: All capital assets included in PWSA’s Capital Improvement Plan that are planned to be funded by Debt (Revenue Bonds) are eligible to be funded with PAYGO funds. If additional PAYGO funding is granted in this rate case, PWSA would use the funding to replace capital assets that have a shorter useful life (5-15 years) with a secondary focus on assets with a longer useful life (16+ years). Examples of capital assets that PWSA intends to replace with PAYGO funds includes, but is not limited to, the following:

- Rail siding
- Bioswales and other stormwater infrastructure
- Gutter and roofing materials
- Meters
- Boilers
- Pumps
- HVAC equipment
- Crane equipment
- Tank improvements
- Water intakes
- Large diameter water mains
- Large diameter sewer mains

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 14, 2023

**I&E Statement No. 1-SR
Witness: Anthony Spadaccio**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2023-3039920, R-2023-3039921 & R-2023-3039919

Surrebuttal Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

Revenue Requirement

Multi-Year Rate Plan

Distribution System Improvement Charge

Infrastructure Improvement Charge

PAYGO

Days Cash on Hand

Debt Service Coverage Ratio

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1 **INTRODUCTION OF WITNESS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Anthony Spadaccio. My business address is Pennsylvania Public
4 Utility Commission, Commonwealth Keystone Building, 400 North Street,
5 Harrisburg, PA 17120.

6

7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
9 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
10 Analyst.

11

12 **Q. ARE YOU THE SAME ANTHONY SPADACCIO WHO IS RESPONSIBLE**
13 **FOR THE DIRECT TESTIMONY CONTAINED IN I&E STATEMENT**
14 **NO. 1 AND THE SCHEDULES IN I&E EXHIBIT NO. 1?**

15 A. Yes.

16

17 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

18 A. The purpose of my surrebuttal testimony is to address the rebuttal testimony of
19 Pittsburgh Water & Sewer Authority (PWSA or Authority) witnesses William J.
20 Pickering (PWSA Statement No. 1-R), Edward Barca (PWSA Statement No. 2-R),
21 Harold J. Smith (PWSA Statement No. 7-R), and Christine M. Fay (PWSA
22 Statement No. 9-R). Additionally, I will address the rebuttal testimony of Office

1 of Consumer Advocate (OCA) witness Karl Richard Pavlovic (OCA Statement
2 No. 2R).

3 Finally, I will present I&E's updated recommended revenue requirement
4 for PWSA.

5

6 **Q. DOES YOUR SURREBUTTAL TESTIMONY INCLUDE AN EXHIBIT?**

7 A. Yes. I&E Exhibit No. 1-SR contains schedules that support my surrebuttal
8 testimony.

9

10 **Q. SUMMARIZE THE AUTHORITY'S REBUTTAL TESTIMONY AS IT**
11 **RELATES TO YOUR RECOMMENDATIONS IN DIRECT TESTIMONY.**

12 A. Collectively, the Authority witnesses criticize I&E's overall recommended
13 revenue requirement, my recommended debt service coverage ratios (DSCR),
14 proposed days cash on hand (DCOH), and the witnesses take issue with my
15 discussion regarding credit ratings. Further, they condemn my recommended
16 disallowance of Pay As You Go (PAYGO) financing, the proposed Infrastructure
17 Improvement Charge (IIC), and the proposed Multi-Year Rate Plan (MYRP).

18

19 **Q. SUMMARIZE OCA WITNESS PAVLOVIC'S REBUTTAL TESTIMONY**
20 **AS IT RELATES TO YOUR DIRECT TESTIMONY.**

21 A. Dr. Pavlovic opines that I have not justified my acceptance of the Authority's
22 proposal to increase the Distribution System Improvement Charge (DSIC) cap

1 from 5% of distribution revenues to 7.5% of distribution revenues.

2
3 **UPDATED I&E POSITION**

4 **Q. HAS THE I&E OVERALL RECOMMENDED REVENUE**
5 **REQUIREMENT CHANGED FROM DIRECT TESTIMONY?**

6 A. Yes. I&E's updated total recommended revenue requirement for PWSA is
7 \$227,685,945.¹ This recommended revenue requirement represents an increase of
8 \$25,026,204 (\$227,685,945 - \$202,659,741) to the FPPTY revenues at present
9 rates of \$202,659,741, which produces a revenue surplus of \$44,661. This total
10 recommended allowance incorporates the analysis in this testimony as well as the
11 analysis and adjustments made in the testimonies of I&E witnesses Vanessa Okum
12 (I&E Statement Nos. 2 and I&E Statement No. 2-SR), and Ethan Cline (I&E
13 Statement No. 3 and I&E Statement No. 3-SR). A calculation of the updated I&E
14 recommended revenue requirement is included in I&E Exhibit No. 1-SR, Schedule
15 1.

16
17 **Q. PLEASE EXPLAIN THE BASIS FOR I&E'S UPDATED REVENUE**
18 **REQUIREMENT RECOMMENDATION FOR PWSA.**

19 A. Following a review of the Authority's direct testimony and workpapers, a
20 conference call with the Authority, and a follow up interrogatory, I&E continued

¹ I&E Exhibit No. 1-SR, Schedule 1.

1 to find the rate case tables² and the Cost of Service Study³ spreadsheets provided
2 by PWSA to be unworkable, and therefore impossible to make the desired
3 adjustments to financing associated with the capital improvement plan. As a result
4 of the inability to make adjustments to these spreadsheets, I&E's recommendation
5 in direct testimony was based on a dollar-for-dollar reduction to the financing of
6 I&E witness Cline's (I&E Statement No. 3) recommended reduction of
7 \$32,625,303 to the Authority's capital improvement plan budget,⁴ as well as the
8 adjustments to O&M expenses presented by I&E witness Okum (I&E Statement
9 No. 2).

10 After working through the difficulties and becoming aware of relevant
11 information, I&E believes its updated adjustment and position properly and more
12 accurately reflect the intent to reduce the necessary financing associated with the
13 recommended reduction to the capital spending budget recommendation. I&E's
14 new adjustment is based on the response to OCA-XVIII-2, which correlates the
15 FPPTY budgeted capital requirements to the required funding sources and debt
16 service.⁵

17 In summary, I&E's updated recommended revenue increase is
18 \$31,925,049⁶ higher than it was in direct testimony. As a result of this updated

² PWSA Exhibit WJP-1.

³ PWSA Cost of Service Study and Rate Design Model as shared on 5.9.23.

⁴ I&E Statement No. 3, p. 20, lines 6-9 and I&E Exhibit No. 3, Schedule 3.

⁵ I&E Exhibit No. 1-SR, Schedule 2.

⁶ Difference between the recommend revenue rollback of -\$6,898,845 in direct testimony and \$25,026,204 recommended revenue increase in I&E's updated surrebuttal position.

1 position, many of PWSA's criticisms of I&E's position in direct testimony are
2 now obsolete.

3
4 **Q. PLEASE EXPLAIN THE UPDATED ADJUSTMENT REGARDING THE**
5 **REDUCTION TO FINANCING ASSOCIATED WITH MR. CLINE'S**
6 **REDUCTION TO THE AUTHORITY'S CAPITAL SPENDING PLAN**
7 **BUDGET.**

8 A. Instead of a dollar-for-dollar reduction to the financing of I&E witness Cline's
9 (I&E Statement No. 3) recommended reduction of \$32,625,303 to the Authority's
10 capital improvement plan budget, I have determined the percentage of the funding
11 source amount to the total capital requirement amount for the FPFTY and applied
12 that result to Mr. Cline's adjustment. I then adjusted each source of capital
13 according to its weighted percent of the total, which results in a total combined
14 reduction to the financing of capital projects of \$2,244,621,⁷ as opposed to the
15 original reduction of \$32,625,303.

⁷ I&E Exhibit No. 1-SR, Schedule 3.

1 **MYRP**

2 **Q. SUMMARIZE THE AUTHORITY’S REBUTTAL TESTIMONY**
3 **REGARDING YOUR RECOMMENDATION TO REJECT THE**
4 **PROPOSED MYRP.**

5 A. Mr. Pickering argues that the MYRP offers the Authority financial security to
6 move forward with its capital improvement projects, allows for better access to the
7 capital markets and would allow PWSA to avoid filing additional rate cases and
8 the efforts and costs associated with the filings.⁸ Additionally, he claims my
9 position that PWSA needs more, not less, regulatory oversight does not fit within
10 any of the criteria set forth by the Commission in the Policy Statement to
11 implement Section 1330 of the Public Utility Code. However, he insists that the
12 Authority has faced unprecedented scrutiny via base rate cases, its Compliance
13 Plan and a Management Audit.⁹ Finally, Mr. Pickering notes that prior to coming
14 under the Commission’s jurisdiction, the Authority regularly approved three-year
15 rates that PWSA customers have become accustomed to.¹⁰

16 Mr. Barca acknowledges my reasoning that PWSA has only recently come
17 under the Commission’s jurisdiction, however, he argues there are no minimum
18 regulatory requirements to implement an MYRP in the Commission’s regulations
19 or Orders,¹¹ implying it should not be of concern. Mr. Barca’s main point seems

⁸ PWSA Statement No. 1-R, p. 7, ln. 4 through p. 8, ln. 16.

⁹ PWSA Statement No. 1-R, p. 10, ln. 17 through p. 11, ln. 5.

¹⁰ PWSA Statement No. 1-R, p. 11, lines 10-13.

¹¹ PWSA Statement No. 2-R, p. 29, lines 17-20.

1 to be that myself as well as the other parties in this proceeding appear to oppose
2 the use of projected data to set rates via an MYRP. He argues that this objection is
3 contrary to the use of a FPPTY.¹²

4 Mr. Smith argues that if the Commission were to mandate review
5 mechanisms, similar to those used by the Rhode Island Public Utilities
6 Commission (RIPUC) in MYRP filings, the revenue requirement claims in each of
7 the forecasted years would face proper scrutiny.¹³

8
9 **Q. PLEASE COMMENT ON THE AUTHORITY'S WITNESSES'**
10 **COLLECTIVE REBUTTAL TESTIMONY REGARDING I&E'S**
11 **RECOMMENDATION TO REJECT THE PROPOSED MYRP.**

12 A. First, I agree with Mr. Pickering that implementing an MYRP would reduce the
13 efforts and costs associated with filing annual base rate filings, and that the
14 Authority has faced much scrutiny in its brief tenure under the Commission's
15 jurisdiction. However, I continue to believe, as explained in my direct
16 testimony,¹⁴ that PWSA would benefit from continued Commission oversight via
17 regular base rate proceedings especially considering its past mismanagement and
18 ambitious capital improvement plan. In response to Mr. Pickering's claim that
19 customers have become accustomed to the Authority's three-year rate plans prior
20 to coming under the Commission's jurisdiction, I believe it was made clear during

¹² PWSA Statement No. 2-R, p. 30, lines 8-17.

¹³ PWSA Statement No. 7-R, p. 14, lines 1-13.

¹⁴ I&E Statement No. 1, p. 8, ln. 9 through p. 9, ln. 8.

1 the public input hearings that PWSA customers were in fact concerned with the
2 number and amount of future rate increases proposed by PWSA. It is my
3 interpretation that while the customers largely agreed that the system was in need
4 of significant upgrades, they universally rejected the proposed significant and
5 burdensome rate increases designed to address decades of mismanagement in a
6 short timeframe.

7 Next, while I partially agree with Mr. Barca that there are no regulatory
8 minimum requirements in order to propose an MYRP plan, any proposed rate
9 increase must still be just and reasonable. Further, I don't believe an MYRP is
10 currently in the best interest of the Authority or its customers for the reasons
11 discussed above and in my direct testimony. Regarding Mr. Barca's point about
12 using projected data to set rates, there is a significant difference between
13 forecasting for the FPFTY alone versus forecasting for the FPFTY as well as two
14 years beyond, since the further into the future projections are made, the less likely
15 they are to be accurate and the more likely they are to be more speculation than
16 projections. As evidenced by I&E witnesses Okum and Cline in both their direct
17 and surrebuttal testimonies, the Authority has had trouble accurately forecasting
18 O&M and capital expenditures year after year. Therefore, forecasting even further
19 into the future is not reliable.

20 Finally, regarding Mr. Smith's argument that the Commission should
21 mandate review mechanisms similar to those used by the RIPUC in rate filings, it
22 is my understanding that PWSA has not included similar review mechanisms in its

1 MYRP proposal. Instead, Mr. Smith suggests that the parties involved in this
2 proceeding should work together to develop a compliance filing after the
3 completion of this proceeding.¹⁵
4

5 **DSIC**

6 **Q. SUMMARIZE OCA’S REBUTTAL TESTIMONY REGARDING I&E’S**
7 **ACCEPTANCE OF PWSA’S REQUEST TO RAISE THE DSIC CAP**
8 **FROM 5% TO 7.5% OF DISTRIBUTION REVENUES.**

9 A. Dr. Pavlovic opines that I have not properly scrutinized PWSA’s arguments for an
10 increase in the DSIC cap. He claims that I have not explained how an increase
11 would help to ensure and maintain adequate, efficient, safe, reliable, and
12 reasonable service to customers. Additionally, he argues that DSIC PAYGO
13 recovery is not an option under 66 Pa. C.S. § 1357(c). Finally, Dr. Pavlovic
14 expresses concern over “intergenerational equity,” explaining that an increase in
15 the DSIC cap would result in an increase of the over recovery of capital costs from
16 current customers and under recovering from future customers.¹⁶
17

18 **Q. PLEASE COMMENT ON DR. PAVLOVIC’S CRITICISMS OF YOUR**
19 **ACCEPTANCE OF THE AUTHORITY’S PROPOSED DSIC INCREASE.**

20 A. First, I may be unclear on the point Dr. Pavlovic is trying to make, but considering

¹⁵ PWSA Statement No. 7-R, p. 13, lines 7-24.

¹⁶ OCA Statement No. 2R, p. 4, ln. 1 through p. 7 ln. 15.

1 PWSA already has a Commission-approved DSIC, I believe his argument that
2 DSIC PAYGO recovery is not an option under 66 Pa. C.S. § 1357(c) is invalid.
3 Second, I believe that Dr. Pavlovic is minimizing the point that DSIC spending
4 must be approved via the Long-Term Infrastructure Improvement Plan (LTIIP).
5 Contrary to what he argues,¹⁷ I believe an increase in the DSIC funding is justified
6 by the very fact that Pa. 52 Code § 121.1 states,

7 The LTIIP must show the acceleration of the replacement of
8 aging infrastructure by the utility and be sufficient to ensure
9 and maintain adequate, efficient, safe, reliable and reasonable
10 service to customers.

11 PWSA has submitted DSIC reconciliations for the twelve months ended
12 December 31, 2022 for both water and wastewater¹⁸ that identify the specific
13 capital project expenditures. I continue to believe that this additional level of
14 accountability is preferable over the alternative of non-DSIC PAYGO funding.

15 Additionally, it seems that Dr. Pavlovic prefers funding capital projects
16 through either long-term debt or internally generated funds.¹⁹ However, what he
17 fails to realize is that DSIC PAYGO and unrestricted PAYGO funds are both
18 collected through base rates and are considered internally generated funds. The
19 difference between the two is accountability as previously discussed.

20 Finally, while I appreciate Dr. Pavlovic's concern regarding
21 "intergenerational equity," I believe it is short-sighted not to consider DSIC

¹⁷ OCA Statement No. 2R, p. 7, lines 12-15.

¹⁸ I&E Exhibit No. 1-R, Schedule 4.

¹⁹ OCA Statement No. 2R, p. 7, lines 5-10.

1 funding and rely entirely on long-term debt to fund capital projects. The DSIC
2 increase would have a positive impact on the Authority's overall debt ratio, which
3 is an important financial metric to show gradual improvement to maintain and
4 improve PWSA's credit rating.

5
6 **INFRASTRUCTURE IMPROVEMENT CHARGE**

7 **Q. SUMMARIZE PWSA'S REBUTTAL TESTIMONY REGARDING I&E'S**
8 **RECOMMENDATION TO REJECT THE IMPLEMENTATION OF THE**
9 **IIC AS PROPOSED BY PWSA IN THIS PROCEEDING.**

10 A. Mr. Barca testifies that I opposed PWSA's implementation of the surcharge
11 simply because PWSA did not specifically state in its proposed tariff language that
12 the Authority would not use the IIC until the required DEP inspection and final
13 PENNVEST amortization schedule were complete, and because PWSA was not
14 proposing to show the IIC as separate line items on customer bills. Mr. Barca
15 explains that PWSA did not mention the requirements above because they are a
16 prerequisite before even receiving funds. He adds that PWSA is willing to
17 explicitly state these terms to the Tariff as pre-conditions to including a loan in the
18 IIC. Finally, he states, although PWSA is concerned with complicating the
19 customer bills, if it is the Commission's will, PWSA will agree to present a
20 separate IIC line item.²⁰

²⁰ PWSA Statement No. 2-R, p. 35, ln. 18 through p. 36, ln. 20.

1 **Q. PLEASE RESPOND TO MR. BARCA’S REBUTTAL TESTIMONY**
2 **REGARDING YOUR RECOMMENDATION TO REJECT THE**
3 **IMPLEMENTATION OF THE IIC AS PROPOSED BY PWSA IN THIS**
4 **PROCEEDING.**

5 A. Under advice from counsel, it is my current understanding that this surcharge
6 cannot be formally requested outside of the 60 to 90-day window prior to the first
7 anticipated principal and interest payment. PWSA witness Mechling claims that
8 this charge will not be in effect until 2025,²¹ which is well outside of that window.
9 Additionally, it is my understanding that this proceeding is not the proper venue to
10 request relief via the IIC surcharge, and the proper avenue would be a petition to
11 the Commission within the 60 to 90-day window as mentioned above.

12 Furthermore, regarding this specific issue, 52 Pa. Code § 69.363 makes no
13 mention of WIFIA obligations; therefore, it cannot be assumed they should receive
14 the same treatment as PENNVEST loans. Specifically, 52 Pa. Code § 69.363(a)
15 states,

16 Water and wastewater companies with outstanding
17 PENNVEST obligations that have not been reflected in rates
18 or future PENNVEST obligations, may establish under 66 Pa.
19 C.S. § 1307(a) (relating to sliding scale of rates; adjustments)
20 an automatic adjustment by means of a sliding scale of rates or
21 other method limited *solely* (emphasis added) to recovery of
22 the company’s PENNVEST principal and interest obligations.

23 Finally, if and/or when the IIC is implemented, I&E believes that, not only

²¹ PWSA Statement No. 6, p. 56, lines 6-7.

1 is it a requirement, but a separate line item on customer bills provides a desired
2 level of transparency. I&E acknowledges PWSA’s willingness to oblige this
3 request.²²
4

5 **PAYGO**

6 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
7 **REGARDING PWSA’S PROPOSED PAYGO FUNDING CLAIM.**

8 A. In direct testimony, I recommended rejecting PWSA’s entire PAYGO claim in this
9 proceeding.²³
10

11 **Q. WHAT WAS PWSA’S RESPONSE TO YOUR RECOMMENDED**
12 **REJECTION OF THE PROPOSED PAYGO FUNDING IN ITS**
13 **ENTIRETY?**

14 A. Mr. Barca opines that funding capital projects through PAYGO has a number of
15 advantages including the reduction of reliance on long-term debt and overall debt
16 ratio and that it is cheaper than other forms of financing. Additionally, he argues
17 that since PWSA will be issuing bonds every year for the foreseeable future,
18 any “intergenerational inequity” is nullified by the fact that current ratepayers will
19 be forced to pay for system improvements on schedules that will likely extend
20 many years beyond the customers’ use of the assets.²⁴

²² PWSA Statement No. 2-SR, p. 36, lines 15-20.

²³ I&E Statement No. 1, p. 21, lines 9-11.

²⁴ PWSA Statement No. 2-R, p. 23, ln. 22 through p. 24, ln. 4.

1 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S REBUTTAL**
2 **TESTIMONY REGARDING YOUR PAYGO RECOMMENDATION?**

3 A. First, as explained in my direct testimony, I&E is recommending the rejection of
4 PWSA’s MYRP proposal and there is not a PAYGO claim in the FPFTY,
5 therefore, there is no dollar amount to reject.²⁵

6 Regarding “intergenerational equity,” although I&E is supporting the
7 proposed increase to the DSIC cap (DSIC PAYGO funding), I think Mr. Barca is
8 missing the larger point. The fact that the assets will likely outlive the customers’
9 usage of them is precisely why current customers should not foot the entire bill for
10 those assets. Capital improvement financed by long-term debt are both used by
11 and paid for by several generations over the life of the loan and life of the asset.
12 In other words, when projects are funded with long-term debt, there is some
13 alignment between the plant life and the repayment period so that customers added
14 and removed over the life of that project all share in the cost of the plant that
15 serves them. Therefore, I think it is important to work toward developing the
16 proper balance between long-term debt funding and PAYGO funding which can
17 be achieved by reassessing the PAYGO requests in each base rate case. I believe
18 the proposed increase in DSIC PAYGO funding is a step in the right direction as it
19 allows the Authority a portion of the cash-financed capital it seeks and comes with
20 the desired accountability via the LTIP and DSIC reconciliation filings.

²⁵ I&E Statement No. 1, p. 21, lines 15-17.

1 Finally, as stated in my direct testimony,²⁶ the Authority has continued to
2 secure extremely low-cost (PENNVEST) funding, as well as WIFIA funding,
3 which is the federal equivalent to PENNVEST via the U.S. Environmental
4 Protection Agency. Mr. Barca exhibits the Authority’s success in obtaining low-
5 cost funding by noting PENNVEST has granted the Authority \$610.8 million in
6 low-interest loans and \$35.7 million in grants since 2018.²⁷ Mr. Pickering also
7 mentions the Authority’s success in securing PENNVEST funding by explaining
8 that in April of this year, the Authority received a \$59.1 million low-interest loan
9 which supports the 2023-2025 Small and Large Sewer Rehabilitation programs.²⁸
10 Additionally, PWSA has closed on a \$52.5 million WIFIA loan this year²⁹ and is
11 estimating to close on \$104.7 million and \$28.5 million in WIFIA loans in June
12 2024 and June 2025, respectively. Mr. Barca claims these loans will be used to
13 fund approximately 49% of PWSA’s Water Reliability Plan initiative, which
14 includes replacing the clearwell at the Water Treatment Plant.³⁰ Further, at the
15 beginning of last year, PWSA was awarded a \$17.5 million grant to replace lead
16 service lines from the City of Pittsburgh as part of the American Rescue Plan
17 funding.³¹ As in my direct testimony, I acknowledge that the types of low-cost
18 funding identified above may not always be guaranteed, however, the use of these

²⁶ I&E Statement No. 1, p. 22, ln. 5 through p. 23, ln. 5.

²⁷ PWSA Statement No. 2, p. 33, lines 1-4.

²⁸ PWSA Statement No. 1, p. 9, lines 16-19.

²⁹ I&E Exhibit No. 1, Schedule 7.

³⁰ PWSA Statement No. 2, p. 25, lines 9-12.

³¹ PWSA Statement No. 2, p. 20, lines 4-6 and <https://www.pgh2o.com/news-events/news/newsletter/2022-01-28-engineering-report-water-main-lead-service-line-replacement>.

1 funds provides major cost savings to the Authority's ratepayers and is preferable
2 over unrestricted funds such as the Authority's PAYGO requests and should be
3 utilized as much as possible.
4

5 **Q. HAS YOUR RECOMMENDATION REGARDING THE AUTHORITY'S**
6 **PAYGO CLAIM IN THIS PROCEEDING CHANGED?**

7 A. No. I still recommend rejecting PWSA's entire PAYGO claim.
8

9 **DAYS CASH ON HAND**

10 **Q. SUMMARIZE YOUR POSITION REGARDING DCOH IN DIRECT**
11 **TESTIMONY.**

12 A. In direct testimony I explained that I&E's proposed rates would result in
13 approximately 293 DCOH. I indicated that this metric falls within Moody's range
14 for the 'Aaa' rating category, which is higher than Moody's overall 'A3' rating for
15 PWSA, therefore showing support for its current credit rating. Additionally, I
16 noted that the approximately 293 DCOH resulting from I&E's recommendation
17 far exceeds the 100 days current need and is very much on track to surpass
18 PWSA's five-year target goal of 300 days as asserted in its Financial Management
19 Policy.³²

³² I&E Statement No. 1, p. 12, ln. 12 through p. 14, ln. 18.

1 **Q. WHAT WAS PWSA’S RESPONSE TO YOUR DCOH ANALYSIS?**

2 A. Mr. Barca disagrees with my methodology in calculating the number of DCOH as
3 he claims it is based on normalized expenses rather than PWSA’s approved
4 projected operating budget. He provides a recalculation claiming my
5 recommendation actually results in a much lower 181.3 DCOH.³³ Further, he
6 comments on the impact of I&E’s approximate \$6.9 million reduction to PWSA’s
7 present rates made in direct testimony.³⁴ However, his concerns regarding the
8 rollback are no longer relevant due to I&E’s updated revenue requirement as
9 presented above.

10 Ms. Fay disagrees with my position that the fear of a credit downgrade
11 specifically regarding the level of DCOH is unjustified and continues to compare
12 the Authority’s DCOH to that of its peers.³⁵ Echoing Mr. Barca, she implies that
13 my DCOH calculation, which employs the Authority’s own formula within its
14 provided rate case tables,³⁶ is incorrect as a result of “the haircut to operating and
15 capital expenses.”³⁷

16
17 **Q. HAS YOUR DCOH ANALYSIS CHANGED FROM YOUR DIRECT**
18 **TESTIMONY?**

19 A. Yes. As a result of I&E’s updated revenue requirement and a reduction to I&E

³³ PWSA Statement No. 2-R, p. 14, lines 10-17.

³⁴ PWSA Statement No. 2-R, p. 15, lines 12-20.

³⁵ PWSA Statement No. 9-R, p. 19, lines 3-28.

³⁶ PWSA Exhibit WJP-1.

³⁷ PWSA Statement No. 9-R, p. 20, lines 1-10.

1 witness Okum's (I&E Statement No. 2-R) O&M adjustments from her direct
2 testimony, the DCOH is slightly reduced to approximately 289 days.³⁸

3
4 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S CLAIM REGARDING**
5 **YOUR DCOH ANALYSIS?**

6 A. I&E's updated recommended revenue requirement results in 289 DCOH as
7 opposed to PWSA's calculation of approximately 248 DCOH.³⁹ These projections
8 are, of course, highly dependent on the actual experienced level of expenditures.
9 As apparent by I&E witness Okum's testimony,⁴⁰ PWSA has recently had
10 significant miscalculations regarding the experienced operating expenses, which is
11 largely where we differ in our DCOH calculations. Whether some expenses are
12 normalized or not, Ms. Okum has thoroughly analyzed the level of actual
13 experienced O&M expenses, which ultimately is what filters into my DCOH
14 calculation.

15
16 **Q. DO YOU BELIEVE YOUR DETERMINATION OF 289 DCOH PUTS**
17 **PWSA IN JEOPARDY OF A CREDIT DOWNGRADE AS MS. FAY**
18 **SEEMINGLY SUGGESTS?**

19 A. No. First, as mentioned above, my DCOH calculation is a direct result of I&E
20 witness Okum's reduction to PWSA's O&M expenses. Additionally, Ms. Fay and

³⁸ I&E Exhibit No. 1-SR, Schedule 1, p. 2.

³⁹ PWSA Exhibit WJP-1.

⁴⁰ I&E Statement No. 2, p. 4, ln. 15 through p. 6, ln. 20.

1 I both cite to Moody's May 29, 2023 report which notes the Authority's liquidity
2 has improved significantly from the critically low 23 DCOH in 2017 to 165 days
3 DCOH at the end of fiscal year 2022.⁴¹ Obviously, my calculation of 289 DCOH
4 is well above that metric and is a continuation of PWSA's increasing DCOH trend.
5 Again, as discussed in my direct testimony,⁴² PWSA's DCOH at I&E's proposed
6 rates falls within Moody's range for the 'Aaa' rating category, which is higher
7 than Moody's overall 'A3' rating for PWSA.

8 Further, I must reiterate that the approximately 289 DCOH resulting from
9 I&E's recommendation far exceeds the 100 days current need and is very much on
10 track to surpass PWSA's five-year target goal of 300 days as asserted in its
11 Financial Management Policy.

12 Finally, I accept that PWSA must strive to achieve a level of DCOH closer
13 to that of its peers. Clearly, the more cash on hand a utility has the better;
14 however, it is important to strike a balance between improving financial metrics
15 and the impact on customers. Unfortunately, the current situation caused by poor
16 financial management of PWSA over so many years cannot be instantaneously
17 remedied by putting an immediate and overwhelming burden on its ratepayers.

⁴¹ I&E Exhibit No. 1, Schedule 3, p. 1.

⁴² I&E Statement No. 1, p. 13, ln. 13 through p. 14, ln. 10.

1 **DEBT SERVICE COVERAGE RATIO**

2 **Q. SUMMARIZE YOUR DSCR RECOMMENDATION IN DIRECT**
3 **TESTIMONY.**

4 A. In direct testimony, I explained that I&E’s proposed rates would result in DSCRs
5 of 1.70x for senior debt service and 1.11x for total debt service coverage.⁴³

6
7 **Q. WHAT WAS PWSA’S RESPONSE TO YOUR RECOMMENDED DSCRs?**

8 A. Mr. Barca largely relies upon the testimony of Ms. Fay, however, he claims my
9 recommendation would lead to a failure to pass the “Additional Bond Test”⁴⁴ and
10 he opines that the only way I can claim PWSA will attain my recommended levels
11 of debt service coverage is to “pretend” that I&E’s other witnesses are correct,
12 particularly in their analysis of operating expenditures.⁴⁵

13 Ms. Fay claims that PWSA could have justified a rate increase above its
14 actual request based upon targeted financial metrics comparable to the Authority’s
15 peers,⁴⁶ and subsequently spends much of her rebuttal testimony attempting to
16 justify a total DSCR of 1.50x. Additionally, Ms. Fay disagrees with my
17 discussion regarding the Authority’s bond rating and suggests if I&E’s
18 recommendations are adopted, PWSA may be in danger of a credit rating
19 downgrade which could lead to increased borrowing costs.⁴⁷ Further, she

⁴³ I&E St. No. 1, p. 18, lines 9-11 and I&E Exhibit No. 1, Schedule 2.

⁴⁴ PWSA Statement No. 2-R, p. 8, lines 13-16.

⁴⁵ PWSA Statement No. 2-R, p. 12, lines 3-7.

⁴⁶ PWSA Statement No. 9-R, p. 14, lines 4-13.

⁴⁷ PWSA Statement No. 9-R, p. 21, ln. 18 through p. 24, ln. 15.

1 criticizes my use of Standard & Poor's rating criteria from 2008 claiming it is no
2 longer consistent with S&P's current rating criteria.⁴⁸

3
4 **Q. HAS YOUR DSCR ANALYSIS CHANGED FROM YOUR DIRECT**
5 **TESTIMONY?**

6 A. Yes. As a result of I&E's updated revenue requirement due to my adjustment to
7 the original capital improvement plan funding combined with Ms. Okum's
8 updated O&M adjustments, my DSCR for senior liens has decreased to 1.64x⁴⁹
9 from 1.70x, while my DSCR for total debt service increased to 1.20x⁵⁰ from
10 1.11x. Notably, these updated I&E DSCR recommendations are in line with the
11 Authority's claim of 1.65x for senior liens and 1.21x for total debt service.⁵¹

12
13 **Q. DO YOU AGREE WITH THE AUTHORITY'S CONCLUSIONS**
14 **REGARDING YOUR DSCR RECOMMENDATIONS?**

15 A. No. Again, I have employed the analysis of I&E witnesses Okum (I&E Statement
16 No. 2 and I&E Statement No. 2-SR) and Ethan Cline (I&E Statement No. 3 and
17 I&E Statement No. 3-SR) in determining the appropriate levels of forecasted
18 expenditures and revenues for PWSA in the FPFTY. My recommended DSCRs
19 resulting from I&E's proposed rates exceed both the legal covenant requirements

⁴⁸ PWSA Statement No. 9-R, p. 10, lines 6-14.

⁴⁹ I&E Exhibit No. 1-SR, Schedule 1, p. 2.

⁵⁰ I&E Exhibit No. 1-SR, Schedule 1, p. 2.

⁵¹ PWSA Statement No. 2-R, p. 4, ln. 1 and PWSA Exhibit WJP-1.

1 of 1.25x for senior debt service and 1.10x for total debt service.⁵² Further, my
2 recommendation also exceeds the Authority’s own Financial Management Policy
3 requirements of 1.35x for senior debt and 1.15x for debt service including
4 subordinate debt. Notably, the policy states that these levels have been set “to
5 provide a margin of safety and flexibility in the PWSA’s financial affairs...”⁵³ and
6 I&E’s recommendation surpasses its requirements.

7
8 **Q. MR. BARCA ASSERTS THAT THE ONLY WAY PWSA CAN ATTAIN**
9 **YOUR RECOMMENDED LEVELS OF DEBT SERVICE COVERAGE IS**
10 **TO “PRETEND” THAT I&E’S OTHER WITNESSES ARE CORRECT IN**
11 **THEIR ANALYSES, PARTICULARLY WHEN IT COMES TO**
12 **NORMALIZING OPERATING EXPENDITURES. IS HE CORRECT?**

13 A. Partially. I do rely upon the analyses of the other I&E witnesses for the inputs that
14 impact the recommendations I present. However, generally, operating expenses
15 are matched with revenues dollar-for-dollar, so the impact of adjustments to
16 operating expenses on DSCRs is minimal. The operating expense adjustments
17 recommended by I&E, combined with the recommended adjustments to the capital
18 improvement plan financing associated with I&E witness Cline’s \$32.6 million
19 recommended reduction to the Authority’s overall capital improvement plan

⁵² Filing Requirement VII.7, Amended and Restated Trust Indenture Between The Pittsburgh Water and Sewer Authority and The Bank of New York Mellon Trust Company, N.A., Amended and Restated as of November 1, 2017, p. 58, Section 7.01(c)(ii).

⁵³ PWSA Exhibit EB-5, p. 1.

1 budget⁵⁴ are what is causing the small variance between the I&E and PWSA
2 DSCRs.

3
4 **Q. PLEASE COMMENT ON THE “ADDITIONAL BONDS TEST” MR.
5 BARCA MENTIONS WHEN DETERMINING APPROPRIATE DSCRs.**

6 A. First, I must concede, as Mr. Barca demonstrates,⁵⁵ that my response to an
7 interrogatory regarding the use of unrestricted cash to support debt service was in
8 fact incorrect. However, it must also be recognized that I&E’s updated position
9 results in an increase of almost \$32 million from its position in direct testimony,
10 largely eliminating this concern. Accordingly, I agree with Mr. Barca’s summary
11 that the “Additional Bonds Test requires that PWSA meet its required debt service
12 coverage ratios (i.e., Rate Covenant) taking into account the current rates and the
13 maximum annual debt service of a proposed series of bonds prior to issuing
14 additional bonds.”⁵⁶ This simply prevents the Authority from over-extending
15 itself from including *potential revenues* to justify issuing new bonds, which is a
16 very reasonable standard.

17 Importantly, the DSCRs resulting from I&E’s updated revenue requirement
18 are almost identical to the Authority’s claim, therefore, any concerns regarding the
19 levels of debt service resulting from I&E’s recommendations are unwarranted.

⁵⁴ I&E Statement No. 3, p. 20, lines 6-9 and I&E Exhibit No. 3, Schedule 3.

⁵⁵ PWSA Statement No. 2-R, p. 12, ln. 18 through p. 13, ln. 33.

⁵⁶ PWSA Statement No. 2-R, p. 6, lines 9-12.

1 Finally, it is I&E’s duty to review revenues, expenditures, financial metrics,
2 etc. for the FPPTY. If the Authority experiences a revenue deficiency to the point
3 it is unable to issue additional bonds, it can file another rate case. Given that
4 PWSA is still relatively new to the Commission’s jurisdiction, a high level of
5 Commission oversight in the form of regular rate filings is encouraged as
6 explained in the MYRP section above.

7
8 **Q. DO YOU BELIEVE YOUR RECOMMENDED DSCRs FOR PWSA WILL**
9 **BE VIEWED UNFAVORABLY BY CREDIT RATING AGENCIES AS MS.**
10 **FAY SUGGESTS?**

11 A. No. In direct testimony, I cited to the most recent rating reports from both
12 Moody’s and S&P Global.⁵⁷ Both rating agencies noted the continued
13 improvement in the Authority’s DSCRs. Any DSCRs that are higher than what is
14 legally mandated and exceed the Authority’s own policies, as my
15 recommendations do, should be viewed as favorable by the rating agencies.
16 Further, as mentioned above, PWSA has been successful in continuing to secure
17 low-cost PENNVEST loans and grants that significantly aid in keeping its
18 borrowing costs from increasing.

⁵⁷ I&E Statement No. 1, p. 16, ln. 7 through p. 17, ln. 12.

1 **Q. PLEASE COMMENT ON MS. FAY’S CRITICISM OF YOUR RELIANCE**
2 **ON AN OUTDATED PUBLICATION REGARDING S&P’S RATING**
3 **CRITERIA.**

4 A. Ms. Fay seemingly attempts to discredit my recommended DSCRs, by claiming
5 the Standard & Poor’s rating criteria from 2008 is no longer consistent with S&P’s
6 current rating criteria issued most recently in 2022. In response to PWSA-I&E-
7 III-8,⁵⁸ I explain that the guidance in both publications parallel one another. In
8 fact, the newer guidance appears to slightly lower the standards for what is
9 considered a “Strong” all-in coverage ratio. Ultimately, the concern of which
10 publication was cited to is inconsequential especially when paired with the fact
11 that it was utilized in tandem with the most recent credit rating reports from both
12 Moody’s and S&P.

13
14 **Q. MS. FAY CLAIMS THAT PWSA COULD HAVE JUSTIFIED A HIGHER**
15 **RATE INCREASE, ARGUING THAT THE APPROPRIATE “ALL-IN”**
16 **DSCR IS 1.50X BASED ON COMPARISON WITH ITS PEERS. HOW DO**
17 **YOU RESPOND TO THESE CLAIMS?**

18 A. First, to be clear, it is PWSA that requested and provided support for a 1.21x “all-
19 in” or total DSCR. It is important to understand that approximately 90% of I&E’s
20 total adjustments to the requested revenue increase were dollar-for-dollar O&M

⁵⁸ I&E Exhibit No. 1, Schedule 5.

1 expense adjustments, meaning there is minimal impact to the DSCR calculations.
2 Ms. Fay suggests that PWSA would have required a rate increase of an additional
3 \$28.7 million on top of the requested approximate \$46.5 million increase in the
4 FPFTY to achieve the 1.50x total DSCR.⁵⁹ It would be unreasonable and unjust to
5 require the Authority's ratepayers to take on that burden so quickly. Like my
6 argument in the DCOH section, I agree with Ms. Fay that it is ideal for PWSA to
7 strive to achieve higher DSCRs that are more in line with its peers. Again,
8 however, it is unreasonable to think ratepayers should be overwhelmed with such
9 a large rate increase to correct the many years of financial mismanagement by the
10 Authority.

11 12 **SUMMARY OF I&E'S OVERALL POSITION**

13 **Q. PLEASE REITERATE I&E'S OVERALL UPDATED RECOMMENDED** 14 **REVENUE REQUIREMENT.**

15 A. I&E's recommended revenue requirement has been updated from its direct
16 testimony position due to changes to the original capital improvement plan
17 funding and O&M expense adjustments. As a result of these changes, I&E's total
18 recommended revenue increase to the FPFTY revenues at present rates has risen
19 from a decrease of \$6,898,845⁶⁰ in direct testimony to an increase of \$25,026,204

⁵⁹ PWSA Statement No. 9-R, p. 14, lines 4-13.

⁶⁰ I&E Statement No. 1, p. 6, lines 12-13 and I&E Exhibit No. 1, Schedule 1.

1 (\$227,685,945 - \$202,659,741) which results in an updated overall I&E revenue
2 requirement recommendation of \$227,685,945.⁶¹

3 Similar to my direct testimony, this revenue increase should be allocated
4 66.11% to water operations, 17.22% to wastewater operations, and 16.67% to
5 stormwater operation.⁶² Therefore, the I&E recommendation corresponds to an
6 increase of \$16,544,823 ($\$25,026,204 \times 66.11\%$) to water operations, an increase
7 of \$4,309,513 ($\$25,026,204 \times 17.22\%$) to wastewater operations, and an increase
8 of \$4,171,868 ($\$25,026,204 \times 16.67\%$) to stormwater operations.

9
10 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

11 A. Yes. However, I reserve the right to supplement my testimony if additional issues
12 or facts arise which may impact my recommendation.

⁶¹ I&E Exhibit No. 1-SR, Schedule 1.

⁶² I&E Statement No. 1, p. 7, lines 1-6. *Rounding was changed to be consistent with I&E witness Vanessa Okum's table in I&E Statement Nos. 2 and 2-SR.

**I&E Exhibit No. 1-SR
Witness: Anthony Spadaccio**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2023-3039920, R-2023-3039921 & R-2023-3039919

Exhibit to Accompany

the

Surrebuttal Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

Revenue Requirement

Multi-Year Rate Plan

Distribution System Improvement Charge

Infrastructure Improvement Charge

PAYGO

Days Cash on Hand

Debt Service Coverage Ratio

TABLE I
Pittsburgh Water and Sewer Authority
FPPTY 2024-2026 INCOME SUMMARY
Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

	I&E MODIFIED				
	(A)	(B)	(C)	(D)	(E)
	FPPTY 2024				
	PWSA	PWSA	PWSA	I&E	I&E
	Revenue at Current Rates	Rate Increase to Meet Revenue Requirements	Revenue At Proposed Rates	Adjustments	Revenue At Adjusted Rates
	\$	\$	\$	\$	\$
INCOME SUMMARY					
Beginning Unrestricted Cash	89,747,395		89,747,395	0	89,747,395
Revenues:					
User Charge Revenues	196,813,382	39,901,123	236,714,505	(20,862,200) A	215,852,305
Infrastructure Improvement Charge	0	0	0	0	0
Customer Assistance Program Charge	0	0	0	0	0
DSIC Revenues	8,432,305	6,606,157	15,038,462	(618,876)	14,419,586
Other Misc. Revenues	3,566,080	0	3,566,080	0	3,566,080
Subtotal: Total Revenues	<u>208,811,767</u>		<u>255,319,047</u>		<u>233,837,971</u>
Less: Uncollectible Revenues	(5,971,537)		(5,971,537)	0	(5,971,537)
Less: Stormwater Credit Program Cost	(180,489)	0	(180,489)	0	(180,489)
Total Revenues Net of Uncollectible	202,659,741	46,507,280	249,167,021	(21,481,076)	227,685,945
Revenue Requirements:					
O & M Expense	135,911,272		135,911,272	(19,236,455)	116,674,817
Senior Lien Debt Service (2)	70,718,091		70,718,091	(820,280)	69,897,811
All Other Debt Service (2)	26,214,534		26,214,534	(805,465)	25,409,069
Cash-Financed Capital (Base Rates)	0		0	0	0
Cash-Financed Capital (DSIC)	15,038,462		15,038,462	(618,876)	14,419,586
Restricted Reserve Contributions	0		0	0	0
Operating Reserve Contribution	1,000,000		1,000,000	0	1,000,000
Other Expenses (3)					
DWSL	0		0	0	0
Hardship Grant Funding	0		0	0	0
Arrearage Funding	240,000		240,000	0	240,000
Total Revenue Requirements	249,122,360		249,122,360	(21,481,076)	227,641,284
Revenue Surplus / (Deficit)	(46,462,619)		44,661	0	44,661
Fund Balance Transactions					
Contributions (to)/from Operations	1,000,000		1,000,000	0	1,000,000
Contributions (to)/from Rate Stabilization Fund	0		0	0	0
Contributions (to)/from Operating Reserve	0		0	0	0
Ending Unrestricted Cash Balance	44,284,776		90,792,056		90,792,056
KEY FINANCIAL METRICS			<u>PWSA Filing</u>		<u>PWSA Filing</u>
Debt Service Coverage					
Senior (1.25 Requirement)	0.99		1.65		1.64
Total (1.10 Requirement)	0.73		1.21		1.20
Days Cash on Hand (4)	120.8		247.6		289.2
Days Cash on Hand with ALCOSAN (4)	70.73		145.0		158.3

(1) Company Main Brief

(2) Includes Principal and Interest payments on existing and proposed debt.

(3) Several programs funded, including assistance with sewer laterals and components of the customer assistance program.

(4) Calculated using Operating & Maintenance Expenses (excludes non-operating expenses).

A = -\$19,236,455 (O&M Expense Reduction) + -\$1,625,745 (Total of Senior & Subordinate Debt Adjustments)

\$25,026,204

I&E Total increase to present rate revenue

TABLE I(A)
Pittsburgh Water and Sewer Authority
FPPTY 2024-2026 KEY RATIOS

Docket Nos.: R-2023-3039920; R-2023-3039921; R-2023-3039919

<u>Key Ratio Breakdown</u>	I&E MODIFIED		
	(A)	(B)	(C)
	FPPTY 2024		
	PWSA	PWSA	I&E
	Revenue at Current Rates \$	Revenue At Proposed Rates \$	Revenue At Adjusted Rates \$
Debt Service Coverage			
Operating Revenues	208,811,767	255,319,047	233,837,971
Less:			
Adjustments	(5,971,537)	(5,971,537)	(5,971,537)
Net Collected Revenues	202,840,230	249,347,510	227,866,434
Less:			
Current Expenses	(135,911,272)	(135,911,272)	(116,674,817)
Adjustments:			
City Payments	3,419,629	3,419,629	3,419,629
Placeholder			
Placeholder			
Revenues Available for Debt Service	70,348,587	116,855,867	114,611,246
Senior Lien Debt Service	70,718,091	70,718,091	69,897,811
All Other Debt Service	26,214,534	26,214,534	25,409,069
Total Debt Service	96,932,626	96,932,626	95,306,881
Senior Lien Debt Service Coverage	0.99	1.65	1.64
Total Debt Service Coverage	0.73	1.21	1.20
Days Cash on Hand			
Ending Cash Balance	44,284,776	90,792,056	90,792,056
Operating Expenses	135,911,272	135,911,272	116,674,817
Adjustments:			
(Loss) / Gain on ALCOSAN Billings	(2,066,814)	(2,066,814)	(2,066,814)
Add: Adjustments to ALCOSAN	0	0	0
Placeholder			
Net Operating Expenses	133,844,458	133,844,458	114,608,003
Days Cash on Hand (x 365)	120.8	247.6	289.2
Including ALCOSAN			
Add: ALCOSAN Charges	94,684,852	94,684,852	94,684,852
Days Cash on Hand (x 365)	70.7	145.0	158.3

- (1) Company Main Brief
(2) Revenue adjusted to meet to Revenue Requirements.

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XVIII (18)

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XVIII-2 Refer to PWSA Statement No. 2 page 22. (Capital Requirements for FY 2024, FY 2025 and FY 2026). Please provide a schedule that correlates the proposed capital requirements in each year to the required debt service needed (i.e. Senior Debt, Subordinate Debt, etc.) to support the Capital Requirements in each year of the MYP.

Response: See below. The capital requirements and associated funding sources represent how the CIP will be funded but does not represent the amount of the revenue requirement. The revenue requirement is shown below with the debt liens identified.

Capital Requirements	FY 2024	FY 2025	FY 2026
	\$349,222,497	\$398,464,014	\$390,608,900
Funding Sources			
Public Debt	\$150,000,000	\$150,000,000	\$200,000,000
PENNVEST Loans	134,701,157	145,909,293	86,356,336
Capital Line of Credit	38,209,537	42,706,704	3,587,415
DSIC/PAYGO	15,038,462	19,699,369	32,942,857
WIFIA Loan #1	8,333,341	4,072,097	28,992,290
WIFIA Loan #2	2,940,000	26,765,001	29,418,452
WIFIA Loan #3	-	9,311,550	9,311,550
	\$349,222,497	\$398,464,014	\$390,608,900

Revenue Requirement – Annual Incremental Costs	FY 2024	FY 2025	FY 2026
Public Debt Service – Senior Lien	\$8,784,124	\$10,361,724	\$13,266,125
PENNVEST Loans Debt Service – Subordinate Lien	6,391,916	11,883,906	401,798
DSIC/PAYGO	6,627,342	4,660,907	13,243,488
Capital Line of Credit Debt Service – Subordinate Lien	1,500,000	-	-
WIFIA Loan #1 Debt Service – Subordinate Lien	733,551	255,811	586,291
WIFIA Loan #2 Debt Service – Subordinate Lien	-	743,005	908,118
WIFIA Loan #3 Debt Service – Subordinate Lien	-	-	231,052
	\$24,036,933	\$27,905,353	\$28,636,872

Response provided by: Edward Barca, Director of Finance

Date response provided: July 27, 2023

***Refer to PWSA's response to OCA-XVIII-2 -> I&E Exhibit 1-SR, Schedule 2**

\$349,222,497 = Capital Requirement for FY 2024

\$24,036,933 = Associated Funding Sources for FY 2024

The total of \$24,036,933 = \$6,627,342 DSIC funding increase + \$17,409,591 increase in FPFTY debt service.

$\$24,036,933 / \$349,222,497 = 6.88\%$ Funding source as a percent of the capital requirement

$\$32,625,303$ (CIP adjustment as illustrated in I&E Statement No. 3) $\times 6.88\% = \$2,244,621$

Funding Source	FY 2024	Weighted % of Total	Adjustment
Senior	\$8,784,124	0.365442796	\$820,281
Subordinate	\$6,391,916	0.265920615	\$596,891
DSIC	\$6,627,342	0.275714959	\$618,876
Subordinate	\$1,500,000	0.062403968	\$140,073
Subordinate	\$733,551	0.030517662	\$68,501
	\$24,036,933		
	Total Adjustment	2244621	<u><u>\$2,244,621</u></u>

Total Adjustment By Funding Source

Senior Lien Adjustment	\$820,281
Subordinate Lien Adjustment	\$805,465
DSIC/Cash Financed Capital Adjustment	\$618,876
	<u><u>\$2,244,621</u></u>

Total Senior Debt + Subordinate Debt \$1,625,745

The Pittsburgh Water and Sewer Authority
 RECONCILIATION FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2022
 as revised 3/24/23
DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) - Water

	<u>Billed Actual</u>	<u>Total DSIC Recoverable Costs</u>	<u>Billed Actual minus Total DSIC Recoverable Costs =</u>	<u>Interest Weight*</u>	<u>Residential Mortgage Lending Rate**</u>	<u>Interest***</u>
	(1)	(2)	(3) = (1) - (2)	(4)	(5)	(6) = (3) * (4) * (5)
Jan-22	\$420,487	\$1,257,978	\$ (837,491)	21/12	4.25%	\$ (62,288)
Feb-22	\$436,350	\$1,505,463	\$ (1,069,113)	20/12	4.25%	\$ (75,729)
Mar-22	\$420,130	\$353,086	\$ 67,044	19/12	4.50%	\$ 4,777
Apr-22	\$456,142	\$2,068,524	\$ (1,612,382)	18/12	4.75%	\$ (114,882)
May-22	\$441,059	\$436,222	\$ 4,837	17/12	4.75%	\$ 325
Jun-22	\$460,419	\$0	\$ 460,419	16/12	5.25%	\$ 32,229
Jul-22	\$524,423	\$0	\$ 524,423	15/12	5.50%	\$ 36,054
Aug-22	\$539,010	\$0	\$ 539,010	14/12	5.75%	\$ 36,159
Sep-22	\$508,796	\$0	\$ 508,796	13/12	5.50%	\$ 30,316
Oct-22	\$501,741	\$0	\$ 501,741	12/12	5.75%	\$ 28,850
Nov-22	\$423,290	\$0	\$ 423,290	11/12	6.25%	\$ 24,251
Dec-22	\$489,427	\$0	\$ 489,427	10/12	6.50%	\$ 26,511
DSIC - Water TOTAL	\$ 5,621,274	\$ 5,621,274	\$ -			\$ (33,428)

*: Interest weight for first month = # of months to the end of the reconciliation period (12) + midpoint of the reconciliation period (6) + # of months between the end of the reconciliation period and next rate adjustment filing (3) = 21 months.

** : Residential Mortgage Lending rates verified using Act 6 information from PA Department of Banking and Securities:
<https://www.dobs.pa.gov/Documents/Act%206%20Rates/Act%206%202022.pdf>

***: Interest is not recoverable in net undercollections.

The Pittsburgh Water and Sewer Authority DSIC Projects in 2022									
DSIC Water									
PWSA Project #	Project Name	Detailed Description	Location	Type	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Total Recoverable Expenses 2022
2013-323-175-1	Bruecken PS Valve Vault Upgrade - General	Valve vault upgrades at the Bruecken Pump Station	City of Pittsburgh - 12th Ward	Water	\$ 19,757	\$ 50	\$ -	\$ -	\$ 19,807
2018-323-100-0	Aspinwall Pump Station to Lanpher Reservoir Rising Main	Design/Construction of a new finished water rising main to Lanpher Reservoir.	System Wide	Water	\$ 101,806	\$ 138,070	\$ -	\$ -	\$ 239,876
2018-325-100-0	2018 Lead Service Line Replacement Program	Replacement of both the public and private lead service lines.	System Wide	Water	\$ 565	\$ 25,798	\$ -	\$ -	\$ 26,363
2018-325-100-6	2018 Individual Lead Service Line Replacement Contract - A. Folino	Replacement of Backlog and CEP private service lines, as well as urgent public and private service lines	System Wide	Water	\$ 5,304	\$ 18,233	\$ -	\$ -	\$ 23,537
2018-325-100-7	2018 Individual Lead Service Line Replacement Contract - Independent	Replacement of Backlog and CEP private service lines, as well as urgent public and private service lines.	System Wide	Water	\$ 144,280	\$ 435,096	\$ -	\$ -	\$ 579,376
2019-325-101-1	2019 Small Diameter Water Main Replacement - Second Ave. & Tecumseh Street	The installation of a 500LF of watermain crossing railroad right-of-way at Tecumseh St. @ Second Ave.	City of Pittsburgh - 15th Ward	Water	\$ 239,230	\$ 38,398	\$ -	\$ -	\$ 277,627
2019-325-102-2	2020 Small Diameter Water Main Replacement - Zotolla	Strategic replacement of water mains to improve system reliability as well as improve water pressure, maintain water quality, and minimize disturbance to the community.	System Wide	Water	\$ -	\$ 2,538	\$ -	\$ -	\$ 2,538
2019-325-103-0	2019 Large Diameter Water Main Improvements (Rising Main 3 & 4)	Strategic replacement or rehabilitation of large diameter water mains (16-inch and larger) and appurtenances to improve system reliability and hydraulics, including internal and external inspections.	System Wide	Water	\$ 2,310,373	\$ 1,270,241	\$ -	\$ -	\$ 3,580,614
2019-325-110-0	Private Lead Line Reimbursement	Lead service line replacement reimbursement	System Wide	Water	\$ -	\$ -	\$ -	\$ -	\$ -
2020-325-106-0	2021 Small Diameter Water Main Replacement Contract A	Strategic replacement of water mains to improve system reliability as well as improve water pressure, maintain water quality, and minimize disturbance to the community. Program will initially focus on replacing existing 4-inch mains located with Category 4	System Wide	Water	\$ -	\$ 30,225	\$ -	\$ -	\$ 30,225
2020-325-107-0	2020 Small Meter Replacement	Annual replacement of water meters one inch or less.	System Wide	Water	\$ 33,600	\$ 17,000	\$ -	\$ -	\$ 50,600
2020-325-109-0	2020 Large Diameter Main Replacement Program (Four Mile Run Water Main Relocation)	Water main replacement in conjunction with Four Mile Run stormwater project. Project scope include installation of approximately 4,200-ft of 48" diameter main to allow for abandonment of existing 50" main located along CSX railroad.	City of Pittsburgh - 4th Ward	Water	\$ 19,006	\$ 12,566	\$ -	\$ -	\$ 31,572
2020-325-110-0	2020 Water Relay	The reconstruction and relay of the PWSA public water system including water mains, valves, service connections, and hydrants.	System Wide	Water	\$ 75,598	\$ -	\$ -	\$ -	\$ 75,598
2020-325-111-0	2021 Valve Replacement	The replacement of valves throughout the system.	System Wide	Water	\$ 34,927	\$ 256,938	\$ -	\$ -	\$ 291,865
2020-325-112-0	2021 Large Diameter Meter Replacement	Annual replacement of water meters one inch or larger.	System Wide	Water	\$ 14,832	\$ 15,056	\$ -	\$ -	\$ 29,888
2021-325-104-0	2022 Small Diameter Water Main Replacement	Strategic replacement of water mains and service lines to improve system reliability as well as improve water pressure, maintain water quality, and minimize disturbance to the community.	System Wide	Water	\$ 63,926	\$ 13,402	\$ -	\$ -	\$ 77,328
2021-325-106-0	2021 Small Meter Replacement	Purchasing of small meters for replacement	System Wide	Water	\$ 27,425	\$ 32,984	\$ -	\$ -	\$ 60,408
2021-325-110-0	2022 Water Relay	The reconstruction and relay of the PWSA public water system including water mains, valves, service connections, and hydrants.	System Wide	Water	\$ -	\$ 18,519	\$ -	\$ -	\$ 18,519
2021-325-112-0	2022 Urgent Lead Service Line Replacement	This project involves the private side Lead Service Line Replacements (LSLR) associated with operations public side replacements. It includes provisions for some full line replacements when operations requests both sides be completed due to their workload or other factors.	System Wide	Water	\$ 15,871	\$ 177,744	\$ -	\$ -	\$ 193,615
2021-325-113-0	2022 Valve Replacement	Replacement of Valves under yearly Contract	System Wide	Water	\$ 496	\$ 1,891	\$ -	\$ -	\$ 2,387
2022-325-100-0	2022 Large Meter Replacement	Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed. Annual replacement of water meters larger than 1".	System Wide	Water	\$ 9,530	\$ -	\$ -	\$ -	\$ 9,530
					\$ 3,116,527	\$ 2,504,747			\$ 5,621,274

The Pittsburgh Water and Sewer Authority
RECONCILIATION FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2022
as revised 3/24/23
DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) - Wastewater

	<u>Billed Actual</u>	<u>Total DSIC Recoverable Costs</u>	<u>Billed Actual minus Total DSIC Recoverable Costs = Over/(Under)</u>	<u>Interest Weight*</u>	<u>Residential Mortgage Lending Rate**</u>	<u>Interest***</u>
	(1)	(2)	(3) = (1) - (2)	(4)	(5)	(6) = (3) * (4) * (5)
Jan-22	\$258,387	\$231,554	\$ 26,833	21/12	4.25%	\$ 1,996
Feb-22	\$245,042	\$406,225	\$ (161,183)	20/12	4.25%	\$ (11,417)
Mar-22	\$223,457	\$54,961	\$ 168,496	19/12	4.25%	\$ 11,338
Apr-22	\$242,244	\$420,289	\$ (178,045)	18/12	4.75%	\$ (12,686)
May-22	\$230,826	\$914,859	\$ (684,033)	17/12	4.75%	\$ (46,030)
Jun-22	\$244,848	\$680,450	\$ (435,602)	16/12	5.25%	\$ (30,492)
Jul-22	\$282,521	\$300,535	\$ (18,014)	15/12	5.50%	\$ (1,238)
Aug-22	\$278,161	\$0	\$ 278,161	14/12	5.75%	\$ 18,660
Sep-22	\$266,973	\$0	\$ 266,973	13/12	5.50%	\$ 15,907
Oct-22	\$263,655	\$0	\$ 263,655	12/12	5.75%	\$ 15,160
Nov-22	\$222,066	\$0	\$ 222,066	11/12	6.25%	\$ 12,723
Dec-22	\$250,693	\$0	\$ 250,693	10/12	6.50%	\$ 13,579
DSIC - Wastewater TOTAL	\$ 3,008,873	\$ 3,008,873	\$ (0)			\$ (12,500)

*: Interest weight for first month = # of months to the end of the reconciliation period (12) + midpoint of the reconciliation period (6) + # of months between the end of the reconciliation period and next rate adjustment filing (3) = 21 months.

** : Residential Mortgage Lending rates verified using Act 6 information from PA Department of Banking and Securities:
<https://www.dobs.pa.gov/Documents/Act%206%20Rates/Act%206%202022.pdf>

***: Interest is not recoverable in net undercollections.

The Pittsburgh Water and Sewer Authority DSIC Projects in 2022

DSIC Wastewater									
PWSA Project #	Project Name	Detailed Description	Location	Type	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Total Recoverable Expenses 2022
2017-424-100-0	31st Ward Sewer System	Evaluation to identify and locate the source(s) of the infiltration and inflow (I/I), removal of public I/I sources, and rehabilitation/replacement of the Rogers Street and Mifflin Road Pump Station and force main. Both sewage pump stations and the force main that convey flow of the Streets Run Sanitary Truck Sewer were constructed in the late 1940s and are reaching the end of their useful life. Additionally, past studies suggest this sewershed may be significantly impacted by high levels of infiltration/inflow.	City of Pittsburgh - 31st Ward	Wastewater	\$ 21,487	\$ 22,709	\$ -	\$ -	\$ 44,196
2017-424-110-0	2018 Sewers Under Structures	The replacement, rehabilitation, or realignment of sewers under structures throughout the service area.	Systemwide	Wastewater	\$ 20,429	\$ 474,749	\$ 300,535	\$ -	\$ 795,712
2019-424-100-0	2019 Small Diameter Sewer Rehabilitation (Defined Sites)	Proactive, trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, reduce root intrusion, and reduce infiltration and inflow, including cleaning and pre and post construction CCTV inspections	City of Pittsburgh - 29th Ward	Wastewater	\$ 11,956	\$ -	\$ -	\$ -	\$ 11,956
2020-424-102-0	2020 Sewer Reconstruction	Reconstruction of existing sewers, manholes, catch basins, and inlets including small-scale improvement projects (i.e. one or two city blocks) identified during urgent repairs.	Systemwide	Wastewater	\$ 501	\$ 2,046	\$ -	\$ -	\$ 2,547
2020-424-104-0	2020 Sewers Under Structures - Contract 1	The replacement, rehabilitation, or realignment of sewers under structures throughout the service area.	Systemwide	Wastewater	\$ 40,391	\$ 65,263	\$ -	\$ -	\$ 105,654
2020-424-104-1	2020 Sewers Under Structures - Contract 2	In recent years, there has been an increasing rate of failure of sewer assets that are located under or adjacent to buildings, bridges, railroads, major utilities, or located on steep slopes due to limited accessibility. As part of ongoing efforts to address this aging infrastructure, PWSA has developed a Sewers Under Structures Program.	Systemwide	Wastewater	\$ 10,348	\$ 30,488	\$ -	\$ -	\$ 40,835
2020-424-108-0	2021 Small Diameter Sewer Rehabilitation (IDIQ)	Trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ 210,627	\$ 5,556	\$ -	\$ -	\$ 216,183
2021-424-100-0	2021 Sewer Reconstruction	Reconstruction of existing sewers, manholes, catch basins, and inlets including small-scale improvement projects (i.e. one or two city blocks) identified during urgent repairs.	Systemwide	Wastewater	\$ 24,385	\$ 513,939	\$ -	\$ -	\$ 538,324
2021-424-101-0	2022 Small Diameter Sewer Rehabilitation Contract 1	Trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ -	\$ 2,570	\$ -	\$ -	\$ 2,570
2021-424-101-1	2022 Small Diameter Sewer Rehabilitation Contract 2	Trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ -	\$ 10,520	\$ -	\$ -	\$ 10,520
2021-424-101-2	2022 Small Diameter Sewer Rehabilitation (IDIQ)	Trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ 352,619	\$ 384,603	\$ -	\$ -	\$ 737,222
2021-424-105-0	2022 Large Diameter Sewer Rehabilitation	Trenchless rehabilitation of 36-inch or greater diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ -	\$ 27,281	\$ -	\$ -	\$ 27,281
2021-424-108-0	2023 Small Diameter Sewer Rehabilitation Contract 1	Trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ -	\$ 90,840	\$ -	\$ -	\$ 90,840
2021-424-108-1	2024 Small Diameter Sewer Rehabilitation Contract 2	Trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ -	\$ 209,248	\$ -	\$ -	\$ 209,248
2021-424-108-2	2025 Small Diameter Sewer Rehabilitation Contract 3	Trenchless rehabilitation of less than 36-inch diameter sewer mains to restore structural integrity, including cleaning and pre and post construction CCTV inspections.	Systemwide	Wastewater	\$ -	\$ 90,521	\$ -	\$ -	\$ 90,521
2022-424-100-0	2022 Sewer Reconstruction	Reconstruction of existing sewers, manholes, catch basins, and inlets including small-scale improvement projects (i.e. one or two city blocks) identified during urgent repairs.	Systemwide	Wastewater	\$ -	\$ 85,265	\$ -	\$ -	\$ 85,265
					\$ 692,741	\$ 2,015,598	\$ 300,535	\$ -	\$ 3,008,873

**Pennsylvania Public Utility Commission v.
The Pittsburgh Water and Sewer Authority
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

**Responses of the Bureau of Investigation and Enforcement to the
Interrogatories of The Pittsburgh Water and Sewer Authority – Set III
Witness: Anthony Spadaccio**

PWSA-I&E-III-8 I&E Statement No. 1, page 18 at 4-8, is Mr. Spadaccio aware of S&P Global Ratings most recent U.S. Municipal Water, Sewer and Solid Water Utilities; Methodology and Assumptions dated April 14, 2022 that includes very different DSCR than the ones provided in his Direct testimony which came from methodology published in 2008? In S&P’s most recent methodology for All-in Coverage levels as summarized in the table below with 1 = extremely strong, 2= very strong, 3=strong, 4=adequate, 5=vulnerable, 6= very vulnerable

Table 17

Assessment Of All-In Coverage

Initial assessment	All-in coverage
1	1.60x or above
2	1.40x-1.60x
3	1.20x-1.40x
4	1.10x-1.20x
5	1.00x-1.10x
6	Below 1.00x

RESPONSE

Mr. Spadaccio is aware of the S&P Global Ratings most recent U.S. Municipal Water, Sewer and Solid Water Utilities; Methodology and Assumptions dated April 14, 2022 as he provided the publication in response to PWSA-I&E-I-12. However, Mr. Spadaccio disagrees that the DSCR ranges in the two publications in question are “very different.” Instead, he believes they reasonably parallel one another. If anything, the newer guidance lowers the standards to meet each level. For example, in the 2008 publication, a DSCR above 1.50x was considered “Strong,” while in the 2022 guidance, the ratio can be as low as 1.20x and still be considered “Strong.”

**I&E Statement No. 2
Witness: Vanessa Okum**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2023-3039919, R-2023-3039920 & R-2023-3039921

Direct Testimony

of

Vanessa Okum

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

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1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Vanessa Okum. My business address is Pennsylvania Public Utility
4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg,
5 PA 17120.

6

7 **Q. IN WHAT CAPACITY ARE YOU EMPLOYED?**

8 A. I am employed as a Fixed Utility Financial Analyst in the Pennsylvania Public Utility
9 Commission's (Commission) Bureau of Investigation and Enforcement (I&E).

10

11 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL
12 BACKGROUND.**

13 A. Appendix A, which is attached to my testimony, describes my educational
14 background and professional experience.

15

16 **Q. DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

17 A. I&E is responsible for protecting the public interest in proceedings before the
18 Commission. The I&E analysis in this proceeding is based on its responsibility to
19 represent the public interest. This responsibility requires balancing the interests of
20 the ratepayers, the regulated utility, and the regulated community as a whole.

1 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

2 A. The purpose of my direct testimony is to review the base rate filing of the
3 Pittsburgh Water and Sewer Authority (PWSA or Authority) and make
4 recommended adjustments to PWSA’s proposed operating and maintenance
5 (O&M) expense claims for the fully projected future test year (FPFTY) ending
6 December 31, 2024.

7
8 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

9 A. Yes. I&E Exhibit No. 2 contains schedules relating to my testimony.

10

11 **Q. DO YOU HAVE ANY COMMENTS REGARDING THE OVERALL SCOPE**
12 **OF YOUR DIRECT TESTIMONY?**

13 A. Yes. PWSA came under the Commission’s jurisdiction for regulation and oversight
14 effective April 1, 2018, and there are various compliance requirements of utility
15 statute, regulations, and Commission Orders with which the Authority must comply.
16 Since then, PWSA has filed three base rate cases: in 2018 (at Docket Nos. R-2018-
17 3002645 and R-2018-3002647), in 2020 (at Docket Nos. R-2020-3017951 and
18 R-2020-3017970), and in 2021 (at Docket Nos. R-2021-3024773, R-2021-3024774,
19 and R-2021-3024779). The Authority also filed Stage 1 of its mandated Compliance
20 Plan in 2018 (at Docket Nos. M-2018-2640802 and M-2018-2640803) and Stage 2
21 in 2021. PWSA continues to file quarterly updates to its Compliance Plan to track its
22 progress toward total compliance.

1 In this testimony, I address some of the issues from the current base rate case
2 filing. However, with respect to issues I have not addressed, I&E does not waive its
3 right to address those issues in future base rate proceedings or in any other
4 proceeding. Further, issues not addressed in this proceeding should not be construed
5 as I&E's agreement to PWSA's position on those issues. Lastly, I&E reserves the
6 right to make further recommendations in future proceedings for any issue addressed
7 in this testimony.

8
9 **Q. WHAT TEST YEARS DOES PWSA USE IN THIS PROCEEDING?**

10 A. PWSA uses the calendar year ended December 31, 2022 as the historic test year
11 (HTY), the year ending December 31, 2023 as the future test year (FTY), and the
12 year ending December 31, 2024 as the FPFTY in this rate case proceeding. PWSA
13 claims a multi-year rate increase, also referring to the forecast year ending
14 December 31, 2025 as Fiscal Year (FY) 2025 and the forecast year ending
15 December 31, 2026 as FY 2026.¹

16
17 **Q. WHAT IS PWSA'S REQUESTED REVENUE INCREASE IN THIS**
18 **PROCEEDING?**

19 A. PWSA has requested a total multi-year revenue increase of \$146.1 million over a
20 three-year period. This includes an increase of \$46.8 million or 22.5% in the

¹ PWSA Statement No. 2, p. 8.

1 FPPTY, \$45.4 million or 17.8% in FY 2025, and \$53.9 million or 17.9% in FY
2 2026.²

3 It should be noted that I&E witness Anthony Spadaccio is addressing
4 I&E's overall recommended revenue requirement in this proceeding.³

5

6 **Q. HOW DOES PWSA EXPLAIN ITS BUDGETING PROCESS?**

7 A. PWSA explains that its O&M expense claims are based on results derived through
8 a utility-wide budgeting process using a zero-based budgeting method for the FTY
9 and FPPTY. In this process, the previous years' budgets are referenced, but each
10 cost is individually considered when developing the annual operating budget.⁴
11 However, for FY 2025 and FY 2026, the traditional budgeting method is
12 employed, applying escalation factors to groups of expenses in anticipation of
13 increased cost of service.⁵

14

15 **Q. DO YOU HAVE ANY OVERALL COMMENTS ABOUT THE ACCURACY**
16 **OF PWSA'S PREVIOUS BUDGETED DIRECT O&M EXPENSE CLAIMS**
17 **MADE IN ITS PRIOR BASE RATE CASES?**

18 A. Yes. In response to I&E-RE-19-D, PWSA provided a comparative statement of
19 budgeted expenses for the fiscal years 2020, 2021, and 2022, as presented in the

² PWSA Statement No. 2, p. 4.

³ I&E Statement No. 1.

⁴ PWSA Statement No. 2, p. 9.

⁵ PWSA Statement No. 2, p. 14.

1 last rate case filing versus the actual expense incurred. The information was
2 presented in side-by-side columns for each year by line item of expense in a
3 similar schedule to that provided in PWSA's current filing requirement FR-III.1
4 for the FPFTY.⁶ Based on this information, I summarized O&M expenses by
5 major expense category.⁷ Although overall it appears that PWSA has been very
6 close to its budget in 2021 and 2022, the data at the account level and expense
7 category level shows large variances. For example, the Authority has consistently
8 underspent its budget for the overall Payroll Expense category, with an average of
9 10.6% under budget from 2020 through 2022. Additionally, the number of
10 individual accounts that were significantly over or under budget (defined as at
11 least 10% and \$25,000 variance) increased from 29% in 2022, to 30% in 2021,
12 and 32% in 2022.

13
14 **Q. HAS PWSA ATTEMPTED TO EXPLAIN THE SUBSTANTIAL**
15 **VARIANCES BETWEEN ITS BUDGET PROJECTIONS AND ACTUAL**
16 **EXPENSES?**

17 A. Yes, but its explanations only raise reliability concerns regarding PWSA's O&M
18 projections. Specifically, throughout its response to I&E-RE-19-D, PWSA briefly
19 states various one-line reasons for each expense line item's variance, such as "did
20 not meet hiring projections," "did not meet projections," "exceeded projections,"
21 etc. This response reveals that PWSA's FTY and FPFTY O&M expense budgeting

⁶ I&E Exhibit No. 2, Schedule 1.

⁷ I&E Exhibit No. 2, Schedule 2.

1 and claim amounts are not fully reliable and raises concerns about the
2 reasonableness of the FTY and FPFTY budgeted amounts in this proceeding.

3
4 **Q. DO THE VARIANCES BETWEEN BUDGETED AND ACTUAL EXPENSES**
5 **RAISE CONCERNS ABOUT PWSA'S REQUEST FOR A MULTI-YEAR**
6 **RATE INCREASE?**

7 A. Yes. Although PWSA has not been significantly over or under on its overall
8 budget in the past two fiscal years, the Authority seems to be shifting expenses
9 from one area to another to accommodate inflation, increased usage, and other
10 changes affecting expenditures. While it is admirable that PWSA has been able to
11 stay close to the overall budget, this does not negate the fact that the Authority's
12 ability to reliably budget at the account level has yet to be proven.

13 Furthermore, although PWSA claims to use a zero-based budgeting
14 approach in the FTY and FPFTY, the Authority admits to using a traditional
15 forecasting method for fiscal years 2025 and 2026, where unsupported blanket
16 inflation increases are applied to groups of expenses. In the current economic
17 environment, conditions are too uncertain to confidently project inflation rates for
18 any expense category two and three years into the future. Due to these concerns, I
19 recommend the Commission disallow the requested multi-year rate increases for
20 FY 2025 and FY 2026.

1 **SUMMARY OF ADJUSTMENTS**

2 **Q. PLEASE SUMMARIZE YOUR ADJUSTMENTS.**

3 A. The following table summarizes my recommended O&M expense adjustments in
4 the FPFTY for the combined water, wastewater, and stormwater operations:

O&M Issue	PWSA FPFTY Claim	I&E Allowance	I&E Adjustment
1. Total Payroll Expense	\$ 41,932,394	\$ 34,600,930	\$ (7,331,464)
2. Payroll Tax Expense	\$ 3,240,779	\$ 2,674,161	\$ (566,618)
3. Retirement Benefits	\$ 899,208	\$ 516,671	\$ (382,537)
4. Operating Contracts Other	\$ 8,866,242	\$ 1,366,242	\$ (7,500,000)
5. Drag Bucket	\$ 780,372	\$ -	\$ (780,372)
6. Line Televising	\$ 763,995	\$ -	\$ (763,995)
7. Office Rent	\$ 1,975,659	\$ 916,176	\$ (1,059,483)
8. Legal Expense	\$ 2,251,857	\$ 2,153,595	\$ (98,262)
9. Equipment Expense	\$ 3,411,233	\$ 1,210,116	\$ (2,201,117)
10. COVID-19 Expenses	\$ 263,215	\$ 166,241	\$ (96,974)
Total O&M Expense Adjustments			\$ (20,780,822)

5
6 It should be noted that although I recommend the Commission disallow the
7 multi-year rate increases, within my testimony I will address each adjustment with
8 respect to FY 2025 and FY 2026 in the event the Commission decides to allow any
9 part of the multi-year rate increase.

10

11 **Q. HOW DO YOU ALLOCATE YOUR EXPENSE ADJUSTMENTS**
12 **BETWEEN THE WATER, WASTEWATER, AND STORMWATER**
13 **SYSTEMS?**

14 A. I allocate the above O&M expense adjustments among water, wastewater, and
15 stormwater using ratios from PWSA's FPFTY 2024 Cost of Service Study and

1 Rate Design spreadsheet as shown in the table below:⁸

		Water	Wastewater	Stormwater
	Total adj.	66.11%	17.22%	16.67%
1. Total Payroll Expense	(7,331,464)	(4,846,831)	(1,262,478)	(1,222,155)
2. Payroll Tax Expense	(566,618)	(374,591)	(97,572)	(94,455)
3. Retirement Benefits	(382,537)	(252,895)	(65,873)	(63,769)
4. Operating Contracts Other	(7,500,000)	(4,958,250)	(1,291,500)	(1,250,250)
5. Drag Bucket	(780,372)	(515,904)	(134,380)	(130,088)
6. Line Televising	(763,995)	(505,077)	(131,560)	(127,358)
7. Office Rent	(1,059,483)	(700,424)	(182,443)	(176,616)
8. Legal Expense	(98,262)	(64,961)	(16,921)	(16,380)
9. Equipment Expense	(2,201,117)	(1,455,158)	(379,032)	(366,926)
10. COVID-19 Expenses	(96,974)	(64,110)	(16,699)	(16,166)
	(20,780,822)	(13,738,201)	(3,578,458)	(3,464,163)

2

3

4 **Q. WERE THERE ANY RECENT COURT DECISIONS THAT COULD**
5 **CHANGE THE BREAKDOWN OF YOUR RECOMMENDED**
6 **ADJUSTMENTS?**

7 A. Yes. I am advised by counsel that in a recent decision, the Commonwealth Court
8 held that a “Stormwater Charge constitutes a general tax, as opposed to a special
9 assessment, because the work funded thereby does not benefit individual
10 properties”⁹ Therefore, if it is deemed the stormwater charge is a tax and it is
11 eliminated by virtue of PWSA being required to refile a modified cost of service
12 with the stormwater portion rolled into wastewater rates or otherwise changed, the

⁸ PWSA filing, FPFTY 2024 Cost of Service and Rate Design, RevReq Allocation tab, Column R, lines 25-27.

⁹ *Borough of West Chester v. Pennsylvania State System of Higher Education and West Chester University of Pennsylvania of the State System of Higher Education*, 291 A.3d 455 (Pa. Cmwlth. 2023), *appeal docketed*, 9 MAP 2023 (Pa. 2023).

1 recommended adjustments in my table above for stormwater would require
2 modification.

3
4 **PAYROLL EXPENSE**

5 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR PAYROLL EXPENSE?**

6 A. PWSA’s payroll expense claim includes salaries and wages for regular payroll,
7 overtime premium pay, bonus pay, vacation pay, holiday pay, and other
8 pay/compensation as shown in the breakdown provided in the filing.¹⁰

9
10 **Q. WHAT IS PWSA’S CLAIM FOR PAYROLL EXPENSE?**

11 A. PWSA is claiming payroll expense of \$41,932,394 in the FPFTY,¹¹ \$44,008,104 in
12 FY 2025, and \$46,226,239 in FY 2026.¹²

13
14 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

15 A. Per PWSA’s response to I&E-RE-24-D, the year-over-year increases in budgeted
16 payroll expense claims include workforce expansion and annual cost-of-living
17 increases.¹³ More specifically, per the response to I&E-RE-3-D, PWSA provided
18 actual and projected employee additions for FY 2020 through FY 2026,¹⁴ as well

¹⁰ PWSA filing, FPFTY 2024 Cost of Service and Rate Design, FR-III.1.

¹¹ PWSA Second Revised FR-III.1 as filed 7.12.23.

¹² I&E Exhibit No. 2, Schedule 3, p. 1.

¹³ I&E Exhibit No. 2, Schedule 4.

¹⁴ I&E Exhibit No. 2, Schedule 5, p. 1.

1 as a monthly employee count consisting of actuals and projections for FY 2020
2 through FY 2026.¹⁵

3
4 **Q. DO YOU AGREE WITH PWSA'S PAYROLL EXPENSE CLAIM?**

5 A. No.

6
7 **Q. WHAT DO YOU RECOMMEND?**

8 A. I recommend a FPFTY allowance of \$34,600,930 for payroll expense, or a
9 reduction of \$7,331,464 (\$41,932,394 - \$34,600,930) to PWSA's claim.

10 Additionally, if the Commission decides to allow any part of the multi-year rate
11 plan, I recommend an allowance of \$37,247,367 or a decrease of \$6,760,737
12 (\$44,008,104 - \$37,247,367) in FY 2025, and \$38,364,788 in FY 2026 or a
13 decrease of \$7,861,451 (\$46,226,239 - \$38,364,788).

14
15 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

16 A. My recommendation uses a zero-based budgeting approach by adjusting HTY
17 payroll expense for projected employee additions and annual cost-of-living
18 increases for the FTY, FPFTY, FY 2025, and FY 2026. However, as stated above,
19 as for this expense and every expense addressed in this direct testimony below, I
20 recommend disallowance of the FY 2025 and FY 2026 claims, and I am showing

¹⁵ I&E Exhibit No. 2, Schedule 5, pp. 2-4.

1 those recommended allowances to be considered only in the event the
2 Commission disagrees with that recommendation.

3
4 **Q. PLEASE EXPLAIN YOUR RECOMMENDED ADDITIONAL EMPLOYEE**
5 **ADJUSTMENT.**

6 A. My recommended adjustment regarding additional employees is based on year-
7 over-year changes to average annual headcount multiplied by average payroll
8 expense per employee (total annual payroll expense/average employee count).¹⁶

9
10 **Q. PLEASE EXPLAIN YOUR RECOMMENDED COST-OF-LIVING**
11 **ADJUSTMENT.**

12 A. My recommended cost-of-living adjustment is based on PWSA's responses to
13 I&E-RE-5-D and I&E-RE-6-D, which include data regarding union contractual
14 cost-of-living increases (across three separate unions) as well as non-union cost-
15 of-living increases.¹⁷ In the FTY, increases are between 3% and 4%; however, as
16 I do not have a breakdown of how many employees are in each union or non-
17 union, I based my analysis on a 4% cost-of-living increase for that year to
18 moderate my adjustment. In the FPFTY, FY 2025, and FY 2026, all increases
19 were 3% so I applied this cost-of-living increase accordingly.¹⁸

¹⁶ I&E Exhibit No. 2, Schedule 6.

¹⁷ I&E Exhibit No. 2, Schedule 7.

¹⁸ I&E Exhibit No. 2, Schedule 6.

1 **Q. SUMMARIZE YOUR RATIONALE FOR THESE RECOMMENDED**
2 **ADJUSTMENTS.**

3 A. In response to I&E-RE-3-D, PWSA states that headcount is projected to remain
4 stable in the FTY, yet total payroll expenses increase 19% over the HTY. This
5 increase from HTY to FTY is unreasonable based on a 3-4% cost-of-living
6 increase and relatively flat headcount projections. The Authority has not provided
7 an explanation for this increase aside from a vague statement in its response to
8 I&E-RE-24-D relating rising payroll expenses to workforce expansion and annual
9 cost-of-living increases from FY 2020 through FY 2026. Since payroll expenses
10 for FPFTY, FY 2025, and FY 2026 build on the expenses projected in the FTY, an
11 adjustment is necessary for this expense. My adjustment is supported by the data
12 provided by PWSA regarding employee count and cost-of-living increases.

13
14 **PAYROLL TAX EXPENSE**

15 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR PAYROLL TAX**
16 **EXPENSE?**

17 A. PWSA’s payroll tax expense claim includes the cost for payroll related taxes such
18 as the Federal Insurance Contribution Act (FICA) tax, Medicare tax, and state
19 unemployment taxes as shown in the breakdown provided in the filing.¹⁹

¹⁹ PWSA filing, FPFTY 2024 Cost of Service and Rate Design, FR-III.1.

1 **Q. WHAT IS PWSA’S CLAIM FOR PAYROLL TAX EXPENSE?**

2 A. PWSA is claiming payroll tax expense of \$3,240,779 (\$2,596,466 + \$607,233 +
3 37,100) in the FPFTY,²⁰ \$3,401,549 (\$2,724,939 + \$637,284 + \$39,326) in FY
4 2025, and \$3,562,437 (\$2,853,419 + \$667,332 + \$41,686) in FY 2026.²¹

5

6 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

7 A. PWSA’s claim for payroll tax is estimated by applying the statutory tax rates to
8 the budgeted total payroll expense.²²

9

10 **Q. DO YOU AGREE WITH PWSA’S PAYROLL TAX EXPENSE CLAIM?**

11 A. No.

12

13 **Q. WHAT DO YOU RECOMMEND FOR PAYROLL TAX EXPENSE?**

14 A. I recommend a FPFTY allowance of \$2,674,161 for payroll tax expense, or a
15 reduction of \$566,618 (\$3,240,779 - \$2,674,161) to PWSA’s claim. Additionally,
16 if the Commission decides to allow the multi-year rate plan, I recommend a FY
17 2025 allowance of \$2,878,987, or a decrease of \$522,562 (\$3,401,549 -
18 \$2,878,987), and a FY 2026 allowance of \$2,956,592, or a decrease of \$605,845
19 (\$3,562,437 - \$2,956,592).

²⁰ PWSA Second Revised FR-III.1 as filed 7.12.23.

²¹ I&E Exhibit No. 2, Schedule 3, p. 1.

²² I&E Exhibit No. 2, Schedule 8.

1 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

2 A. I recommend adjusting payroll tax expense to align with my payroll expense
3 adjustment. Since payroll taxes are calculated based on total payroll expense,
4 when total payroll expense decreases it is necessary to calculate a corresponding
5 decrease in payroll taxes. I calculated the adjustment by multiplying PWSA's total
6 payroll tax rate by the amount of my payroll expense deduction for each projected
7 year as shown in the table below:

PAYROLL TAX:	FPFTY	FY2025	FY2026
FICA and Medicare taxes	\$ 3,203,679	\$ 3,362,223	\$ 3,520,751
Unemployment taxes	\$ 37,100	\$ 39,326	\$ 41,686
Total PWSA Payroll Tax Claim	\$ 3,240,779	\$ 3,401,549	\$ 3,562,437
Payroll Tax Rate	7.73%	7.73%	7.71%
IE Payroll Expense Adjustment	\$ (7,331,464)	\$ (6,760,737)	\$ (7,861,451)
Payroll Tax Adjustment	\$ (566,618)	\$ (522,562)	\$ (605,845)

8
9

10 **RETIREMENT BENEFITS EXPENSE**

11 **Q. WHAT IS PWSA'S CLAIM FOR RETIREMENT BENEFITS?**

12 A. PWSA is claiming retirement benefits of \$899,208 in the FPFTY,²³ \$895,514 in
13 FY 2025, and \$934,399 in FY 2026.²⁴

14

15 **Q. WHAT IS THE BASIS FOR PWSA'S CLAIM?**

16 A. According to PWSA's response to I&E-RE-26-D, the FTY is based on historical

²³ PWSA Second Revised FR-III.1 as filed 7.12.23.

²⁴ I&E Exhibit No. 2, Schedule 3, p. 1.

1 actuals, while the FPFTY, FY 2025, and FY 2026 are based on a 4% inflationary
2 factor.²⁵

3
4 **Q. DO YOU AGREE WITH PWSA'S RETIREMENT BENEFITS CLAIM?**

5 A. No.

6
7 **Q. WHAT DO YOU RECOMMEND FOR RETIREMENT BENEFITS
8 EXPENSE?**

9 A. I recommend an allowance of \$516,671 in the FPFTY, or a reduction of \$382,537
10 (\$899,208 - \$516,671). Additionally, if the Commission decides to allow the
11 multi-year rate plan, I recommend a FY 2025 allowance of \$556,189, or a decrease
12 of \$339,325 (\$895,514 - \$556,189), and a FY 2026 allowance of \$572,874, or a
13 decrease of \$361,525 (\$934,399 - \$572,874).

14
15 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

16 A. My recommendation is based on PWSA's response to I&E-RE-47 containing year-
17 to-date actuals through June 2023.²⁶ Because six out of twelve months in the FTY
18 are known, I calculated the FTY allowance by extrapolating the year-to-date
19 amount through the end of the year $[(\$232,332/6) \times 12 = \$464,664]$. I then applied

²⁵ I&E Exhibit No. 2, Schedule 9.

²⁶ I&E Exhibit No. 2, Schedule 10, p. 1.

1 a percentage increase year over year in line with the increase in the I&E adjusted
 2 total payroll as shown below:

	FTY	FPFTY	FY2025	FY2026
Average Employee Payroll:				
IE Adjusted Total Payroll	\$ 31,118,062	\$ 34,600,930	\$ 37,247,367	\$ 38,364,788
Year over Year change	6%	11%	8%	3%
RETIREMENT BENEFITS:				
PWSA Claim	\$ 862,000	\$ 899,208	\$ 895,514	\$ 934,399
Allowance	\$ 464,664	\$ 516,671	\$ 556,189	\$ 572,874
Adjustment		\$ (382,537)	\$ (339,325)	\$ (361,525)

3
 4
 5 **Q. HOW IS SUCH A SIGNIFICANT ADJUSTMENT APPROPRIATE FOR**
 6 **RETIREMENT BENEFITS?**

7 A. It should be noted that historic expenses are much less than the future year claim
 8 amounts. For example, in 2020, 2021, and 2022, PWSA’s actual retirement
 9 benefits expenses were \$90,138, \$89,797, and \$313,439.²⁷ My recommended
 10 allowance amount for the FPFTY is more in line with this actual experience, even
 11 though it is higher than all three of these historic amounts. The Authority’s large
 12 increases in the future years is not properly supported and should be rejected.

13
 14 **OPERATING CONTRACTS EXPENSE**

15 **Operating Contracts Other**

16 **Q. WHAT IS PWSA’S CLAIM FOR OPERATING CONTRACTS OTHER?**

17 A. PWSA’s claim for operating contracts other is \$8,866,242 in the FPFTY,²⁸

²⁷ I&E Exhibit No. 2, Schedule 3, p. 1.

²⁸ PWSA Second Revised FR-III.1 as filed 7.12.23.

1 \$11,198,217 in FY 2025, and \$14,210,110 in FY 2026.²⁹

2

3 **Q. WHAT IS THE BASIS FOR PWSA'S CLAIM?**

4 A. According to the response to I&E-RE-33-D, PWSA's claim for operating contracts
5 other primarily includes contracts for work such as reservoir cleaning and tank
6 cleaning, but the largest driver of the increase in this account is directly related to
7 anticipated work resulting from PWSA's Wet Weather Consent Decree
8 (\$7,500,000 in the FPFTY, \$9,750,000 in FY 2025, and \$12,675,000 in FY
9 2026).³⁰

10

11 **Q. DO YOU AGREE WITH PWSA'S CLAIM?**

12 A. No.

13

14 **Q. WHAT DO YOU RECOMMEND FOR OPERATING CONTRACTS
15 OTHER?**

16 A. I recommend a FPFTY allowance of \$1,366,242 for operating contracts other or a
17 reduction of \$7,500,000 (\$8,866,242 - \$1,366,242). If the Commission decides to
18 allow a multi-year rate plan, I recommend a FY 2025 allowance of \$1,448,217 or a
19 reduction of \$9,750,000 (\$11,198,217 - \$1,448,217) and a FY 2026 allowance of

²⁹ I&E Exhibit No. 2, Schedule 3, p. 3.

³⁰ I&E Exhibit No. 2, Schedule 11, p. 2.

1 \$1,535,110 or a reduction of \$12,675,000 (\$14,210,110 - \$1,535,110) to PWSA's
2 claim.

3
4 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

5 A. My recommendation is based on disallowance of the entire amount for the Wet
6 Weather Consent Decree, or a reduction of \$7,500,000 in the FPFTY, \$9,750,000
7 in FY 2025, and \$12,675,000 in FY 2026 due to the speculative nature of PWSA's
8 claim related to the Wet Weather Consent Decree. As discussed in PWSA witness
9 Edward Barca's testimony, the Decree is not yet finalized and is not expected to be
10 finalized until 2024.³¹ Additionally, the Authority has not provided a breakdown
11 of claimed expenses, relevant calculations, or any other supporting documentation
12 to substantiate its claims relating to the Decree. Due to this lack of support, I
13 recommend disallowance of the entire amount.

14
15 **Drag Bucket**

16 **Q. WHAT IS PWSA'S CLAIM FOR DRAG BUCKET EXPENSE?**

17 A. PWSA is claiming drag bucket expenses of \$780,372 in the FPFTY.³² No amounts
18 were claimed for FY 2025 or FY 2026.³³

³¹ PWSA Statement No. 2, p. 16.

³² PWSA Second Revised FR-III.1 as filed 7.12.23.

³³ I&E Exhibit No. 2, Schedule 3, p. 3.

1 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

2 A. In PWSA’s response to I&E-RE-46, the Authority states that there are no budgeted
3 expenses for this account included in the FTY or FPFTY.³⁴ However, PWSA
4 appears to have based the FPFTY expense on a 6% inflation rate over the FTY
5 amount of \$736,200. Let it be noted that the HTY expense was \$1,867 as shown
6 below:

	Drag Bucket
HTY	\$ 1,867
FTY	\$ 736,200
FPFTY	\$ 780,372

7
8
9 **Q. DO YOU AGREE WITH THE AUTHORITY’S CLAIM?**

10 A. No.

11

12 **Q. WHAT DO YOU RECOMMEND FOR DRAG BUCKET EXPENSE?**

13 A. I recommend disallowance of the entire amount of \$780,372.

14

15 **Q. WHAT IS THE BASIS FOR THIS RECOMMENDATION?**

16 A. Despite its claims in response to I&E-RE-46, the Authority’s most recent revision
17 to FR-III.1 includes this amount in the FPFTY. Although I suspect the Authority
18 may have been looking at a previous version when compiling this response,

³⁴ I&E Exhibit No. 2, Schedule 12.

1 PWSA failed to provide adequate support for this claim. Therefore, I recommend
2 disallowance of the entire claim.

3

4 **Line Televising**

5 **Q. WHAT IS PWSA’S CLAIM FOR LINE TELEVISIONING EXPENSE?**

6 A. PWSA is claiming line televising expenses of \$763,995 in the FPFTY.³⁵ No
7 amounts were claimed for FY 2025 or FY 2026.³⁶

8

9 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

10 A. In PWSA’s response to I&E-RE-46, the Authority states that there are no budgeted
11 expenses for this account included in the FTY or FPFTY.³⁷ However, PWSA
12 appears to have based the FPFTY expense on a 6% inflation rate over the FTY
13 amount of \$720,750. It should be noted that the HTY expense was zero as shown
14 below:

	Line Televising
HTY	\$ -
FTY	\$ 720,750
FPFTY	\$ 763,995

15

16

17 **Q. DO YOU AGREE WITH THE AUTHORITY’S CLAIM?**

18 A. No.

³⁵ PWSA Second Revised FR-III.1 as filed 7.12.23.

³⁶ I&E Exhibit No. 2, Schedule 3, p. 3.

³⁷ I&E Exhibit No. 2, Schedule 12.

1 **Q. WHAT DO YOU RECOMMEND FOR LINE TELEVISIONING EXPENSE?**

2 A. I recommend disallowance of the entire amount of \$763,995.

3

4 **Q. WHAT IS THE BASIS FOR THIS RECOMMENDATION?**

5 A. Despite its claims in response to I&E-RE-46, the Authority's most recent revision
6 to FR-III.1 includes this amount in the FPPTY. Although I suspect the Authority
7 may have been looking at a previous version when compiling this response,
8 PWSA failed to provide adequate support for this claim. Therefore, I recommend
9 disallowance of the entire claim.

10

11 **OFFICE RENT EXPENSE**

12 **Q. WHAT IS PWSA'S CLAIM FOR OFFICE RENT?**

13 A. PWSA is claiming office rent expense of \$1,975,659 in the FPPTY,³⁸ \$2,094,199
14 in FY 2025, and \$2,219,851 in FY 2026.³⁹

15

16 **Q. WHAT IS THE BASIS FOR PWSA'S CLAIM?**

17 A. Per its response to I&E-RE-36-D and I&E-RE-13-D, the projected increase in
18 office rent is based on leasing expenses for an anticipated new PWSA
19 headquarters location.⁴⁰

³⁸ PWSA Second Revised FR-III.1 as filed 7.12.23.

³⁹ I&E Exhibit No. 2, Schedule 3, p. 5.

⁴⁰ I&E Exhibit No. 2, Schedule 13.

1 **Q. DO YOU AGREE WITH PWSA’S CLAIM?**

2 A. No.

3

4 **Q. WHAT DO YOU RECOMMEND FOR OFFICE RENT EXPENSE?**

5 A. I recommend an allowance of \$916,176, or a reduction of \$1,059,483 (\$1,975,659
6 - \$916,176) for office rent expense. If the Commission decides to allow the multi-
7 year rate increase, I recommend this allowance remain the same in FY 2025 and
8 FY 2026, which results in a FY 2025 reduction of \$1,178,023 (\$2,094,199 -
9 \$916,176) and a FY 2026 reduction of \$1,303,675 (\$2,219,851 - \$916,176) to
10 PWSA’s claim.

11

12 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

13 A. As stated above, because PWSA intends to move its headquarters location, the
14 Authority claimed an increase in its FPFTY office rent claim. While I accept that
15 PWSA may need more space to accommodate an increase in headcount, the
16 Authority has not provided any supporting documentation (timing, location,
17 square footage, price per square foot, new lease, etc.) in its response to data
18 requests regarding this increase.

19 Therefore, to remove the unsupported and speculative rent expense for the
20 new headquarters, I recommend using a three-year average of actual office rental

1 expense to calculate the FPFTY allowance of \$916,176 as shown below:

Office Rent	
2020	\$ 971,698
2021	\$ 866,472
2022	\$ 910,359
	\$ 2,748,529
Average	\$ 916,176

2

3

4 **LEGAL EXPENSE**

5 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR LEGAL EXPENSE?**

6 A. The Authority’s claim for legal expense includes legal costs for regulatory
7 compliance, legal services, and rate case expenses.⁴¹

8

9 **Q. WHAT IS PWSA’S CLAIM FOR LEGAL EXPENSE?**

10 A. PWSA is claiming legal expense of \$2,251,857 in the FPFTY,⁴² \$2,386,968 in FY
11 2025, and \$2,530,187 in FY 2026.⁴³

12

13 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

14 A. PWSA projects an increase in legal expense in the FTY, FPFTY, FY 2025 and FY
15 2026 due to regulatory compliance, rate case expenses, and inflation for legal
16 services as briefly described in PWSA’s response to I&E-RE-37-D.⁴⁴

⁴¹ I&E Exhibit No. 2, Schedule 14, p. 2.

⁴² PWSA Second Revised FR-III.1 as filed 7.12.23.

⁴³ I&E Exhibit No. 2, Schedule 3, p. 5.

⁴⁴ I&E Exhibit No. 2, Schedule 14, p. 2.

1 **Q. YOU MENTION THAT RATE CASE EXPENSE IS INCLUDED IN LEGAL**
2 **EXPENSE. IS THE ENTIRE RATE CASE EXPENSE REPRESENTED**
3 **WITHIN LEGAL EXPENSE?**

4 A. No. In its response to I&E-RE-2-D, the Authority has identified two accounts that
5 contain rate case related expenses: legal (7370) and consultants (7323).⁴⁵
6

7 **Q. IS IT APPROPRIATE FOR THE AUTHORITY TO INCLUDE RATE CASE**
8 **EXPENSE IN THESE ACCOUNTS RATHER THAN TRACKING IT**
9 **SEPARATELY?**

10 A. No. There is a lack of transparency surrounding rate case expense when the
11 Authority embeds the expense within accounts containing non rate case related
12 expenses. Additionally, PWSA combines rate case expense with DISC expense in
13 much of its reporting. This lack of transparency seems to be the cause of
14 discrepancies in the data provided by PWSA between the filing requirements in
15 Volume I of the filing, the testimony in Volume II of the filing, and PWSA's
16 response to I&E-RE-2-D. In Volume I, PWSA combines rate case expense with
17 DSIC expense for a total of \$2,565,895 claimed in the FPFTY.⁴⁶ However, in
18 response to I&E-RE-2-D (part D), PWSA claims only \$495,000 to be related to
19 rate case and \$55,000 related to DSIC expense for a total of \$550,000 in the
20 FPFTY.⁴⁷ Furthermore, Mr. Barca's testimony states that the Authority has

⁴⁵ I&E Exhibit No. 2, Schedule 15, p. 2.

⁴⁶ PWSA filing, FR-III.4.

⁴⁷ I&E Exhibit No. 2, Schedule 15, p. 2.

1 budgeted approximately \$1.5 million for this rate case in the FPFTY and proposes
2 to include this entire amount in its revenue requirement rather than normalizing
3 the expense over a period of time.⁴⁸

4
5 **Q. DO YOU AGREE WITH MR. BARCA’S ASSERTION THAT PWSA**
6 **SHOULD BE ABLE TO CLAIM THE ENTIRE RATE CASE EXPENSE IN**
7 **ITS REVENUE REQUIREMENT?**

8 A. No. Mr. Barca states that as a cash flow regulated municipal utility, PWSA
9 reflects costs that it actually incurs in a year and that collecting those costs in rates
10 over two or three years is not reasonable. He further states that PWSA has been
11 involved in rate-related activity on an annual basis since coming under the
12 jurisdiction of the Commission.⁴⁹ However, Mr. Barca’s assertions that PWSA
13 should be entitled to collect the full rate case expense in the year it is actually
14 incurred, and his contention that it is involved in rate-related activity on an annual
15 basis are not supported by the Authority’s historic rate case filing frequency as
16 shown below:

	Filing Date	Months	Average
R-2023-3039920 (W), 3039921 (WW), 3039919 (SW)	5/9/2023	25	19.33
R-2021-3024773 (W), 3024774 (WW), 3024779 (SW)	4/13/2021	13	
R-2020-3017951 (W), 3017970 (WW)	3/6/2020	20	
R-2018-3002645 (W), 3002647 (WW)	7/2/2018		

17

⁴⁸ PWSA Statement No. 2, pp. 18-19.

⁴⁹ PWSA Statement No. 2, pp. 18-19.

1 Additionally, in response to I&E-RE-2-D (Part H), PWSA states that the
2 timing of its next base rate case filing is yet to be determined.⁵⁰ If PWSA is
3 allowed to include the full rate case expense in the FPFTY, it would continue to
4 collect the full cost of its current rate case filing in rates each year, regardless of
5 how many years may pass until the next rate case filing.

6
7 **Q. DO YOU PROPOSE AN ADJUSTMENT TO RATE CASE EXPENSE?**

8 A. Due to the discrepancies in the data, I am unable to make an adjustment at this
9 time. However, I do recommend that PWSA be required in all future rate case
10 proceedings to account for rate case expense in a separate account to provide the
11 needed transparency around this expense and to establish an appropriate
12 normalized expense for prospective recovery of future rate case activities.

13
14 **Q. IS THERE ANYTHING ELSE INCLUDED IN LEGAL EXPENSE THAT IS**
15 **NOT APPROPRIATE?**

16 A. Yes. PWSA has included some lobbying expenses.

17
18 **Q. WHAT ARE LOBBYING EXPENSES?**

19 A. Lobbying expenses include the cost for services to influence government or
20 legislation in matters that affect a company or industry.

⁵⁰ Exhibit No. 2, Schedule 15, p. 3.

1 **Q. WHAT AMOUNT DID PWSA CLAIM IN LEGAL EXPENSE**
2 **ATTRIBUTED TO LOBBYING?**

3 A. As identified in PWSA’s response to I&E-RE-14-D, the Authority is claiming
4 lobbying expense of \$98,262 in the FPPTY, \$104,158 in FY 2025, and \$110,407
5 in FY 2026, as budgeted in the legal expense account.⁵¹

6
7 **Q. DO YOU AGREE WITH PWSA’S CLAIM FOR LEGAL EXPENSE?**

8 A. No.

9
10 **Q. WHAT DO YOU RECOMMEND FOR LEGAL EXPENSE?**

11 A. I recommend an allowance of \$2,153,595, or a reduction of \$98,262 (\$2,251,857 -
12 \$98,262) in the FPPTY. If the Commission decides to allow the multi-year rate
13 increase, I recommend a FY 2025 allowance of \$2,282,810, or a reduction of
14 \$104,158 (\$2,386,968 - \$2,282,810), and a FY 2026 allowance of \$2,419,780, or a
15 reduction of \$110,407 (\$2,530,187 - \$2,419,780), to PWSA’s claim.

16
17 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

18 A. In response to I&E-RE-14-D, PWSA identifies the work of Saxton & Stump as
19 lobbying expense. I am advised by counsel that no public utility may charge to its
20 consumers, as a permissible operating expense for ratemaking purposes, any direct

⁵¹ I&E Exhibit No. 2, Schedule 16.

1 or indirect expenditure by the utility for political advertising.⁵² Political
2 advertising includes money spent for lobbying unless it is spent for appearances
3 before regulatory or other governmental bodies in connection with a public
4 utility's existing or proposed operations.⁵³ PWSA is not exempt from this rule
5 based on its municipal status. Although Mr. Barca points out that this work results
6 in benefits for ratepayers, lobbying expenses are not necessary for the utility to
7 provide safe and reliable service, and therefore, should not be funded by
8 ratepayers. Thus, I recommend disallowance of the entire amount of lobbying
9 expense.

11 **EQUIPMENT EXPENSE**

12 **Q. WHAT IS INCLUDED IN PWSA'S CLAIM FOR EQUIPMENT?**

13 A. PWSA's claim for equipment includes computers and peripherals, computer
14 networking, furniture and fixtures, laboratory equipment, machinery, and vehicles
15 as shown in the breakdown provided in the filing.⁵⁴

17 **Q. WHAT IS PWSA'S CLAIM FOR EQUIPMENT?**

18 A. PWSA is claiming equipment expense of \$3,411,233 in the FPFTY,⁵⁵ \$3,552,424
19 in FY 2025, and \$3,765,569 in FY 2026.⁵⁶

⁵² 66 Pa. C. S. § 1316.

⁵³ 66 Pa. C. S. § 1316(d).

⁵⁴ PWSA filing, FPFTY 2024 Cost of Service and Rate Design, FR-III.1.

⁵⁵ PWSA Second Revised FR-III.1 as filed 7.12.23.

⁵⁶ I&E Exhibit No. 2, Schedule 3, p. 2.

1 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

2 A. Since PWSA's revenue requirement calculation is based on the cash flow
3 method,⁵⁷ PWSA reports and claims the entire equipment cost in its operating
4 expenses in the year in which the expense is occurred or projected to be incurred.

5
6 **Q. DO YOU AGREE WITH PWSA’S CLAIM?**

7 A. No.

8
9 **Q. WHAT DO YOU RECOMMEND FOR EQUIPMENT?**

10 A. I recommend an allowance of \$1,210,116 for equipment in the FPFTY, or a
11 reduction of \$2,201,117 (\$3,411,233 - \$1,210,116) to PWSA’s claim. If the
12 Commission decides to allow the multi-year rate increase, I recommend the
13 continued allowance of \$1,210,116 in FY 2025, or a reduction of \$2,342,308
14 (\$3,552,424 - \$1,210,116), and FY 2026, or a reduction of \$2,555,453 (\$3,765,569
15 - \$1,210,116), to PWSA’s claim.

16
17 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

18 A. My recommendation is based on annualizing the cost of certain equipment over
19 the useful service life of the respective equipment as shown in the table below:

⁵⁷ PWSA Statement No. 2, pp. 5-7.

	PWSA Claim	Useful Life	Allowable Expense	Adjustment
Computer & Peripherals	\$ 290,691	3	\$ 96,897	\$ (193,794)
Lab Equip	\$ 106,000	3	\$ 35,333	\$ (70,667)
Machinery	\$ 352,980	5	\$ 70,596	\$ (282,384)
Vehicles	\$ 2,067,840	5	\$ 413,568	\$ (1,654,272)
	\$ 2,817,511		\$ 616,394	\$ (2,201,117)
Total Equipment	\$ 3,411,233		\$ 1,210,116	\$ (2,201,117)

1
2 The equipment's useful life was provided by PWSA in response to I&E-
3 RE-31-D,⁵⁸ and to keep my adjustment reasonable, I have used the lower end of
4 the useful life range for each type of equipment. Due to the speculative nature of
5 the increases to the claims in FY 2025 and FY 2026, I recommend keeping the
6 expense flat in these years if the Commission allows a multi-year rate increase.

7
8 **Q. EXPLAIN WHY YOU RECOMMEND ANNUALIZING THE EQUIPMENT**
9 **COSTS.**

10 A. Equipment is typically categorized as a capital expenditure because it is useful for
11 providing service for a period longer than one year (beyond the FPFTY) and is not
12 consumable or perishable. Such costs are one-time expenditures and generally
13 non-recurring in nature during the normal useful life span of the equipment.
14 Therefore, including the full cost of equipment in the FPFTY unreasonably
15 burdens ratepayers since the benefits of the equipment will continue to be
16 experienced during the useful life of the equipment, a period longer than the

⁵⁸ I&E Exhibit No. 2, Schedule 17.

1 FPPTY, and the cost of replacing that equipment in its entirety continues to be
2 embedded in rates each year using PWSA's method.

3 Furthermore, had the equipment been acquired by leasing, the lease
4 payments would have spread over more than one year. Thus, spreading the cost of
5 the equipment over its normal useful life is more appropriate and moderates the
6 cost impact in rates, while still providing an ongoing funding source for future
7 replacements.

8
9 **COVID-19 EXPENSE**

10 **Q. WHAT IS INCLUDED IN PWSA'S CLAIM FOR COVID-19 EXPENSE?**

11 A. In PWSA Statement No. 2, Mr. Barca states that the majority of this claim was
12 used to pay for personal protection equipment during the pandemic, specifically
13 between March 2020 and March 2021.⁵⁹

14
15 **Q. WHAT IS PWSA'S CLAIM FOR COVID-19 EXPENSE?**

16 A. PWSA is claiming \$263,215 for COVID-19 expenses in the FPPTY.⁶⁰ The entire
17 amount is proposed for recovery in the FPPTY.

18
19 **Q. HAS PWSA PREVIOUSLY ATTEMPTED TO RECOVER THESE COSTS?**

20 A. No. Consistent with the settlement of PWSA's most recent rate case in 2021, the

⁵⁹ PWSA Statement No. 2, p. 19.

⁶⁰ PWSA Statement No. 2, p. 19.

1 claim was deferred in that case and is now being included in the instant
2 proceeding.⁶¹

3

4 **Q. HAS PWSA RECEIVED ANY EXTERNAL FUNDING FOR COVID-19**
5 **RELATED EXPENSES?**

6 A. Yes. The Authority received a COVID-related grant from the City of Pittsburgh in
7 the amount of \$17.5 million as part of the American Rescue Plan. However, the
8 total amount of this funding was specified toward lead service line replacements.⁶²

9

10 **Q. DO YOU AGREE WITH PWSA’S CLAIM FOR COVID-19 EXPENSE?**

11 A. No.

12

13 **Q. WHAT DO YOU RECOMMEND FOR COVID-19 EXPENSE?**

14 A. I recommend an allowance of \$166,241, or a reduction of \$96,974 (\$263,215 -
15 \$166,241) in the FPPTY. If the Commission allows the multi-year rate increase, I
16 recommend an allowance of the remaining balance of \$96,974 in FY 2025 and
17 zero in FY 2026 as the amount will have been fully amortized in FY 2025.

18

19 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

20 A. My recommendation is based on amortization of the full amount over a period

⁶¹ PWSA Statement No. 2, p. 19.

⁶² PWSA Statement No. 2, p. 20.

1 consistent with the Authority’s rate case filing frequency. Based on the timing of
 2 the current proceeding and the previous three rate cases, I have calculated a 19-
 3 month average filing frequency, as shown below:

	Filing Date	Months	Average
R-2023-3039920 (W), 3039921 (WW), 3039919 (SW)	5/9/2023	25	19.33
R-2021-3024773 (W), 3024774 (WW), 3024779 (SW)	4/13/2021	13	
R-2020-3017951 (W), 3017970 (WW)	3/6/2020	20	
R-2018-3002645 (W), 3002647 (WW)	7/2/2018		

4
 5 Amortization allows for full recovery of the expense no matter when a
 6 utility makes a subsequent base rate case filing. If PWSA is permitted to recover
 7 the full amount in the FPFTY, assuming the multi-year rate plan is not allowed,
 8 this would result in over-recovery of the expense if the Authority does not file
 9 another rate case in one year. Therefore, I recommend PWSA be required to
 10 amortize the expense over 19 months, resulting in a FPFTY allowance of
 11 \$166,241 [(\$263,215/19 months) x 12 months], or a reduction of \$96,974
 12 (\$263,215 - \$166,241).
 13

14 **CUSTOMER ASSISTANCE CHARGE**

15 **Q. PLEASE SUMMARIZE PWSA’S PROPOSED CUSTOMER ASSISTANCE**
 16 **CHARGE.**

17 A. PWSA proposes to implement a Customer Assistance Charge (CAC) beginning in
 18 FY 2025. The CAC would recover discounts provided to customers pursuant to
 19 the Bill Discount Program, operating costs for the PGH2O Cares team, the costs of
 20 PWSA’s Hardship Funding, and past due arrearages forgiven pursuant to PWSA’s

1 Arrearage Forgiveness Program. The charge would be calculated separately but
2 combined with other charges on customer bills. PWSA proposes to reconcile the
3 charge on a semi-annual basis.⁶³

4
5 **Q. WHAT IS THE BASIS FOR PWSA’S PROPOSAL?**

6 A. PWSA states that its cost projections will likely be inaccurate, leading to under-
7 recovery of customer assistance program costs and operations. PWSA witness
8 Julie Mechling further states that the CAC would be a way to avoid either under-
9 recovery or over-recovery, as well as provide greater transparency into the costs
10 ratepayers are recovering.⁶⁴

11
12 **Q. DO YOU AGREE WITH PWSA’S PROPOSAL TO IMPLEMENT A CAC**
13 **BEGINNING IN FY 2025?**

14 A. No. This proposed surcharge is problematic for several reasons. First, while I
15 agree that the cost projections for PWSA’s customer assistance programs will
16 likely prove inaccurate, I disagree that a CAC is the best way to combat this issue.
17 If the Commission agrees with my recommended disallowance of any multi-year
18 rate increases, PWSA would need to file another rate case in order to attempt to
19 implement any such surcharge in the future.

⁶³ PWSA Statement No. 2, pp. 49-50.

⁶⁴ PWSA Statement No. 6, pp. 27-32.

1 Second, although PWSA asserts the surcharge will create greater
2 transparency into the associated costs, it appears to do the opposite. Since the
3 CAC is proposed to be combined with other charges on customer bills, ratepayers
4 will not see the underlying charges and what they represent.

5 Additionally, regarding Commission oversight, the proposed reconciliation
6 of this surcharge would be completed outside the parameters of a base rate case,
7 disrupting the ability of the Commission to review the data in the context of the
8 total impact to ratepayers and with respect to other expenses that may be
9 increasing or decreasing between rate cases, which constitutes single-issue
10 ratemaking. While the witnesses allude to the surcharge having the ability to
11 refund overcharges for expenses above what is included in base rates, it is
12 apparent from Mr. Barca's testimony that the anticipation is that customer
13 assistance costs will continue to increase. With the implementation of this charge
14 not proposed before FY 2025, the expectation is that this charge will simply serve
15 as an opportunity to add new revenues between base rate cases, which further
16 supports my contention that this charge represents single-issue ratemaking and
17 should be rejected. Furthermore, Mr. Barca states in his testimony that PWSA
18 plans to reconcile the charge on a semi-annual basis,⁶⁵ but Ms. Mechling's
19 testimony contradicts that statement, asserting that PWSA proposes to adjust the

⁶⁵ PWSA Statement No. 2, pp. 49-50.

1 CAC on a semi-annual basis but reconcile annually.⁶⁶ This contradiction results in
2 a lack of clarity surrounding the proposed surcharge.

3 Due to the above reasons, I recommend that the implementation of the
4 proposed CAC in FY 2025 be disallowed.

5
6 **Q. ARE THERE OTHER COMMISSION DECISIONS FOR**
7 **WATER/WASTEWATER UTILITIES WHERE THE COMMISSION**
8 **DISAGREED WITH RECONCILABLE RECOVERY OUTSIDE OF BASE**
9 **RATES FOR SUCH A PROGRAM?**

10 A. Yes. In the 2021 Aqua Pennsylvania, Inc. (Aqua) base rate case, the Commission
11 required Aqua to recover such costs via base rates.⁶⁷ In its May 2022 Order, the
12 Commission noted “that the use of a Section 1307(a) reconcilable rider ... is the
13 exception, rather than the rule ...” and “how few times the use of this mechanism
14 has been either legislatively mandated ... or directed by the Commission ...”⁶⁸
15 The Commission agreed with the OCA that “Section 1307(a) of the Code does not
16 authorize the Commission to approve surcharges other than in limited
17 circumstances.”⁶⁹ Specifically, the Commission noted in the May 2022 Order that
18 similar energy riders “that were approved under legislative mandate for the
19 Peoples Companies and other energy companies are not appropriate models upon

⁶⁶ PWSA Statement No. 6, p. 28.

⁶⁷ *Pa. PUC v. Aqua Pennsylvania, Inc.*, Docket Nos. R-2021-3027385 & R-2021-3027386, pp. 311-320 (Order entered May 16, 2022) (May 2022 Aqua Order).

⁶⁸ May 2022 Aqua Order, p. 314.

⁶⁹ May 2022 Aqua Order, p. 314.

1 which to base the cost recovery for Aqua’s low-income water programs because
2 there has been no legislative carve-out for water companies such as that which
3 exist for energy companies.”⁷⁰

4
5 **Q. DO YOU BELIEVE SINCE PWSA IS A CASH FLOW FILER FOR**
6 **RATEMAKING PURPOSES THAT RECONCILABLE RECOVERY IS**
7 **APPROPRIATE FOR THE PROPOSED CAC?**

8 A. No. PWSA has presented no convincing rationale for such treatment. And in
9 contradiction to Aqua’s proposal, PWSA does not propose to keep all program
10 costs within the rider but, instead, to use it to adjust for over or under recoveries of
11 the amount included in base rates. As previously discussed, this lacks
12 transparency and represents single-issue ratemaking.

13
14 **Q. IF THE COMMISSION DECIDES TO ALLOW SUCH RECONCILABLE**
15 **RECOVERY, DO YOU HAVE ANY RECOMMENDATIONS?**

16 A. Yes. If the Commission decides to grant permission to use such treatment in this
17 proceeding, PWSA should be required to identify and deduct any related amounts
18 from base rates and include all customer assistance costs within the rider in the
19 manner that the universal service riders operate for energy companies and as was

⁷⁰ May 2022 Aqua Order, pp. 314-315.

1 proposed by Aqua. Further, it should not be combined with any other charge so
2 that transparency and Commission oversight can be maintained.

3

4 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A. Yes.

Vanessa Okum

Professional and Educational Background

Experience:

Pennsylvania Public Utility Commission, Harrisburg, Pennsylvania

June 2022 – Present

Fixed Utility Financial Analyst, Bureau of Investigation and Enforcement

Magnolia Realty Services, Elizabethville, Pennsylvania

February 2016 – Present

Realtor

May 2015 – May 2019

Business Manager

The Vanguard Group, Malvern, Pennsylvania

October 2011 – December 2014

Financial Administrator, Corporate Financial Services

March 2010 – October 2011

Financial Analyst, Fund Financial Services

June 2008 – March 2010

Financial Associate, Fund Financial Services

Education/Professional Development:

University of Massachusetts – Amherst, Amherst, Massachusetts, 2012

Master of Business Administration

Elizabethtown College, Elizabethtown, Pennsylvania, 2008

Bachelor of Science in International Business

Concentration in Finance

Testimony Submitted:

I have submitted testimony in the following proceedings:

R-2023-3037428 – National Fuel Gas Distribution Corporation (1307(f))

R-2022-3037368 – UGI Utilities, Inc. – Electric Division

I have assisted with testimony in the following proceedings:

R-2022-3031704 – Borough of Ambler Water Department

R-2022-3032764 – Leatherstocking Gas Company, LLC

**I&E Exhibit No. 2
Witness: Vanessa Okum**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2023-3039919, R-2023-3039920 & R-2023-3039921

Exhibit to Accompany

the

Direct Testimony

of

Vanessa Okum

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

	FY 2020 Budget	FY 2020 Actual	Variance	Explanation
4001 Salary Wages	23,010,054	18,617,022	-19%	Did not meet hiring projections
4005 OT Premium Pay	1,209,668	1,571,406	30%	Did not meet hiring projections
4010 Shift Differential	10,027	7,028	-30%	Based on scheduling
4015 Semi Skill	8,636	2,741	-68%	Based on scheduling
4020 Pay Adjustments	-	-	0%	
4025 Bonus	2,907	-	-100%	Did not pay any bonuses
4030 Holiday Pay	906,407	915,618	1%	
4035 Vacation Pay	1,335,923	1,279,163	-4%	
4040 Other	3,186	-	-100%	Was not needed for salary adjustments
4045 Sick Pay	33,161	27,431	-17%	Did not meet hiring projections
4050 Personal Time Pay	695,059	630,179	-9%	
4055 Comp Time Taken	10,988	-	-100%	No comp time was taken
4060 Comp Time Earned	-	-	0%	
4065 Jury Duty	2,036	819	-60%	Less Jury Duty expense than expected
4070 Military Leave	3,519	792	-77%	Less Military Leave expense than expected
4075 Supper Pay	32,488	20,104	-38%	Less Supper Pay expense than expected
4080 Bereavement	26,403	24,901	-6%	
4081 Paid Parental Leave	3,433	17,939	423%	More paid parental leave than expected
4085 Special	81,217	76,630	-6%	
4090 Admin Leave	316	955,265	302429%	Unexpected COVID-19 expense
4095 Severence	-	3,600	100%	No severences were paid
4110 Fed Ins Contr Act Tx	1,512,476	1,453,301	-4%	
4115 Medicare	336,760	346,428	3%	
4120 Fed Unemploy Tax	-	-	0%	
4125 State Unemploy Tax	50,000	10,670	-79%	Did not meet hiring projections
4130 Workers Comp Insur	-	-	0%	
4135 Med Health Ins	4,201,084	4,210,424	0%	
4140 Med Hlth Ins Waiver	78,368	72,359	-8%	
4145 Short Term Disability	169,249	226,692	34%	More cases than expected
4150 Long Term Disability	55,862	27,775	-50%	Less cases than expected
4155 Life Ins <50k	41,685	38,413	-8%	
4160 Accident Death Dismember	5,930	5,171	-13%	Did not meet hiring projections
4165 Dental Ins	147,853	151,738	3%	
4170 Vision Insur	17,033	15,287	-10%	Did not meet hiring projections
4174 Cust Serv Week	12,075	-	-100%	Was not used due to COVID-19
4175 Uniforms	223,227	155,684	-30%	Did not meet hiring projections
4180 Tuition Reimburse	223,289	64,196	-71%	Did not meet hiring projections
4185 Retirement Benefit	875	95,076	10772%	More retirement match contributions than expected
4195 Misc Benefits	(35,320)	(23,442)	-34%	Did not meet hiring projections
4199 Payroll Upload Except	2,886	(1,385)	-148%	Minor pay adjustment
5005 Alum	177,912	262,617	48%	Unanticipated increase
5010 Boiler Chemicals	13,104	37,852	189%	Unanticipated increase
5015 Calcium Hypochlorite	12,940	17,000	31%	Unanticipated increase
5020 Cat Floc TL	124,126	88,779	-28%	Reduction in use
5025 Caustic Soda	249,600	3,978	-98%	Unanticipated increase
5030 Chlorine Cylinders	-	-	0%	
5035 Chlorine Rail Car	-	-	0%	
5040 Citric Acid	39,245	9,920	-75%	MFP online
5045 Copper Sulphate	-	-	0%	
5050 Ferric Chloride	1,845,000	1,504,817	-18%	Reduction in use
5055 Hydrofluorosil Acid	165,132	150,933	-9%	
5060 Lime	1,080,000	529,609	-51%	Reduction in use
5065 Potassium Permanganate	480,480	125,776	-74%	Reduction in use
5070 Powdered Active Carbon	1,000,200	-	-100%	Offline for repairs
5075 Soda Ash	979,200	732,716	-25%	Reduction in use
5080 Sodium Hypochlorite	619,200	445,308	-28%	Reduction in use

IE-RE-19-D Attachment

5085 Sodium Carbonate Peroxyhy	27,600	16,480	-40%	Algae blooms
5120 Computer & Peripherals	351,034	337,329	-4%	
5125 Computers Networking	55,800	3,860	-93%	Majority booked to 5120
5140 Furniture Fixture	108,402	140,096	29%	Expanded office space
5145 Grounds Maint	134,700	143,863	7%	
5147 Lab Equip	216,830	96,553	-55%	Expenses deferred to FY 2021/2022 because of COVID-19
5150 Machinery	825,300	173,961	-79%	Expenses deferred to FY 2021/2022 because of COVID-19
5160 Office Equipment	38,200	37,070	-3%	
5170 Pumps & Motors	-	-	0%	
5180 SCADA Equipment	-	-	0%	
5190 Vehicles	-	577	100%	Unanticipated increase
5205 Asphalt Cold Patch	166,478	85,097	-49%	Did not use anticipated amount
5210 Asphalt Cold-City	-	-	0%	
5215 Asphalt Hot-City	-	-	0%	
5220 Asphalt Hotmix	12,600	-	-100%	
5225 Asphalt Patch Bit Sealer	-	-	0%	
5227 Brick	2,000	402	-80%	Did not use anticipated amount
5230 Cement Bagged	4,362	811	-81%	Did not use anticipated amount
5235 Gravel	21,314	-	-100%	Booked to 5260
5240 Iron Steel Brass	17,400	205	-99%	Did not use anticipated amount
5245 Lumber	28,000	26,047	-7%	
5250 Sand	12,000	2,658	-78%	Did not use anticipated amount
5255 Slag	378,000	338,716	-10%	Did not use anticipated amount
5260 Stone	-	-	0%	
5265 Top Soil	12,416	1,871	-85%	Did not use anticipated amount
5305 Annual Sewer Contract	4,325,000	8,056,519	86%	Due to emergency repairs
5310 Boiler Compressr Elevtr	-	-	0%	
5315 CB Cleaning	600,000	752,218	25%	More cleaning required than budgeted
5316 CB Repairs	-	-	0%	
5328 Curb Box Repair	120,000	-	-100%	Did not use anticipated amount
5330 Debris Removal	240,000	302,860	26%	Unanticipated increase
5335 Drag Bucket	-	-	0%	
5340 Dumpster	28,800	46,827	63%	Unanticipated increase
5341 Vactor Debris Remove Cont	112,000	154,930	38%	Unanticipated increase
5342 Emergency WaterLine Repair	3,066,917	5,365,542	75%	Due to emergency repairs
5343 Manhole & Point Repair Contract	-	-	0%	
5344 Pump & Motor Contract	-	-	0%	
5345 Inspection	-	(34,374)	0%	Inspection was allocated in 5347
5347 Inspection Field	1,598,917	1,424,101	-11%	Did not use anticipated amount
5348 Line Televising	-	-	0%	
5350 Key Lock Serv	1,300	1,230	-5%	
5355 Landscape (Grounds)	162,000	118,865	-27%	Unreliable vendor
5360 Meters	-	-	0%	
5370 Operating Contract Other	8,642,500	5,296,671	-39%	Did not use anticipated amount
5375 Radionuclides	-	-	0%	
5380 Intr-Gov Proj Panther Hollow	-	-	0%	
5383 Sewage Treatment	-	-	0%	
5385 Temporary Help	-	-	0%	
5390 Welding	2,000	15,500	675%	Unanticipated increase
5395 Water Relay DISC	-	-	0%	
5396 Sewer Relay DISC	-	-	0%	
5402 Annual Software Support	1,366,524	1,424,283	4%	
5405 Bldg Property Repairs	2,119,392	173,305	-92%	Expenses deferred to FY 2021/2022 because of COVID-19
5408 Computer Hardware	67,738	43,050	-36%	Did not use anticipated amount
5411 Computer Software Support	6,000	48,050	701%	Allocated to 7382
5413 Concrete Repairs	7,334,000	5,248,496	-28%	Expenses deferred to FY 2021/2022 because of COVID-19
5415 Cranes Repairs	65,000	40,971	-37%	Did not use anticipated amount

IE-RE-19-D Attachment

5417 Electrical Repairs	62,500	175,886	181%	Unanticipated increase
5420 Fence Repairs	136,000	42,175	-69%	Did not use anticipated amount
5422 Fence Installation	30,000	13,309	-56%	Did not use anticipated amount
5427 GIS Hardware Software	5,700	3,068	-46%	Did not use anticipated amount
5432 Hardware Repairs	-	-	0%	
5437 Heavy Equip Repair	20,000	32,326	62%	Unanticipated increase
5439 HVAC Plumbing	63,000	157,489	150%	Unanticipated increase
5444 Hydrant A Section	-	-	0%	
5445 Hydrant Misc Parts	-	-	0%	
5447 Hydrant Repair Parts	-	-	0%	
5452 Machinery Repairs	64,000	43,085	-33%	Did not use anticipated amount
5457 Office Equip Repairs	2,000	1,156	-42%	Did not use anticipated amount
5462 Plant Repairs	171,200	297,515	74%	Unanticipated increase
5467 Power Tool Repairs	5,000	1,736	-65%	Did not use anticipated amount
5472 Road Repair Plant	-	-	0%	
5475 Scanner	-	-	0%	
5482 Tool Repairs	4,000	983	-75%	Did not use anticipated amount
5484 Hand Tool Repairs	4,400	1,475	-66%	Did not use anticipated amount
5486 Misc Tool Repairs	2,000	779	-61%	Did not use anticipated amount
5488 CC TV Repairs	60,000	25,493	-58%	Did not use anticipated amount
5490 Vactor Repairs	12,000	17,358	45%	Unanticipated increase
5491 Vehicle Repairs	660,000	890,330	35%	Unanticipated increase
5496 Repair Maint Other	107,408	108,291	1%	
5570 Testing Misc	654,300	448,212	-31%	Did not meet anticipated scope amount
6015 Casting Manhole CBasin	154,569	33,882	-78%	Did not use anticipated amount
6025 Casting Risers Lids	170,193	8,481	-95%	Did not use anticipated amount
6035 Casting Sewer Inlet	6,234	15,068	142%	Unanticipated increase
6060 Casting Water Valve Box	422,873	130,605	-69%	Did not use anticipated amount
6115 Clarifier Part Flocc	-	-	0%	
6120 Clarifier Part Screw	-	-	0%	
6125 Clarifier Part Sludge	-	-	0%	
6200 Inventory-Equip	-	-	0%	
6220 Fire Extinguishers	4,200	-	-100%	Did not use anticipated amount
6245 Materials Handling	2,500	2,475	-1%	
6260 Safety Equipment	108,600	62,634	-42%	Did not use anticipated amount
6280 Vacuum Chlorinators	-	-	0%	
6300 Inventory-Hardware	15,300	11,554	-24%	Did not use anticipated amount
6315 Fittings	186,000	135,925	-27%	Did not use anticipated amount
6320 Hardware Other	2,000	-	-100%	Did not use anticipated amount
6325 Hose Fitting	14,400	8,331	-42%	Did not use anticipated amount
6330 Keys & Locks	-	-	0%	
6335 Lights	7,900	4,180	-47%	Did not use anticipated amount
6340 Machinery Misc	4,000	10,015	150%	Unanticipated increase
6345 Meters	-	10,825	100%	Unanticipated expense
6350 Plumbing Inv Exp	108,000	10,945	-90%	Did not use anticipated amount
6355 Power Tool Inv Exp	10,000	9,265	-7%	
6360 Tools Inv Exp	77,000	125,316	63%	Unanticipated increase
6365 Hand Tools Inv Exp	12,000	-	-100%	Did not use anticipated amount
6420 Backhoe	2,500	556	-78%	Did not use anticipated amount
6500 Inventory-Misc	24,000	18,516	-23%	Did not use anticipated amount
6506 Batteries	2,400	596	-75%	Did not use anticipated amount
6515 Cleaning	16,950	14,283	-16%	Did not use anticipated amount
6518 Concrete Accessories	2,900	-	-100%	Did not use anticipated amount
6520 Copier Paper	3,750	-	-100%	Did not use anticipated amount
6525 Filters	600	-	-100%	Did not use anticipated amount
6526 Filters HVAC	1,800	-	-100%	Did not use anticipated amount
6530 FirstAid	16,550	1,883	-89%	Did not use anticipated amount

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6540 Lamps	-	-	0%
6544 Lubricating Oil	6,600	10,676	62% Exceeded anticipated inventory need
6548 Paint Oils Putty Glass	11,200	4,818	-57% Did not use anticipated amount
6552 Paper Products	2,400	-	-100% Did not use anticipated amount
6555 Pump Oil	-	-	0%
6565 Sewer Matls Supplies	-	143	0% Unanticipated increase
6570 Testing Dyes	1,200	5,364	347% Unanticipated increase
6580 Vehicle Oil	-	1,588	100% Unanticipated increase
6585 Welding Supplies-Inventory	500	-	-100% Did not use anticipated amount
6645 Parts Other	86,000	36,631	-57% Did not use anticipated amount
6680 Yard	3,000	136,439	4448% Unanticipated increase
6705 Pipe	-	4,452	100% Unanticipated expense
6710 Pipe Ductile	55,000	523,557	852% Exceeded anticipated inventory need
6755 Pipe Plastic	9,000	2,909	-68% Did not use anticipated amount
6765 Pipe Service Line	8,000	10,934	37% Exceeded anticipated inventory need
6805 Valves <12in	22,000	-	-100% Did not use anticipated amount
6810 Valves >16in	100,000	-	-100% Did not use anticipated amount
6820 Valves GA	-	-	0%
6825 Valves Misc	117,400	96,029	-18% Did not use anticipated amount
7003 Bank Fees	300,000	269,922	-10% Did not meet projections
7005 Certification Fees	36,465	2,759	-92% Did not meet projections
7010 Membership Fees	122,557	98,652	-20% Did not meet projections
7015 Permits	725,475	757,270	4%
7020 Registration Fees	550	1,587	188% Exceeded projections
7030 Licenses	17,632	825	-95% Did not meet projections
7035 Customer CC Fees	367,400	518,324	41% Exceeded anticipated use
7105 Freight Hauling	-	-	0%
7110 Freight Shipping	26,810	21,773	-19% Exceeded projections
7115 Postage	251,700	330,345	31% Exceeded projections
7210 Copier Fax Machine	90,649	84,898	-6%
7215 Equip Rental	132,594	191,672	45% Unanticipated increase
7255 Office Rent	871,896	971,698	11% Office expansion
7260 Pagers	-	-	0%
7265 RadioLease(City)	-	-	0%
7305 Advertising	82,000	13,754	-83% Did not meet projections
7306 Annual Report	15,000	-	-100% Did not meet projections
7307 Advertising - Marketing	-	-	0%
7310 Annual Audit	49,500	48,613	-2%
7315 Billing Contract	600,000	408,853	-32% Did not meet projections
7321 Coll Agency Sewage	-	-	0%
7323 Consultants	2,142,817	2,298,014	7%
7325 Consumer Confidence Rpt	3,500	1,476	-58% Did not meet projections
7328 Contingencies	39,500	134,585	241% Unanticipated expense
7330 Construction Management	-	-	0% Unanticipated expense
7332 Consulting Engineers	50,000	69,487	39% Did not meet projections
7335 Misc Serv NonCapital	4,840,174	3,565,869	-26% Unanticipated expense
7345 Ins Auto	109,411	128,253	17%
7348 Ins Commercial Prop	233,828	255,350	9%
7353 Ins Gen Liability	22,502	22,500	0%
7359 Ins Officers Director	76,019	77,306	2% Unanticipated expense
7365 Ins WorkersComp	409,284	480,217	17%
7366 Ins WorkersComp City	32,000	33,352	4% Unanticipated expense
7368 Internet Connection Serv	-	1,568	0%
7370 Legal	2,520,000	2,620,392	4%
7371 Legal Self Ins	-	-	0%
7373 Minority Women Bus Enter	-	-	0%
7375 Meter Services	800,000	788,812	-1% Did not meet projections

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7382 Payroll Services	194,537	125,460	-36%	Did not meet projections
7383 Prof Service Other	7,616,258	6,143,089	-19%	Unanticipated expense
7389 Trust Admin	53,685	77,385	44%	Unanticipated expense
7390 Water Liens	-	30,000	0%	
7405 Computer Software Supplies	15,000	68,804	359%	Unanticipated expense
7422 Fuel-Gasses	427,200	351,684	-18%	Did not meet projections
7423 Fuel Kerosene	800	1,212	52%	Unanticipated expense
7424 Fuel Propane	13,000	1,066	-92%	Did not meet projections
7435 GIS Plotter Xerox	5,200	-	-100%	Did not meet projections
7440 Grounds & Maint Supp	147,000	504,239	243%	Unanticipated expense
7443 ICE	-	-	0%	
7445 Lab Chemicals	12,000	2,673	-78%	Did not meet projections
7447 Lab Supplies	84,000	69,045	-18%	Did not meet projections
7450 Office Supplies	114,960	41,414	-64%	Did not meet projections
7460 Uniforms	-	-	0%	
7490 Welding Supplies	700	20,209	2787%	Unanticipated expense
7505 TE Airfare	22,850	13,192	-42%	Deferred to FY 2021/2022 because of COVID-19
7510 TE Auto Rentals	1,550	-	-100%	Deferred to FY 2021/2022 because of COVID-19
7520 TE Fuel	3,200	-	-100%	Deferred to FY 2021/2022 because of COVID-19
7540 TE Lodging	43,025	5,944	-86%	Deferred to FY 2021/2022 because of COVID-19
7545 TE Meals	10,930	613	-94%	Deferred to FY 2021/2022 because of COVID-19
7550 TE Mileage	7,207	63	-99%	Deferred to FY 2021/2022 because of COVID-19
7555 TE SeminarsConferences	46,650	379	-99%	Deferred to FY 2021/2022 because of COVID-19
7560 TE Training	144,947	23,132	-84%	Deferred to FY 2021/2022 because of COVID-19
7575 TE Travel Misc	10,515	30,206	187%	Allocated to 7575
7590 TE Travel Purch Orders	1,000	-	-100%	Deferred to FY 2021/2022 because of COVID-19
7605 Electric	4,620,000	3,784,526	-18%	Did not meet projections
7650 Natural Gas City	425,000	314,785	-26%	Did not meet projections
7675 Telemeter	60,000	110,655	84%	Unanticipated expense
7680 Cellular Phone	236,856	144,037	-39%	Did not meet projections
7681 Local Phones	160,687	151,083	-6%	
7682 Long Distance	990	182	-82%	Did not meet projections
7683 Internet	51,101	39,490	-23%	Did not meet projections
7705 Bad Debt	-	-	0%	
7710 Capital Asset Reclass	(2,895,865)	(5,917,956)	104%	Greater reclass due to emergency work
7711 DISC Asset Reclass	-	-	0%	
7712 Cash Discount Taken	-	(680)	0%	
7715 Claims Deductibles	900,000	556,304	-38%	Less claims than expected
7720 Customer Refund CSM	-	-	0%	
7721 Customer Refund AP	480,000	494,192	3%	
7730 Fines Penalties	20,000	24,455	22%	Unanticipated expense
7735 LienBuyBkExp	-	-	0%	
7742 Education & Outreach	150,000	71,710	-52%	Did not meet projections
7743 Employee Fund	-	-	0%	
7750 Inv Adjustments	25,000	-	-100%	Did not meet projections
7760 Misc Gen Admin Exp	-	19,701	100%	Unanticipated expense
7765 One Call	30,000	18,186	-39%	Did not meet projections
7770 Publication Subscription	18,050	14,089	-22%	Did not meet projections
7787 3rd Pty LW Exp	-	-	0%	
7789 3rd Pty Sew Trt Exp	-	-	0%	
7799 Grants Awarded by PWSA	-	-	0%	
8005 City Indirect Costs (Pension & Taxes)	4,015,531	4,049,473	1%	
8070 Sewer Direct	-	-	0%	
8071 Sewer Indirect	-	-	0%	
8180 Non.City Water Reimburse	472,707	435,952	-8%	
	\$ 110,053,980	\$ 94,520,632	-14%	

	FY 2021 Budget	FY 2021 Actual	Variance	Explanation
4001 Salary Wages	24,001,187	20,717,547	-14%	Did not meet hiring projections
4005 OT Premium Pay	1,006,458	1,594,793	58%	Did not meet hiring projections
4010 Shift Differential	9,534	112,650	1082%	Based on scheduling
4015 Semi Skill	7,781	1,843	-76%	Based on scheduling
4020 Pay Adjustments	-	-	0%	
4025 Bonus	-	20,500	100%	Paid COVID bonus
4030 Holiday Pay	910,369	1,005,600	10%	
4035 Vacation Pay	1,360,062	1,580,964	16%	Exceeded projections
4040 Other	2,363	-	-100%	Was not needed
4045 Sick Pay	27,197	55,215	103%	Exceeded projections
4050 Personal Time Pay	782,651	856,786	9%	
4055 Comp Time Taken	-	-	0%	
4060 Comp Time Earned	-	-	0%	
4065 Jury Duty	2,623	1,479	-44%	Less Jury Duty than expected
4070 Military Leave	3,964	4,904	24%	Exceeded projections
4075 Supper Pay	34,176	24,285	-29%	Less Supper Pay than expected
4080 Bereavement	26,915	39,833	48%	Exceeded projections
4081 Paid Parental Leave	3,398	-	-100%	Was not needed
4085 Special	91,713	-	-100%	Was not needed
4090 Admin Leave	146,095	183,281	25%	Exceeded projections
4095 Severance	-	117,468	100%	Legal claim
4110 Fed Ins Contr Act Tx	1,762,442	1,587,241	-10%	
4115 Medicare	412,184	378,015	-8%	
4120 Fed Unemploy Tax	-	-	0%	
4125 State Unemploy Tax	15,000	25,415	69%	Exceeded projections
4130 Workers Comp Insur	-	-	0%	
4135 Med Health Ins	4,521,269	4,545,633	1%	
4140 Med Hlth Ins Waiver	105,399	59,104	-44%	Did not meet budget projections
4145 Short Term Disability	224,707	346,435	54%	Exceeded projections
4150 Long Term Disability	133,347	27,039	-80%	Did not meet budget projections
4155 Life Ins <50k	46,140	43,615	-5%	
4160 Accident Death Dismember	6,045	5,815	-4%	
4165 Dental Ins	167,609	173,099	3%	
4170 Vision Insur	18,809	21,559	15%	Exceeded projections
4174 Cust Serv Week	8,900	-	-100%	Was not needed
4175 Uniforms	207,389	160,760	-22%	Did not meet budget projections
4180 Tuition Reimburse	211,640	71,861	-66%	Did not meet budget projections
4185 Retirement Benefit	28,892	96,963	236%	Exceeded projections
4195 Misc Benefits	(41,732)	55,317	-233%	Did not meet budget projections
4199 Payroll Upload Except	-	(5,192)	0%	
5005 Alum	271,089	220,342	-19%	Did not meet budget projections
5010 Boiler Chemicals	26,270	31,447	20%	Exceeded projections
5015 Calcium Hypochlorite	25,884	-	-100%	Was not needed
5020 Cat Floc TL	101,075	75,641	-25%	Did not meet budget projections
5025 Caustic Soda	271,080	1,665	-99%	Did not meet budget projections
5030 Chlorine Cylinders	19,920	1,493	-93%	Did not meet budget projections
5035 Chlorine Rail Car	-	29,447	100%	Exceeded projections
5040 Citric Acid	40,080	6,720	-83%	Did not meet budget projections
5045 Copper Sulphate	-	-	0%	
5050 Ferric Chloride	1,700,000	1,496,523	-12%	Did not meet budget projections
5055 Hydrofluorosilic Acid	178,858	138,961	-22%	Did not meet budget projections
5060 Lime	523,278	546,091	4%	
5065 Potassium Permanganate	251,551	128,024	-49%	Did not meet budget projections
5070 Powdered Active Carbon	229,800	88,050	-62%	Did not meet budget projections
5075 Soda Ash	883,201	487,117	-45%	Did not meet budget projections
5080 Sodium Hypochlorite	416,110	459,862	11%	Exceeded projections

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5085 Sodium Carbonate Peroxyhy	25,440	4,000	-84%	Did not meet budget projections
5120 Computer & Peripherals	1,080,012	1,120,979	4%	
5125 Computers Networking	5,274,169	5,168,583	-2%	
5140 Furniture Fixture	37,500	58,933	57%	Exceeded projections
5145 Grounds Maint	59,500	300,015	404%	Exceeded projections
5147 Lab Equip	399,700	273,282	-32%	Did not meet budget projections
5150 Machinery	408,200	398,031	-2%	
5160 Office Equipment	-	6,547	100%	Exceeded projections
5170 Pumps & Motors	-	-	0%	
5180 SCADA Equipment	-	-	0%	
5190 Vehicles	750,000	801,884	7%	
5205 Asphalt Cold Patch	90,000	66,238	-26%	Did not meet budget projections
5210 Asphalt Cold-City	-	-	0%	
5215 Asphalt Hot-City	-	-	0%	
5220 Asphalt Hotmix	29,200	-	-100%	Was not needed
5225 Asphalt Patch Bit Sealer	-	-	0%	
5227 Brick	3,600	1,331	-63%	Did not meet budget projections
5230 Cement Bagged	5,075	3,467	-32%	Did not meet budget projections
5235 Gravel	-	-	0%	
5240 Iron Steel Brass	4,752	-	-100%	Was not needed
5245 Lumber	36,300	37,554	3%	
5250 Sand	7,020	4,786	-32%	Did not meet budget projections
5255 Slag	395,000	372,554	-6%	
5260 Stone	-	-	0%	
5265 Top Soil	7,800	4,069	-48%	Did not meet budget projections
5305 Annual Sewer Contract	8,475,402	13,197,606	56%	Exceeded projections
5310 Boiler Compressr Elevtr	-	1,789	100%	Exceeded projections
5315 CB Cleaning	600,000	766,916	28%	Exceeded projections
5316 CB Repairs	-	-	0%	
5328 Curb Box Repair	150,000	-	-100%	Did not meet budget projections
5330 Debris Removal	300,000	253,044	-16%	Did not meet budget projections
5335 Drag Bucket	-	-	0%	
5340 Dumpster	46,800	54,765	17%	Exceeded projections
5341 Vactor Debri Remove Cont	120,000	216,304	80%	Exceeded projections
5342 Emergcy WaterLine Repair	5,400,000	4,175,951	-23%	Did not meet budget projections
5343 Manhole & Point Repair Contract	-	-	0%	
5344 Pump & Motor Contract	-	-	0%	
5345 Inspection	-	-	0%	
5347 Inspection Field	-	2,706,352	100%	Reclass for a different GL
5348 Line Televising	-	-	0%	
5350 Key Lock Serv	12,800	143	-99%	Did not meet budget projections
5355 Landscape (Grounds)	125,000	334,444	168%	Exceeded projections
5360 Meters	-	-	0%	
5370 Operating Contract Other	9,277,747	5,937,187	-36%	Did not meet budget projections
5375 Radionuclides	-	-	0%	
5380 Intr-Gov Proj Panther Hollow	-	-	0%	
5383 Sewage Treatment	-	-	0%	
5385 Temporary Help	-	68,100	100%	Exceeded projections
5390 Welding	2,100	-	-100%	Was not needed
5395 Water Relay DISC	-	-	0%	
5396 Sewer Relay DISC	-	-	0%	
5402 Annual Software Support	1,716,321	1,657,369	-3%	
5405 Bldg Property Repairs	126,072	370,605	194%	Exceeded projections
5408 Computer Hardware	121,829	122,291	0%	
5411 Computer Software Support	140,936	66,307	-53%	Did not meet budget projections
5413 Concrete Repairs	5,505,800	7,394,000	34%	Exceeded projections
5415 Cranes Repairs	50,000	26,400	-47%	Did not meet budget projections

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5417 Electrical Repairs	101,496	73,479	-28%	Did not meet budget projections
5420 Fence Repairs	145,680	52,760	-64%	Did not meet budget projections
5422 Fence Installation	85,300	251,252	195%	Exceeded projections
5427 GIS Hardware Software	5,820	2,992	-49%	Did not meet budget projections
5432 Hardware Repairs	-	-	0%	
5437 Heavy Equip Repair	64,800	7,099	-89%	Did not meet budget projections
5439 HVAC Plumbing	108,000	134,772	25%	Exceeded projections
5444 Hydrant A Section	-	-	0%	
5445 Hydrant Misc Parts	-	-	0%	
5447 Hydrant Repair Parts	-	-	0%	
5452 Machinery Repairs	80,350	181,084	125%	Exceeded projections
5457 Office Equip Repairs	-	1,540	100%	Exceeded projections
5462 Plant Repairs	260,000	320,729	23%	Exceeded projections
5467 Power Tool Repairs	8,200	13,103	60%	Exceeded projections
5472 Road Repair Plant	12,000	-	-100%	Was not needed
5475 Scanner	-	-	0%	
5482 Tool Repairs	6,000	5,309	-12%	Did not meet budget projections
5484 Hand Tool Repairs	6,308	2,208	-65%	Did not meet budget projections
5486 Misc Tool Repairs	2,500	1,299	-48%	Did not meet budget projections
5488 CC TV Repairs	-	-	0%	
5490 Vactor Repairs	18,000	-	-100%	Did not meet budget projections
5491 Vehicle Repairs	748,161	674,450	-10%	Did not meet budget projections
5496 Repair Maint Other	98,200	68,994	-30%	Did not meet budget projections
5570 Testing Misc	605,320	627,450	4%	
6015 Casting Manhole CBasin	60,000	35,438	-41%	Did not meet budget projections
6025 Casting Risers Lids	9,600	78,996	723%	Exceeded projections
6035 Casting Sewer Inlet	24,000	18,700	-22%	Did not meet budget projections
6060 Casting Water Valve Box	106,600	304,884	186%	Exceeded projections
6115 Clarifier Part Floc	-	-	0%	
6120 Clarifier Part Screw	-	-	0%	
6125 Clarifier Part Sludge	-	-	0%	
6200 Inventory-Equip	-	-	0%	
6220 Fire Extinguishers	500	-	-100%	Was not needed
6245 Materials Handling	3,000	3,960	32%	Exceeded projections
6260 Safety Equipment	75,640	71,621	-5%	
6280 Vacuum Chlorinators	-	-	0%	
6300 Inventory-Hardware	15,600	15,636	0%	
6315 Fittings	158,000	200,645	27%	Exceeded projections
6320 Hardware Other	-	-	0%	
6325 Hose Fitting	15,600	12,035	-23%	Did not meet budget projections
6330 Keys & Locks	-	-	0%	
6335 Lights	6,600	9,895	50%	Exceeded projections
6340 Machinery Misc	14,400	13,514	-6%	
6345 Meters	9,600	10,683	11%	Exceeded projections
6350 Plumbing Inv Exp	30,000	22,634	-25%	Did not meet budget projections
6355 Power Tool Inv Exp	12,000	13,646	14%	Exceeded projections
6360 Tools Inv Exp	110,200	148,504	35%	Exceeded projections
6365 Hand Tools Inv Exp	-	-	0%	
6420 Backhoe	-	789	0%	
6500 Inventory-Misc	21,720	121,075	457%	Exceeded projections
6506 Batteries	120	216	80%	Exceeded projections
6515 Cleaning	12,120	6,319	-48%	Did not meet budget projections
6518 Concrete Accessories	-	-	0%	
6520 Copier Paper	-	-	0%	
6525 Filters	-	-	0%	
6526 Filters HVAC	-	-	0%	
6530 FirstAid	1,200	470	-61%	Did not meet budget projections

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6540 Lamps	-	-	0%	
6544 Lubricating Oil	7,800	8,901	14%	Exceeded projections
6548 Paint Oils Putty Glass	10,200	8,431	-17%	Did not meet budget projections
6552 Paper Products	-	-	0%	
6555 Pump Oil	-	-	0%	
6565 Sewer Matls Supplies	1,200	-	-100%	Was not needed
6570 Testing Dyes	7,200	8,104	13%	Exceeded projections
6580 Vehicle Oil	1,200	1,942	62%	Exceeded projections
6585 Welding Supplies-Inventory	-	1	100%	Exceeded projections
6645 Parts Other	54,000	111,017	106%	Exceeded projections
6680 Yard	180,000	258,300	43%	Exceeded projections
6705 Pipe	7,500	1,855	-75%	Did not meet budget projections
6710 Pipe Ductile	540,000	532,629	-1%	
6755 Pipe Plastic	7,800	2,047	-74%	Did not meet budget projections
6765 Pipe Service Line	13,200	14,081	7%	
6805 Valves <12in	-	-	0%	
6810 Valves >16in	-	-	0%	
6820 Valves GA	-	-	0%	
6825 Valves Misc	148,800	135,740	-9%	
7003 Bank Fees	300,090	284,867	-5%	
7005 Certification Fees	37,330	3,984	-89%	Did not meet budget projections
7010 Membership Fees	142,124	90,456	-36%	Did not meet budget projections
7015 Permits	2,319,600	2,399,202	3%	
7020 Registration Fees	269,175	103,213	-62%	Did not meet budget projections
7030 Licenses	19,910	-	-100%	Was not needed
7035 Customer CC Fees	425,600	432,702	2%	
7105 Freight Hauling	-	-	0%	
7110 Freight Shipping	29,770	16,446	-45%	Did not meet budget projections
7115 Postage	509,080	414,313	-19%	Did not meet budget projections
7210 Copier Fax Machine	93,369	85,132	-9%	
7215 Equip Rental	220,437	93,343	-58%	Did not meet budget projections
7255 Office Rent	912,900	866,472	-5%	
7260 Pagers	-	-	0%	
7265 RadioLease(City)	-	-	0%	
7305 Advertising	24,400	18,618	-24%	Did not meet budget projections
7306 Annual Report	-	50,198	100%	Exceeded projections
7307 Advertising - Marketing	-	-	0%	
7310 Annual Audit	54,000	-	-100%	Did not meet budget projections
7315 Billing Contract	833,799	253,616	-70%	Did not meet budget projections
7321 Coll Agency Sewage	-	-	0%	
7323 Consultants	1,836,791	1,966,571	7%	
7325 Consumer Confidence Rpt	3,750	-	-100%	Was not needed
7328 Contingencies	30,000	49,600	65%	Exceeded projections
7330 Construction Management	-	-	0%	
7332 Consulting Engineers	75,250	124,419	65%	Exceeded projections
7335 Misc Serv NonCapital	5,094,286	2,451,037	-52%	Did not meet budget projections
7345 Ins Auto	45,784	48,707	6%	
7348 Ins Commercial Prop	263,947	241,203	-9%	
7353 Ins Gen Liability	22,929	26,495	16%	Exceeded projections
7359 Ins Officers Director	93,079	117,308	26%	Exceeded projections
7365 Ins WorkersComp	450,000	425,469	-5%	
7366 Ins WorkersComp City	40,000	28,219	-29%	Did not meet budget projections
7368 Internet Connection Serv	-	-	0%	
7370 Legal	3,376,500	3,304,993	-2%	
7371 Legal Self Ins	-	-	0%	
7373 Minority Women Bus Enter	-	-	0%	
7375 Meter Services	796,990	844,923	6%	

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7382 Payroll Services	36,000	123,422	243%	Exceeded projections
7383 Prof Service Other	8,876,882	5,844,560	-34%	Did not meet budget projections
7389 Trust Admin	68,285	76,885	13%	Exceeded projections
7390 Water Liens	100,000	385,217	285%	Exceeded projections
7405 Computer Software Supplies	72,000	41,807	-42%	Did not meet budget projections
7422 Fuel-Gasses	383,200	207,784	-46%	Did not meet budget projections
7423 Fuel Kerosene	10,600	644	-94%	Did not meet budget projections
7424 Fuel Propane	2,000	1,843	-8%	
7435 GIS Plotter Xerox	-	-	0%	
7440 Grounds & Maint Supp	364,040	407,910	12%	Exceeded projections
7443 ICE	-	-	0%	
7445 Lab Chemicals	88,333	2,009	-98%	Did not meet budget projections
7447 Lab Supplies	102,000	141,047	38%	Exceeded projections
7450 Office Supplies	73,280	37,298	-49%	Did not meet budget projections
7460 Uniforms	-	-	0%	
7490 Welding Supplies	18,270	7,340	-60%	Did not meet budget projections
7505 TE Airfare	-	-	0%	
7510 TE Auto Rentals	-	-	0%	
7520 TE Fuel	-	-	0%	
7540 TE Lodging	-	-	0%	
7545 TE Meals	-	540	100%	Exceeded projections
7550 TE Mileage	-	5,725	100%	Exceeded projections
7555 TE SeminarsConferences	7,000	1,280	-82%	Did not meet budget projections
7560 TE Training	3,000	89,523	2884%	Exceeded projections
7575 TE Travel Misc	46,500	34,282	-26%	Did not meet budget projections
7590 TE Travel Purch Orders	-	-	0%	
7605 Electric	4,267,200	4,759,105	12%	Exceeded projections
7650 Natural Gas City	400,000	340,044	-15%	Did not meet budget projections
7675 Telemeter	114,120	186,385	63%	Exceeded projections
7680 Cellular Phone	162,565	169,538	4%	
7681 Local Phones	154,770	169,432	9%	
7682 Long Distance	-	-	0%	
7683 Internet	40,000	33,928	-15%	Did not meet budget projections
7705 Bad Debt	-	-	0%	
7710 Capital Asset Reclass	(15,307,717)	(7,141,744)	-53%	Did not meet budget projections
7711 DISC Asset Reclass	-	-	0%	
7712 Cash Discount Taken	-	(1,959)	0%	
7715 Claims Deductibles	950,000	988,353	4%	
7720 Customer Refund CSM	-	(600,149)	0%	
7721 Customer Refund AP	550,000	497,270	-10%	
7730 Fines Penalties	-	27,274	100%	Exceeded projections
7735 LienBuyBkExp	-	-	0%	
7742 Education & Outreach	55,000	74,802	36%	Exceeded projections
7743 Employee Fund	-	-	0%	
7750 Inv Adjustments	-	(5,201)	0%	
7760 Misc Gen Admin Exp	-	19	100%	Exceeded projections
7765 One Call	30,000	25,144	-16%	Did not meet budget projections
7770 Publication Subscription	23,299	21,036	-10%	
7787 3rd Pty LW Exp	-	-	0%	
7789 3rd Pty Sew Trt Exp	-	-	0%	
7799 Grants Awarded by PWSA	-	-	0%	
8005 City Indirect Costs (Pension & Taxes)	2,678,000	3,892,872	45%	Exceeded projections
8070 Sewer Direct	-	-	0%	
8071 Sewer Indirect	-	-	0%	
8180 Non.City Water Reimburse	392,472	176,864	-55%	Did not meet budget projections
	\$ 109,070,321	\$ 113,947,901	4%	

	FY 2022 Budget	FY 2022 Actual	Variance	Explanation
4001 Salary Wages	27,521,176	22,881,649	-17%	Did not meet hiring projections
4005 OT Premium Pay	1,428,980	1,846,868	29%	Did not meet hiring projections
4010 Shift Differential	91,498	127,551	39%	Based on scheduling
4015 Semi Skill	-	-	0%	
4020 Pay Adjustments	-	-	0%	
4025 Bonus	95,000	242,063	155%	Paid COVID bonus
4030 Holiday Pay	1,541,593	1,296,286	-16%	Did not meet budget projections
4035 Vacation Pay	1,838,820	1,676,066	-9%	
4040 Other	-	1,787	100%	Was not needed
4045 Sick Pay	12,000	35,235	194%	Exceeded projections
4050 Personal Time Pay	1,046,151	988,078	-6%	
4055 Comp Time Taken	-	-	0%	
4060 Comp Time Earned	-	-	0%	
4065 Jury Duty	5,250	5,022	-4%	
4070 Military Leave	-	342	100%	Exceeded projections
4075 Supper Pay	20,621	31,900	55%	Exceeded projections
4080 Bereavement	42,637	37,146	-13%	Did not meet budget projections
4081 Paid Parental Leave	4,500	53,634	1092%	Exceeded projections
4085 Special	-	41,246	100%	Did not meet budget needed
4090 Admin Leave	24,561	196,210	699%	Exceeded projections
4095 Severance	-	-	0%	
4110 Fed Ins Contr Act Tx	2,064,859	1,769,656	-14%	Did not meet budget projections
4115 Medicare	494,337	422,495	-15%	Did not meet budget projections
4120 Fed Unemploy Tax	-	-	0%	
4125 State Unemploy Tax	25,000	27,685	11%	Exceeded projections
4130 Workers Comp Insur	-	-	0%	
4135 Med Health Ins	5,627,535	4,862,522	-14%	Did not meet budget projections
4140 Med Hlth Ins Waiver	55,000	58,124	6%	
4145 Short Term Disability	361,533	341,291	-6%	
4150 Long Term Disability	42,057	21,847	-48%	Did not meet budget projections
4155 Life Ins <50k	51,488	45,852	-11%	Did not meet budget projections
4160 Accident Death Dismember	6,865	6,114	-11%	Did not meet budget projections
4165 Dental Ins	207,920	180,775	-13%	Did not meet budget projections
4170 Vision Insur	27,182	24,791	-9%	
4174 Cust Serv Week	-	-	0%	
4175 Uniforms	174,280	150,702	-14%	Did not meet budget projections
4180 Tuition Reimburse	158,059	37,289	-76%	Did not meet budget projections
4185 Retirement Benefit	416,624	332,801	-20%	Did not meet budget projections
4195 Misc Benefits	(23,232)	(43,091)	85%	Exceeded projections
4199 Payroll Upload Except	-	-	0%	
5005 Alum	385,000	385,881	0%	
5010 Boiler Chemicals	24,924	44,908	80%	Exceeded projections
5015 Calcium Hypochlorite	20,000	-	-100%	Was not needed
5020 Cat Floc TL	125,916	91,395	-27%	Did not meet budget projections
5025 Caustic Soda	3,107	692	-78%	Did not meet budget projections
5030 Chlorine Cylinders	173,072	77,095	-55%	Did not meet budget projections
5035 Chlorine Rail Car	-	345,902	100%	Exceeded projections
5040 Citric Acid	49,396	25,042	-49%	Did not meet budget projections
5045 Copper Sulphate	-	-	0%	
5050 Ferric Chloride	1,935,244	2,476,476	28%	Exceeded projections
5055 Hydrofluorosil Acid	161,816	173,067	7%	
5060 Lime	575,000	617,865	7%	
5065 Potassium Permanganate	200,000	-	-100%	Was not needed
5070 Powdered Active Carbon	150,000	-	-100%	Was not needed
5075 Soda Ash	580,000	552,444	-5%	
5080 Sodium Hypochlorite	660,000	821,697	24%	Exceeded projections

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5085 Sodium Carbonate Peroxyhy	10,000	21,600	116%	Exceeded projections
5120 Computer & Peripherals	499,396	404,355	-19%	Did not meet budget projections
5125 Computers Networking	5,208,541	4,756,653	-9%	
5140 Furniture Fixture	60,500	98,026	62%	Exceeded projections
5145 Grounds Maint	248,900	450,838	81%	Exceeded projections
5147 Lab Equip	100,000	98,872	-1%	
5150 Machinery	282,000	560,642	99%	Exceeded projections
5160 Office Equipment	17,851	2,096	-88%	Did not meet budget projections
5170 Pumps & Motors	-	32,142	100%	Exceeded projections
5180 SCADA Equipment	-	32,656	100%	Exceeded projections
5190 Vehicles	2,530,000	1,571,317	-38%	Did not meet budget projections
5205 Asphalt Cold Patch	85,000	90,662	7%	
5210 Asphalt Cold-City	-	-	0%	
5215 Asphalt Hot-City	-	-	0%	
5220 Asphalt Hotmix	-	16,333	100%	Exceeded projections
5225 Asphalt Patch Bit Sealer	-	-	0%	
5227 Brick	1,200	-	-100%	Was not needed
5230 Cement Bagged	4,500	4,501	0%	
5235 Gravel	-	-	0%	
5240 Iron Steel Brass	-	-	0%	
5245 Lumber	33,600	38,008	13%	Exceeded projections
5250 Sand	6,000	-	-100%	Was not needed
5255 Slag	326,000	519,497	59%	Exceeded projections
5260 Stone	-	-	0%	
5265 Top Soil	5,000	4,147	-17%	Did not meet budget projections
5305 Annual Sewer Contract	11,400,000	7,955,492	-30%	Did not meet budget projections
5310 Boiler Compressr Elevtr	-	-	0%	
5315 CB Cleaning	650,000	342,948	-47%	Did not meet budget projections
5316 CB Repairs	-	-	0%	
5328 Curb Box Repair	-	-	0%	
5330 Debris Removal	200,000	223,224	12%	Exceeded projections
5335 Drag Bucket	-	1,867	100%	Exceeded projections
5340 Dumpster	50,400	34,437	-32%	Did not meet budget projections
5341 Vactor Debris Remove Cont	150,000	193,742	29%	Exceeded projections
5342 Emergency WaterLine Repair	4,000,000	4,963,764	24%	Exceeded projections
5343 Manhole & Point Repair Contract	-	-	0%	
5344 Pump & Motor Contract	-	-	0%	
5345 Inspection	2,232	68,638	2975%	Exceeded projections
5347 Inspection Field	2,298,000	2,806,286	22%	Exceeded projections
5348 Line Televising	-	-	0%	
5350 Key Lock Serv	10,000	435	-96%	Did not meet budget projections
5355 Landscape (Grounds)	347,996	247,378	-29%	Did not meet budget projections
5360 Meters	-	-	0%	
5370 Operating Contract Other	5,217,500	5,254,792	1%	
5375 Radionuclides	-	-	0%	
5380 Intr-Gov Proj Panther Hollow	-	-	0%	
5383 Sewage Treatment	-	-	0%	
5385 Temporary Help	-	31,201	100%	Exceeded projections
5390 Welding	-	-	0%	
5395 Water Relay DISC	-	-	0%	
5396 Sewer Relay DISC	-	-	0%	
5402 Annual Software Support	2,263,590	2,626,517	16%	Exceeded projections
5405 Bldg Property Repairs	504,336	501,344	-1%	
5408 Computer Hardware	126,812	49,971	-61%	Did not meet budget projections
5411 Computer Software Support	26,000	86,997	235%	Exceeded projections
5413 Concrete Repairs	5,800,000	8,409,527	45%	Exceeded projections
5415 Cranes Repairs	105,000	1,045	-99%	Did not meet budget projections

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5417 Electrical Repairs	102,400	43,446	-58%	Did not meet budget projections
5420 Fence Repairs	40,000	2,960	-93%	Did not meet budget projections
5422 Fence Installation	-	71,305	100%	Exceeded projections
5427 GIS Hardware Software	4,000	3,536	-12%	Did not meet budget projections
5432 Hardware Repairs	-	-	0%	
5437 Heavy Equip Repair	-	2,860	100%	Exceeded projections
5439 HVAC Plumbing	130,200	86,499	-34%	Did not meet budget projections
5444 Hydrant A Section	-	-	0%	
5445 Hydrant Misc Parts	-	-	0%	
5447 Hydrant Repair Parts	-	-	0%	
5452 Machinery Repairs	189,809	165,366	-13%	Did not meet budget projections
5457 Office Equip Repairs	-	323	100%	Exceeded projections
5462 Plant Repairs	500,000	453,765	-9%	
5467 Power Tool Repairs	12,000	673	-94%	Did not meet budget projections
5472 Road Repair Plant	-	-	0%	
5475 Scanner	-	-	0%	
5482 Tool Repairs	9,900	14,913	51%	Exceeded projections
5484 Hand Tool Repairs	-	-	0%	
5486 Misc Tool Repairs	-	-	0%	
5488 CC TV Repairs	-	-	0%	
5490 Vactor Repairs	-	-	0%	
5491 Vehicle Repairs	850,000	970,667	14%	Exceeded projections
5496 Repair Maint Other	47,588	125,494	164%	Exceeded projections
5570 Testing Misc	729,604	356,972	-51%	Did not meet budget projections
6015 Casting Manhole CBasin	42,000	6,139	-85%	Did not meet budget projections
6025 Casting Risers Lids	36,000	31,491	-13%	Did not meet budget projections
6035 Casting Sewer Inlet	18,000	2,649	-85%	Did not meet budget projections
6060 Casting Water Valve Box	156,000	78,218	-50%	Did not meet budget projections
6115 Clarifier Part Flocc	-	-	0%	
6120 Clarifier Part Screw	-	-	0%	
6125 Clarifier Part Sludge	-	-	0%	
6200 Inventory-Equip	-	45,451	100%	Exceeded projections
6220 Fire Extinguishers	-	-	0%	
6245 Materials Handling	6,000	-	-100%	Did not meet budget projections
6260 Safety Equipment	60,968	32,880	-46%	Did not meet budget projections
6280 Vacuum Chlorinators	-	-	0%	
6300 Inventory-Hardware	13,900	455,618	3178%	Exceeded projections
6315 Fittings	156,676	124,035	-21%	Did not meet budget projections
6320 Hardware Other	-	-	0%	
6325 Hose Fitting	10,204	7,650	-25%	Did not meet budget projections
6330 Keys & Locks	-	-	0%	
6335 Lights	5,196	1,674	-68%	Did not meet budget projections
6340 Machinery Misc	12,000	7,596	-37%	Did not meet budget projections
6345 Meters	12,000	13,756	15%	Exceeded projections
6350 Plumbing Inv Exp	22,064	8,808	-60%	Did not meet budget projections
6355 Power Tool Inv Exp	10,000	6,013	-40%	Did not meet budget projections
6360 Tools Inv Exp	128,600	71,303	-45%	Did not meet budget projections
6365 Hand Tools Inv Exp	-	-	0%	
6420 Backhoe	-	-	0%	
6500 Inventory-Misc	47,520	25,902	-45%	Did not meet budget projections
6506 Batteries	-	545	100%	Exceeded projections
6515 Cleaning	4,996	5,307	6%	
6518 Concrete Accessories	-	-	0%	
6520 Copier Paper	-	-	0%	
6525 Filters	-	-	0%	
6526 Filters HVAC	-	-	0%	
6530 FirstAid	1,000	501	-50%	Did not meet budget projections

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6540 Lamps	-	-	0%	
6544 Lubricating Oil	6,804	1,365	-80%	Did not meet budget projections
6548 Paint Oils Putty Glass	9,464	1,625	-83%	Did not meet budget projections
6552 Paper Products	-	-	0%	
6555 Pump Oil	-	-	0%	
6565 Sewer Matls Supplies	-	-	0%	
6570 Testing Dyes	12,000	3,645	-70%	Did not meet budget projections
6580 Vehicle Oil	2,400	-	-100%	Did not meet budget projections
6585 Welding Supplies-Inventory	-	-	0%	
6645 Parts Other	104,000	35,252	-66%	Did not meet budget projections
6680 Yard	170,000	105,087	-38%	Did not meet budget projections
6705 Pipe	4,120	254,405	6075%	Exceeded projections
6710 Pipe Ductile	500,000	440,996	-12%	Did not meet budget projections
6755 Pipe Plastic	5,340	6,185	16%	Exceeded projections
6765 Pipe Service Line	12,692	7,901	-38%	Did not meet budget projections
6805 Valves <12in	-	-	0%	
6810 Valves >16in	-	-	0%	
6820 Valves GA	-	-	0%	
6825 Valves Misc	105,564	308,513	192%	Exceeded projections
7003 Bank Fees	294,168	317,538	8%	
7005 Certification Fees	7,497	2,651	-65%	Did not meet budget projections
7010 Membership Fees	98,951	127,425	29%	Exceeded projections
7015 Permits	3,118,800	466,375	-85%	Did not meet budget projections
7020 Registration Fees	119,126	9,093	-92%	Did not meet budget projections
7030 Licenses	-	-	0%	
7035 Customer CC Fees	430,000	435,202	1%	
7105 Freight Hauling	-	-	0%	
7110 Freight Shipping	13,800	4,452	-68%	Did not meet budget projections
7115 Postage	420,000	483,688	15%	Exceeded projections
7210 Copier Fax Machine	91,107	59,644	-35%	Did not meet budget projections
7215 Equip Rental	69,048	115,836	68%	Exceeded projections
7255 Office Rent	1,349,554	910,359	-33%	Did not meet budget projections
7260 Pagers	-	-	0%	
7265 RadioLease(City)	-	-	0%	
7305 Advertising	37,400	14,267	-62%	Did not meet budget projections
7306 Annual Report	-	-	0%	
7307 Advertising - Marketing	-	-	0%	
7310 Annual Audit	54,698	53,632	-2%	
7315 Billing Contract	289,000	303,633	5%	
7321 Coll Agency Sewage	-	-	0%	
7323 Consultants	6,552,048	6,105,716	-7%	
7325 Consumer Confidence Rpt	3,500	-	-100%	Was not needed
7328 Contingencies	-	-	0%	
7330 Construction Management	-	-	0%	
7332 Consulting Engineers	173,000	52,859	-69%	Did not meet budget projections
7335 Misc Serv NonCapital	2,522,006	2,246,172	-11%	Did not meet budget projections
7345 Ins Auto	49,752	113,320	128%	Exceeded projections
7348 Ins Commercial Prop	280,000	286,159	2%	
7353 Ins Gen Liability	40,000	77,234	93%	Exceeded projections
7359 Ins Officers Director	123,173	140,923	14%	Exceeded projections
7365 Ins WorkersComp	446,742	447,152	0%	
7366 Ins WorkersComp City	30,000	19,488	-35%	Did not meet budget projections
7368 Internet Connection Serv	-	-	0%	
7370 Legal	2,378,792	2,210,514	-7%	
7371 Legal Self Ins	-	-	0%	
7373 Minority Women Bus Enter	-	-	0%	
7375 Meter Services	796,992	772,653	-3%	

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7382 Payroll Services	150,000	135,758	-9%	
7383 Prof Service Other	5,466,138	5,024,765	-8%	
7389 Trust Admin	83,285	60,485	-27%	Did not meet budget projections
7390 Water Liens	100,000	60,114	-40%	Did not meet budget projections
7405 Computer Software Supplies	37,683	92,218	145%	Exceeded projections
7422 Fuel-Gasses	410,008	530,663	29%	Exceeded projections
7423 Fuel Kerosene	1,020	504	-51%	Did not meet budget projections
7424 Fuel Propane	2,184	1,174	-46%	Did not meet budget projections
7435 GIS Plotter Xerox	417,500	-	-100%	Was not needed
7440 Grounds & Maint Supp	-	572,336	100%	Exceeded projections
7443 ICE	10,000	-	-100%	Was not needed
7445 Lab Chemicals	120,000	2,054	-98%	Did not meet budget projections
7447 Lab Supplies	38,520	139,295	262%	Exceeded projections
7450 Office Supplies	-	33,851	100%	Exceeded projections
7460 Uniforms	-	21,081	100%	Exceeded projections
7490 Welding Supplies	4,104	26,720	551%	Exceeded projections
7505 TE Airfare	-	-	0%	
7510 TE Auto Rentals	-	-	0%	
7520 TE Fuel	-	-	0%	
7540 TE Lodging	-	115	100%	Exceeded projections
7545 TE Meals	-	2,671	100%	Exceeded projections
7550 TE Mileage	-	-	0%	
7555 TE SeminarsConferences	1,000	1,380	38%	Exceeded projections
7560 TE Training	127,500	207,803	63%	Exceeded projections
7575 TE Travel Misc	53,440	68,711	29%	Exceeded projections
7590 TE Travel Purch Orders	-	-	0%	
7605 Electric	4,500,000	5,558,804	24%	Exceeded projections
7650 Natural Gas City	350,000	370,175	6%	
7675 Telemeter	187,248	289,804	55%	Exceeded projections
7680 Cellular Phone	189,433	203,634	7%	
7681 Local Phones	164,921	183,587	11%	Exceeded projections
7682 Long Distance	-	-	0%	
7683 Internet	45,000	37,325	-17%	Did not meet budget projections
7705 Bad Debt	-	-	0%	
7710 Capital Asset Reclass	(21,581,541)	(10,010,402)	-54%	Did not meet budget projections
7711 DISC Asset Reclass	-	-	0%	
7712 Cash Discount Taken	-	(3,105)	0%	
7715 Claims Deductibles	850,000	505,098	-41%	Did not meet budget projections
7720 Customer Refund CSM	(549,996)	(480,616)	-13%	Did not meet budget projections
7721 Customer Refund AP	549,996	786,109	43%	Exceeded projections
7730 Fines Penalties	-	28,026	100%	Exceeded projections
7735 LienBuyBkExp	-	-	0%	
7742 Education & Outreach	61,546	59,724	-3%	
7743 Employee Fund	-	-	0%	
7750 Inv Adjustments	-	120,360	100%	Exceeded projections
7760 Misc Gen Admin Exp	-	657,887	100%	Exceeded projections
7765 One Call	30,000	17,669	-41%	Did not meet budget projections
7770 Publication Subscription	13,650	17,515	28%	Exceeded projections
7787 3rd Pty LW Exp	-	-	0%	
7789 3rd Pty Sew Trt Exp	-	-	0%	
7799 Grants Awarded by PWSA	-	-	0%	
8005 City Indirect Costs (Pension & Taxes)	2,500,000	61,393	-98%	Did not meet budget projections
8070 Sewer Direct	-	-	0%	
8071 Sewer Indirect	-	-	0%	
8180 Non.City Water Reimburse	189,000	172,434	-9%	
	\$ 109,577,926	\$ 111,536,741	2%	

I&E Analysis of PWSA Budget vs Actual

	FY 2020 Budget	FY 2020 Actual	Variance
Salaries	27,375,426	24,150,639	-11.8%
Employee Benefits	7,043,331	6,848,387	-2.8%
Operating Expenses	41,274,739	36,088,495	-12.6%
Inventory	1,981,415	1,687,673	-14.8%
General & Administrative	32,379,068	25,745,437	-20.5%
Total	110,053,980	94,520,632	-14.1%

	FY 2021 Budget	FY 2021 Actual	Variance
Salaries	28,416,486	26,317,148	-7.4%
Employee Benefits	7,828,040	7,592,680	-3.0%
Operating Expenses	48,138,408	52,137,166	8.3%
Inventory	1,942,820	2,426,123	24.9%
General & Administrative	22,744,568	25,474,785	12.0%
Total	109,070,321	113,947,901	4.5%

	FY 2022 Budget	FY 2022 Actual	Variance
Salaries	33,672,788	29,461,084	-12.5%
Employee Benefits	9,689,508	8,238,852	-15.0%
Operating Expenses	50,271,329	50,419,329	0.3%
Inventory	1,935,173	2,404,560	24.3%
General & Administrative	14,009,128	21,012,916	50.0%
Total	109,577,926	111,536,741	1.8%

Pittsburgh Water & Sewer Authority
Operating Expenses by Account

	12 Months Ended 12/31/2020	12 Months Ended 12/31/2021	HTY 12 Months Ended 12/31/2022	FTY 12 Months Ended 12/31/2023	Difference	FPFTY 12 Months Ended 12/31/2024	FPFTY 12 Months Ended 12/31/2025	FPFTY 12 Months Ended 12/31/2026
Direct Operating Expenses								
<u>Wages & Salaries</u>								
4001 Salary Wages	\$ 18,314,989	\$ 20,306,538	\$ 22,419,147	\$ 27,627,211	\$ 5,075,182	\$ 32,702,393	\$ 35,002,127	\$ 36,752,233
4005 OT Premium Pay	1,568,532	1,590,006	1,846,868	1,514,343	89,358	1,603,701	1,698,361	1,798,638
4010 Shift Differential	7,028	112,650	127,551	95,182	5,667	100,849	106,853	113,217
4015 Semi Skill	2,741	1,843	-	-	-	-	-	-
4020 Pay Adjustments	-	-	-	-	-	-	-	-
4025 Bonus	-	20,500	239,813	44,550	2,673	47,223	50,056	53,060
4030 Holiday Pay	901,695	986,382	1,272,459	1,630,917	301,709	1,932,626	2,069,518	2,172,994
4035 Vacation Pay	1,267,026	1,560,447	1,653,162	2,284,802	446,101	2,730,903	2,933,593	3,080,272
4040 Other	-	-	1,787	-	-	-	-	-
4045 Sick Pay	27,431	55,215	35,235	12,000	720	12,720	13,483	14,292
4050 Personal Time Pay	624,502	840,066	980,093	1,603,161	316,261	1,919,421	2,059,982	2,162,982
4055 Comp Time Taken	-	-	-	-	-	-	-	-
4060 Comp Time Earned	-	-	-	-	-	-	-	-
4065 Jury Duty	819	1,479	5,022	-	-	-	-	-
4070 Military Leave	-	4,904	342	-	-	-	-	-
4075 Supper Pay	20,104	24,285	31,900	30,020	1,777	31,797	33,680	35,675
4080 Bereavement	24,901	39,017	37,146	-	-	-	-	-
4081 Paid Parental Leave	17,939	-	53,634	-	-	-	-	-
4085 Special	76,630	-	41,246	36,000	2,160	38,160	40,450	42,877
4090 Admin Leave	954,111	183,059	196,008	-	-	-	-	-
4095 Severance	3,600	117,468	-	-	-	-	-	-
Total Wages & Salaries	\$ 23,808,449	\$ 25,726,391	\$ 28,941,413	\$ 34,878,186	\$ 6,241,608	\$ 41,119,794	\$ 44,008,104	\$ 46,226,239
<u>Employee Benefits</u>								
4110 Fed Ins Contr Act Tx	1,432,752	1,558,470	1,741,913	2,122,993	423,072	2,546,065	2,724,939	2,853,419
4115 Medicare	341,622	371,286	415,032	505,387	90,064	595,451	637,284	667,332
4120 Fed Unemploy Tax	-	-	-	-	-	-	-	-
4125 State Unemploy Tax	10,670	25,415	27,685	35,000	2,100	37,100	39,326	41,686
4130 Workers Comp Insur	-	-	-	-	-	-	-	-
4135 Med Health Ins	4,133,068	4,438,214	4,789,777	6,398,012	831,742	7,229,754	8,531,109	10,237,331
4140 Med Hlth Ins Waiver	71,034	56,496	58,124	59,399	-	59,399	59,399	59,399
4145 Short Term Disability	224,139	339,880	336,841	386,190	15,448	401,638	417,703	434,411
4150 Long Term Disability	27,412	26,732	21,847	51,670	2,067	53,737	55,886	58,121
4155 Life Ins <50k	37,833	42,793	45,118	58,603	2,344	60,947	63,385	65,920
4160 Accident Death Dismember	5,094	5,706	6,016	7,814	313	8,126	8,451	8,789
4165 Dental Ins	149,181	169,559	178,473	207,439	2,074	209,514	211,609	213,725
4170 Vision Insur	14,860	21,019	24,360	29,782	1,191	30,973	32,212	33,501
4174 Cust Serv Week	-	-	-	-	-	-	-	-
4175 Uniforms	155,329	159,928	150,002	-	-	-	-	-
4180 Tuition Reimburse	64,196	71,861	37,289	80,300	9,058	89,358	94,719	100,402
4185 Retirement Benefit	90,138	89,797	313,439	822,657	35,634	858,291	895,514	934,399
4195 Misc Benefits	(22,914)	55,845	(43,091)	(53,280)	(3,150)	(56,430)	(59,767)	(63,303)
4199 Payroll Upload Except	(1,385)	(5,192)	-	-	-	-	-	-
Total Employee Benefits	\$ 6,736,629	\$ 7,545,277	\$ 8,102,823	\$ 10,711,967	\$ 1,411,956	\$ 12,123,923	\$ 13,711,771	\$ 15,645,134
TOTAL SALARIES & BENEFITS	\$ 30,545,077	\$ 33,271,669	\$ 37,044,235	\$ 45,590,152	\$ 7,653,564	\$ 53,243,717	\$ 57,719,875	\$ 61,871,374

Pittsburgh Water & Sewer Authority
Operating Expenses by Account

	12 Months Ended 12/31/2020	12 Months Ended 12/31/2021	HTY 12 Months Ended 12/31/2022	FTY 12 Months Ended 12/31/2023	Difference	FPFTY 12 Months Ended 12/31/2024	FPFTY 12 Months Ended 12/31/2025	FPFTY 12 Months Ended 12/31/2026
Direct Operating Expenses								
<u>Chemicals</u>								
5005 Alum	262,617	220,342	385,881	379,200	75,840	455,040	546,048	655,258
5010 Boiler Chemicals	37,852	31,447	44,908	33,600	6,720	40,320	48,384	58,061
5015 Calcium Hypochlorite	17,000	-	-	20,000	4,000	24,000	28,800	34,560
5020 Cat Flocc TL	88,779	75,641	91,395	97,800	19,560	117,360	140,832	168,998
5025 Caustic Soda	3,978	1,665	692	2,400	480	2,880	3,456	4,147
5030 Chlorine Cylinders	-	1,493	77,095	85,000	17,000	102,000	122,400	146,880
5035 Chlorine Rail Car	-	29,447	345,902	850,000	170,000	1,020,000	1,224,000	1,468,800
5040 Citric Acid	9,920	6,720	25,042	8,000	1,600	9,600	11,520	13,824
5045 Copper Sulphate	-	-	-	-	-	-	-	-
5050 Ferric Chloride	1,504,817	1,496,523	2,476,476	2,400,000	480,000	2,880,000	3,456,000	4,147,200
5055 Hydrofluorosilicic Acid	150,933	138,961	173,067	192,000	38,400	230,400	276,480	331,776
5060 Lime	529,609	546,091	617,865	650,000	130,000	780,000	936,000	1,123,200
5065 Potassium Permanganate	125,776	128,024	-	-	-	-	-	-
5070 Powdered Active Carbon	-	88,050	-	-	-	-	-	-
5075 Soda Ash	732,716	487,117	552,444	529,800	105,960	635,760	762,912	915,494
5080 Sodium Hypochlorite	445,308	459,862	821,697	800,400	160,080	960,480	1,152,576	1,383,091
5085 Sodium Carbonate Peroxyhy	16,480	4,000	21,600	18,000	3,600	21,600	25,920	31,104
Chemicals	\$ 3,925,786	\$ 3,715,383	\$ 5,634,065	\$ 6,066,200	\$ 1,213,240	\$ 7,279,440	\$ 8,735,328	\$ 10,482,394
<u>Equipment</u>								
5120 Computer & Peripherals	337,329	1,120,979	404,167	274,237	16,454	290,691	308,132	326,620
5125 Computers Networking	3,860	5,168,583	4,756,653	175,859	10,552	186,411	197,595	209,451
5140 Furniture Fixture	140,096	58,933	86,157	12,507	750	13,257	14,052	14,895
5145 Grounds Maint	128,850	300,015	437,722	315,250	18,915	334,165	354,215	375,468
5147 Lab Equip	96,553	273,282	98,872	100,000	6,000	106,000	112,360	119,102
5150 Machinery	173,961	398,031	559,547	333,000	19,980	352,980	374,159	396,608
5160 Office Equipment	37,070	6,547	2,096	-	-	-	-	-
5170 Pumps & Motors	-	-	32,142	64,000	(64,000)	-	-	-
5180 SCADA Equipment	-	-	32,656	282,682	(282,682)	-	-	-
5190 Vehicles	577	801,884	1,571,317	2,411,093	(343,253)	2,067,840	2,191,910	2,323,425
Equipment	\$ 918,296	\$ 8,128,254	\$ 7,981,328	\$ 3,968,628	\$ (617,284)	\$ 3,351,343	\$ 3,552,424	\$ 3,765,569
<u>Materials</u>								
5205 Asphalt Cold Patch	85,097	66,238	90,662	90,000	305,043	395,043	418,745	443,870
5210 Asphalt Cold-City	-	-	-	-	-	-	-	-
5215 Asphalt Hot-City	-	-	-	-	-	-	-	-
5220 Asphalt Hotmix	-	-	16,333	24,000	1,440	25,440	26,966	28,584
5225 Asphalt Patch Bit Sealer	-	-	-	-	-	-	-	-
5227 Brick	402	1,331	-	1,200	72	1,272	1,348	1,429
5230 Cement Bagged	811	3,467	4,501	2,400	144	2,544	2,697	2,858
5235 Gravel	-	-	-	-	-	-	-	-
5240 Iron Steel Brass	205	-	-	-	-	-	-	-
5245 Lumber	26,047	37,554	38,008	36,000	2,160	38,160	40,450	42,877
5250 Sand	2,658	4,786	-	-	-	-	-	-
5255 Slag	338,716	372,554	519,497	540,000	32,400	572,400	606,744	643,149
5260 Stone	-	-	-	-	-	-	-	-
5265 Top Soil	1,871	4,069	4,147	4,800	288	5,088	5,393	5,717
Materials	\$ 455,807	\$ 489,999	\$ 673,147	\$ 698,400	\$ 341,547	\$ 1,039,947	\$ 1,102,344	\$ 1,168,484

Pittsburgh Water & Sewer Authority
Operating Expenses by Account

	12 Months Ended 12/31/2020	12 Months Ended 12/31/2021	HTY 12 Months Ended 12/31/2022	FTY 12 Months Ended 12/31/2023	Difference	FPFTY 12 Months Ended 12/31/2024	FPFTY 12 Months Ended 12/31/2025	FPFTY 12 Months Ended 12/31/2026
Direct Operating Expenses								
<u>Operating Contracts</u>								
5305 Annual Sewer Contract	8,056,519	13,197,606	7,955,492	8,540,715	512,443	9,053,157	9,596,347	10,172,128
5310 Boiler Compressr Elevtr	-	1,789	-	-	-	-	-	-
5315 CB Cleaning	752,218	766,916	342,948	550,000	33,000	583,000	617,980	655,059
5316 CB Repairs	-	-	-	-	-	-	-	-
5328 Curb Box Repair	-	-	-	-	-	-	-	-
5330 Debris Removal	302,860	253,044	223,224	263,300	15,798	279,098	295,844	313,594
5335 Drag Bucket	-	-	1,867	-	-	-	-	-
5340 Dumpster	46,827	54,765	34,437	28,200	1,692	29,892	31,686	33,587
5341 Vactor Debris Remove Cont	154,930	216,304	193,742	220,000	13,200	233,200	247,192	262,024
5342 Emergency WaterLine Repair	5,365,542	4,175,951	4,963,764	4,563,124	273,787	4,836,911	5,127,126	5,434,753
5343 Manhole & Point Repair Contract	-	-	-	1,500,000	90,000	1,590,000	1,685,400	1,786,524
5344 Pump & Motor Contract	-	-	-	600,000	36,000	636,000	674,160	714,610
5345 Inspection	(34,374)	-	63,638	7,500	450	7,950	8,427	8,933
5347 Inspection Field	1,417,601	2,646,352	2,781,286	2,751,165	165,070	2,916,235	3,091,209	3,276,681
5348 Line Televising	-	-	-	-	-	-	-	-
5350 Key Lock Serv	1,230	143	435	-	-	-	-	-
5355 Landscape (Grounds)	118,865	334,444	247,378	332,756	19,965	352,721	373,885	396,318
5360 Meters	-	-	-	249,990	14,999	264,989	280,889	297,742
5370 Operating Contract Other	5,296,671	5,937,187	4,464,562	1,288,908	7,577,334	8,866,242	11,198,217	14,210,110
5375 Radionuclides	-	-	-	651,399	39,084	690,483	731,912	775,827
5380 Intr-Gov Proj Panther Hollow	-	-	-	556,260	(84,552)	471,709	500,011	530,012
5383 Sewage Treatment	-	-	-	-	-	-	-	-
5385 Temporary Help	-	68,100	31,201	-	-	-	-	-
5390 Welding	15,500	-	-	-	117,927	117,927	125,003	132,503
5395 Water Relay DISC	-	-	-	-	-	-	-	-
5396 Sewer Relay DISC	-	-	-	-	-	-	-	-
Operating Contracts	\$ 21,494,389	\$ 27,652,600	\$ 21,303,973	\$ 22,103,316	\$ 8,826,199	\$ 30,929,515	\$ 34,585,286	\$ 39,000,403
<u>Repairs & Maintenance</u>								
5402 Annual Software Support	1,424,283	1,657,369	2,551,517	3,729,434	223,766	3,953,201	4,190,393	4,441,816
5405 Bldg Property Repairs	173,305	370,605	501,344	32,827	1,970	34,796	36,884	39,097
5408 Computer Hardware	43,050	122,291	49,971	71,149	4,269	75,418	79,943	84,739
5411 Computer Software Support	48,050	66,307	86,997	49,900	2,994	52,894	56,068	59,432
5413 Concrete Repairs	5,248,496	7,394,000	8,409,527	7,392,784	443,567	7,836,351	8,306,532	8,804,924
5415 Cranes Repairs	40,971	26,400	1,045	90,000	5,400	95,400	101,124	107,191
5417 Electrical Repairs	175,886	73,479	43,446	145,200	8,712	153,912	163,147	172,936
5420 Fence Repairs	42,175	52,760	2,960	-	-	-	-	-
5422 Fence Installation	13,309	251,252	71,305	169,000	10,140	179,140	189,888	201,282
5427 GIS Hardware Software	3,068	2,992	3,536	4,980	299	5,279	5,596	5,931
5432 Hardware Repairs	-	-	-	-	-	-	-	-
5437 Heavy Equip Repair	32,326	7,099	2,860	-	-	-	-	-
5439 HVAC Plumbing	157,489	134,772	86,499	100,200	6,012	106,212	112,585	119,340
5444 Hydrant A Section	-	-	-	-	-	-	-	-
5445 Hydrant Misc Parts	-	-	-	-	-	-	-	-
5447 Hydrant Repair Parts	-	-	-	-	-	-	-	-
5452 Machinery Repairs	43,085	181,084	165,366	322,068	19,324	341,392	361,875	383,588
5457 Office Equip Repairs	1,156	1,540	323	-	-	-	-	-
5462 Plant Repairs	297,515	320,729	453,765	521,500	31,290	552,790	585,957	621,115
5467 Power Tool Repairs	1,736	13,103	673	3,000	180	3,180	3,371	3,573
5472 Road Repair Plant	-	-	-	-	-	-	-	-
5475 Scanner	-	-	-	-	-	-	-	-
5482 Tool Repairs	983	5,309	14,913	10,000	600	10,600	11,236	11,910
5484 Hand Tool Repairs	1,475	2,208	-	-	-	-	-	-
5486 Misc Tool Repairs	779	1,299	-	-	-	-	-	-
5488 CC TV Repairs	25,493	-	-	-	-	-	-	-
5490 Vactor Repairs	17,358	-	-	-	-	-	-	-
5491 Vehicle Repairs	890,330	674,450	970,667	1,022,999	61,380	1,084,379	1,149,442	1,218,408
5496 Repair Maint Other	108,291	59,818	125,494	35,471	1,068	36,539	38,732	41,056
Repairs & Maintenance	\$ 8,790,610	\$ 11,418,866	\$ 13,542,207	\$ 13,700,511	\$ 820,971	\$ 14,521,482	\$ 15,392,771	\$ 16,316,337

Pittsburgh Water & Sewer Authority
Operating Expenses by Account

Direct Operating Expenses	12 Months	12 Months	HTY	FTY	Difference	FPFTY	FPFTY	FPFTY
	Ended	Ended	12 Months	12 Months		12 Months	12 Months	12 Months
	12/31/2020	12/31/2021	12/31/2022	12/31/2023		12/31/2024	12/31/2025	12/31/2026
<u>Misc. Operating</u>								
5570 Testing Misc	448,212	627,450	356,972	258,500	15,510	274,010	290,451	307,878
Misc. Operating	\$ 448,212	\$ 627,450	\$ 356,972	\$ 258,500	\$ 15,510	\$ 274,010	\$ 290,451	\$ 307,878
<u>Inventory - Castings</u>								
6015 Casting Manhole CBasin	33,882	35,438	6,139	42,400	2,544	44,944	47,641	50,499
6025 Casting Risers Lids	8,481	78,996	31,491	46,000	2,760	48,760	51,686	54,787
6035 Casting Sewer Inlet	15,068	18,700	2,649	18,000	1,080	19,080	20,225	21,438
6060 Casting Water Valve Box	130,605	304,884	78,218	126,000	7,560	133,560	141,574	150,068
Inventory - Castings	\$ 188,036	\$ 438,019	\$ 118,496	\$ 232,400	\$ 13,944	\$ 246,344	\$ 261,125	\$ 276,792
<u>Inventory - Clarifier</u>								
6115 Clarifier Part Flocc	-	-	-	-	-	-	-	-
6120 Clarifier Part Screw	-	-	-	-	-	-	-	-
6125 Clarifier Part Sludge	-	-	-	-	-	-	-	-
Inventory - Clarifier	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Inventory - Equipment</u>								
6200 Inventory-Equip	-	-	45,451	-	-	-	-	-
6220 Fire Extinguishers	-	-	-	-	-	-	-	-
6245 Materials Handling	2,475	3,960	-	-	-	-	-	-
6260 Safety Equipment	62,634	71,621	32,880	61,200	3,672	64,872	68,764	72,890
6280 Vacuum Chlorinators	-	-	-	-	-	-	-	-
Inventory - Equipment	\$ 65,109	\$ 75,581	\$ 78,331	\$ 61,200	\$ 3,672	\$ 64,872	\$ 68,764	\$ 72,890
<u>Inventory - Hardware</u>								
6300 Inventory-Hardware	11,554	15,636	455,618	16,000	960	16,960	17,978	19,056
6315 Fittings	135,925	200,645	124,035	186,600	11,196	197,796	209,664	222,244
6320 Hardware Other	-	-	-	-	-	-	-	-
6325 Hose Fitting	8,331	12,035	7,650	12,360	742	13,102	13,888	14,721
6330 Keys & Locks	-	-	-	-	-	-	-	-
6335 Lights	4,180	9,895	1,674	5,400	324	5,724	6,067	6,431
6340 Machinery Misc	10,015	13,514	7,596	10,000	600	10,600	11,236	11,910
6345 Meters	10,825	10,683	13,756	12,000	720	12,720	13,483	14,292
6350 Plumbing Inv Exp	10,945	22,634	8,808	20,000	1,200	21,200	22,472	23,820
6355 Power Tool Inv Exp	9,265	13,646	6,013	12,000	720	12,720	13,483	14,292
6360 Tools Inv Exp	125,316	148,504	71,303	115,000	6,900	121,900	129,214	136,967
6365 Hand Tools Inv Exp	-	-	-	19,000	1,140	20,140	21,348	22,629
Inventory - Hardware	\$ 326,356	\$ 447,193	\$ 696,453	\$ 408,360	\$ 24,502	\$ 432,862	\$ 458,833	\$ 486,363
<u>Inventory - Heavy Equipment</u>								
6420 Backhoe	556	789	-	-	-	-	-	-
Inventory - Heavy Equipment	\$ 556	\$ 789	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<u>Inventory - Miscellaneous</u>								
6500 Inventory-Misc	18,516	121,075	25,902	32,000	1,920	33,920	35,955	38,113
6506 Batteries	596	216	545	1,000	60	1,060	1,124	1,191
6515 Cleaning	14,283	6,319	5,307	8,280	497	8,777	9,303	9,862
6518 Concrete Accessories	-	-	-	-	-	-	-	-
6520 Copier Paper	-	-	-	-	-	-	-	-
6525 Filters	-	-	-	-	-	-	-	-
6526 Filters HVAC	-	-	-	-	-	-	-	-
6530 FirstAid	1,883	470	501	1,200	72	1,272	1,348	1,429
6540 Lamps	-	-	-	-	-	-	-	-
6544 Lubricating Oil	10,676	8,901	1,365	3,120	187	3,307	3,506	3,716
6548 Paint Oils Putty Glass	4,818	8,431	1,625	1,800	108	1,908	2,022	2,144
6552 Paper Products	-	-	-	-	-	-	-	-
6555 Pump Oil	-	-	-	-	-	-	-	-
6565 Sewer Mats Supplies	143	-	-	-	-	-	-	-
6570 Testing Dyes	5,364	8,104	3,645	6,000	360	6,360	6,742	7,146
6580 Vehicle Oil	1,588	1,942	-	1,200	72	1,272	1,348	1,429
6585 Welding Supplies-Inventory	-	1	-	-	-	-	-	-
Inventory - Miscellaneous	\$ 57,866	\$ 155,459	\$ 38,891	\$ 54,600	\$ 3,276	\$ 57,876	\$ 61,349	\$ 65,029
<u>Inventory - Parts</u>								
6645 Parts Other	36,631	111,017	35,252	38,400	2,304	40,704	43,146	45,735
6680 Yard	136,439	258,300	105,087	180,000	10,800	190,800	202,248	214,383
Inventory - Parts	\$ 173,070	\$ 369,316	\$ 140,339	\$ 218,400	\$ 13,104	\$ 231,504	\$ 245,394	\$ 260,118

Pittsburgh Water & Sewer Authority
Operating Expenses by Account

Direct Operating Expenses	12 Months	12 Months	HTY	FTY	Difference	FPFTY	FPFTY	FPFTY
	Ended	Ended	12 Months	12 Months		12 Months	12 Months	12 Months
	12/31/2020	12/31/2021	12/31/2022	12/31/2023		12/31/2024	12/31/2025	12/31/2026
<u>Inventory - Pipe</u>								
6705 Pipe	4,452	1,855	254,405	-	-	-	-	-
6710 Pipe Ductile	523,557	532,629	440,996	750,000	45,000	795,000	842,700	893,262
6755 Pipe Plastic	2,909	2,047	6,185	4,500	270	4,770	5,056	5,360
6765 Pipe Service Line	10,934	14,081	7,901	12,200	732	12,932	13,708	14,530
Inventory - Pipe	\$ 541,853	\$ 550,611	\$ 709,487	\$ 766,700	\$ 46,002	\$ 812,702	\$ 861,464	\$ 913,152
<u>Inventory - Valves</u>								
6805 Valves <12in	-	-	-	-	-	-	-	-
6810 Valves >16in	-	-	-	-	-	-	-	-
6820 Valves GA	-	-	-	-	-	-	-	-
6825 Valves Misc	96,029	135,740	308,513	218,000	13,080	231,080	244,945	259,641
Inventory - Valves	\$ 96,029	\$ 135,740	\$ 308,513	\$ 218,000	\$ 13,080	\$ 231,080	\$ 244,945	\$ 259,641
INVENTORY TOTAL	\$ 1,448,874	\$ 2,172,709	\$ 2,090,510	\$ 1,959,660	\$ 117,580	\$ 2,077,240	\$ 2,201,874	\$ 2,333,986
DIRECT OPERATING TOTAL	\$ 48,143,530	\$ 65,580,385	\$ 64,360,423	\$ 65,203,814	\$ 13,206,785	\$ 78,410,599	\$ 86,879,864	\$ 96,695,554
<u>Fees</u>								
7003 Bank Fees	269,922	284,867	317,538	360,000	21,600	381,600	404,496	428,766
7005 Certification Fees	550	3,130	70	23,105	1,386	24,492	25,961	27,519
7010 Membership Fees	81,919	88,731	127,425	118,826	7,130	125,955	133,512	141,523
7015 Permits	709,870	2,328,977	436,356	475,100	28,506	503,606	533,822	565,852
7020 Registration Fees	1,520	100,050	4,510	4,000	240	4,240	4,494	4,764
7030 Licenses	825	-	-	2,100	126	2,226	2,360	2,501
7035 Customer CC Fees	518,324	432,702	435,202	470,000	(433,800)	36,200	38,372	40,674
Total Fees	\$ 1,582,930	\$ 3,238,458	\$ 1,321,100	\$ 1,453,131	\$ (374,812)	\$ 1,078,319	\$ 1,143,018	\$ 1,211,599
<u>Freight and Postage</u>								
7105 Freight Hauling	-	-	-	-	-	-	-	-
7110 Freight Shipping	40,134	16,446	4,322	3,480	209	3,689	3,910	4,145
7115 Postage	330,345	414,313	483,688	444,450	26,667	471,117	499,384	529,347
Total Freight and Postage	\$ 370,479	\$ 430,759	\$ 488,010	\$ 447,930	\$ 26,876	\$ 474,806	\$ 503,294	\$ 533,492
<u>Leases & Rents</u>								
7210 Copier Fax Machine	84,898	85,132	59,644	58,122	3,487	61,609	65,306	69,224
7215 Equip Rental	191,672	93,227	111,323	28,148	1,689	29,836	31,627	33,524
7255 Office Rent	971,698	866,472	910,359	960,530	1,015,130	1,975,659	2,094,199	2,219,851
7260 Pagers	-	-	-	60,000	3,600	63,600	67,416	71,461
7265 RadioLease(City)	-	-	-	-	-	-	-	-
Total Leases & Rents	\$ 1,248,268	\$ 1,044,831	\$ 1,081,327	\$ 1,106,799	\$ 1,023,906	\$ 2,130,705	\$ 2,258,548	\$ 2,394,060
<u>Professional Services</u>								
7305 Advertising	13,754	18,282	14,267	31,236	1,874	33,110	35,097	37,203
7306 Annual Report	-	50,198	-	-	-	-	-	-
7307 Advertising - Marketing	-	-	-	-	-	-	-	-
7310 Annual Audit	48,613	-	53,632	57,200	3,432	60,632	64,270	68,126
7315 Billing Contract	408,853	253,616	303,633	216,000	12,960	228,960	242,698	257,259
7321 Coll Agency Sewage	-	-	-	-	-	-	-	-
7323 Consultants	2,298,014	1,864,371	5,315,332	5,850,917	(1,748,945)	4,101,972	1,598,090	1,693,976
7325 Consumer Confidence Rpt	1,476	-	-	-	-	-	-	-
7328 Contingencies	134,585	49,600	-	-	-	-	-	-
7330 Construction Management	-	-	-	1,314,587	78,875	1,393,463	1,477,070	1,565,694
7332 Consulting Engineers	69,487	124,419	52,859	174,000	(89,560)	84,440	89,506	94,877
7335 Misc Serv NonCapital	3,565,574	2,451,037	2,246,172	337,500	20,250	357,750	379,215	401,968
7345 Ins Auto	128,253	48,707	68,166	74,983	4,499	79,482	84,250	89,305
7348 Ins Commercial Prop	255,350	241,203	286,159	329,083	19,745	348,828	369,757	391,943
7353 Ins Gen Liability	22,500	26,495	77,234	83,413	5,005	88,417	93,723	99,346
7359 Ins Officers Director	77,306	117,308	140,923	152,197	9,132	161,329	171,008	181,269
7365 Ins WorkersComp	480,217	425,469	447,152	447,152	26,829	473,981	502,420	532,565
7366 Ins WorkersComp City	33,352	28,219	19,488	12,406	744	13,150	13,939	14,775
7368 Internet Connection Serv	1,568	-	-	-	-	-	-	-
7370 Legal	2,620,392	3,304,993	2,210,514	2,973,450	(721,593)	2,251,857	2,386,968	2,530,187
7371 Legal Self Ins	-	-	-	-	-	-	-	-
7373 Minority Women Bus Enter	-	-	-	-	-	-	-	-
7375 Meter Services	788,812	844,923	772,653	753,913	45,235	799,148	847,097	897,923
7382 Payroll Services	125,460	123,422	135,758	169,397	10,164	179,561	190,334	201,755
7383 Prof Service Other	5,315,886	4,144,401	3,085,391	3,001,009	180,061	3,181,070	3,021,934	3,203,250
7389 Trust Admin	77,385	76,885	60,485	85,000	5,100	90,100	95,506	101,236
7390 Water Liens	30,000	385,217	60,114	80,000	(80,000)	-	-	-
Total Professional Services	\$ 16,496,838	\$ 14,578,766	\$ 15,349,933	\$ 16,143,442	\$ (2,216,193)	\$ 13,927,249	\$ 11,662,884	\$ 12,362,657

Pittsburgh Water & Sewer Authority
Operating Expenses by Account

	12 Months Ended 12/31/2020	12 Months Ended 12/31/2021	HTY 12 Months Ended 12/31/2022	FTY 12 Months Ended 12/31/2023	Difference	FPFTY 12 Months Ended 12/31/2024	FPFTY 12 Months Ended 12/31/2025	FPFTY 12 Months Ended 12/31/2026
Direct Operating Expenses								
<u>Supplies</u>								
7405 Computer Software Supplies	68,804	41,807	92,218	50,000	87,800	137,800	146,068	154,832
7422 Fuel-Gasses	351,684	207,784	530,663	544,000	103,200	647,200	686,032	727,194
7423 Fuel Kerosene	1,212	644	504	1,200	72	1,272	1,348	1,429
7424 Fuel Propane	1,066	1,843	1,174	1,800	108	1,908	2,022	2,144
7435 GIS Plotter Xerox	-	-	-	171,650	10,299	181,949	192,866	204,438
7440 Grounds & Maint Supp	504,239	406,359	548,184	392,200	23,532	415,732	440,676	467,116
7443 ICE	-	-	-	-	-	-	-	-
7445 Lab Chemicals	2,673	2,009	2,054	6,000	360	6,360	6,742	7,146
7447 Lab Supplies	69,045	141,047	139,295	100,000	6,000	106,000	112,360	119,102
7450 Office Supplies	40,600	36,461	31,372	42,251	2,535	44,786	47,474	50,322
7460 Uniforms	-	-	21,081	-	-	-	-	-
7490 Welding Supplies	20,209	7,340	26,720	18,000	1,080	19,080	20,225	21,438
Total Supplies	\$ 1,059,533	\$ 845,295	\$ 1,393,264	\$ 1,327,101	\$ 234,986	\$ 1,562,087	\$ 1,655,813	\$ 1,755,161
<u>Travel & Entertainment</u>								
7505 TE Airfare	13,192	-	-	4,500	270	4,770	5,056	5,360
7510 TE Auto Rentals	-	-	-	150	9	159	169	179
7520 TE Fuel	-	-	-	-	-	-	-	-
7540 TE Lodging	5,944	-	115	10,100	606	10,706	11,348	12,029
7545 TE Meals	613	540	2,671	1,000	60	1,060	1,124	1,191
7550 TE Mileage	63	5,725	-	-	-	-	-	-
7555 TE Seminars/Conferences	379	1,280	1,380	62,300	3,738	66,038	70,000	74,200
7560 TE Training	20,027	51,481	202,413	159,000	9,540	168,540	178,652	189,372
7575 TE Travel Misc	30,034	34,182	67,485	17,615	1,057	18,672	19,792	20,980
7590 TE Travel Purch Orders	-	-	-	-	-	-	-	-
Total Travel & Entertainment	\$ 70,251	\$ 93,207	\$ 274,063	\$ 254,665	\$ 15,280	\$ 269,945	\$ 286,142	\$ 303,310
<u>Utilities</u>								
7605 Electric	3,784,526	4,759,105	5,558,804	6,000,000	900,000	6,900,000	7,935,000	9,125,250
7650 Natural Gas City	314,785	340,044	370,175	360,000	54,000	414,000	476,100	547,515
7675 Telemeter	110,655	186,385	289,804	240,000	14,400	254,400	269,664	285,844
7680 Cellular Phone	144,037	169,538	203,634	213,264	12,796	226,060	239,623	254,001
7681 Local Phones	151,083	169,432	183,587	171,600	10,296	181,896	192,810	204,378
7682 Long Distance	182	-	-	-	-	-	-	-
7683 Internet	39,490	33,928	37,325	50,987	3,059	54,046	57,289	60,726
Total Utilities	\$ 4,544,758	\$ 5,658,432	\$ 6,643,329	\$ 7,035,851	\$ 994,551	\$ 8,030,402	\$ 9,170,486	\$ 10,477,714
<u>Miscellaneous Admin</u>								
7705 Bad Debt	-	-	-	-	-	-	-	-
7710 Capital Asset Reclass	(5,917,956)	(7,141,744)	(10,010,402)	(13,294,639)	(797,678)	(14,092,317)	(14,937,856)	(15,834,128)
7711 DISC Asset Reclass	-	-	-	-	-	-	-	-
7712 Cash Discount Taken	(680)	(1,959)	(3,105)	(2,400)	(144)	(2,544)	(2,697)	(2,858)
7715 Claims Deductibles	556,304	988,353	505,098	750,000	45,000	795,000	842,700	893,262
7720 Customer Refund CSM	-	(600,149)	(480,616)	(500,000)	(30,000)	(530,000)	(561,800)	(595,508)
7721 Customer Refund AP	494,192	497,270	786,109	500,000	30,000	530,000	561,800	595,508
7730 Fines Penalties	24,455	27,274	28,026	18,000	1,080	19,080	20,225	21,438
7735 LienBuyBkExp	-	-	-	-	-	-	-	-
7742 Education & Outreach	41,710	73,552	59,724	69,700	4,182	73,882	78,315	83,014
7743 Employee Fund	-	-	-	-	-	-	-	-
7750 Inv Adjustments	-	(5,201)	120,360	-	-	-	-	-
7760 Misc Gen Admin Exp	19,701	19	657,887	-	-	-	-	-
7765 One Call	18,186	25,144	17,669	24,000	1,440	25,440	26,966	28,584
7770 Publication Subscription	14,089	21,036	17,515	21,438	1,286	22,724	24,088	25,533
7787 3rd Pty LW Exp	-	-	-	-	-	-	-	-
7789 3rd Pty Sew Trt Exp	-	-	-	-	-	-	-	-
7799 Grants Awarded by PWSA	-	-	-	-	-	-	-	-
8005 City Indirect Costs (Pension & Taxes)	4,049,473	3,892,872	61,393	1,632,500	97,950	1,730,450	1,834,277	1,944,334
8070 Sewer Direct	-	-	-	-	-	-	-	-
8071 Sewer Indirect	-	-	-	-	-	-	-	-
8180 Non.City Water Reimburse	435,952	176,864	172,434	170,461	10,228	180,689	191,530	203,022
Total Miscellaneous Admin	\$ (264,573)	\$ (2,046,669)	\$ (8,067,908)	\$ (10,610,940)	\$ (636,656)	\$ (11,247,596)	\$ (11,922,452)	\$ (12,637,799)
DIRECT OPERATING EXPENSES	\$93,135,535	\$111,320,007	\$107,109,556	\$111,503,347	\$17,439,263	\$128,942,610	\$138,338,083	\$151,646,620

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
 to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
 Set RE Nos. 21-44
 Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-24-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail any year-over-year increases of \$25,000 and 10% or greater in the following sub-categories of Wages and Salaries Expense for each calendar year from 2020 through 2026 and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY, FPFTY, FY 2025 and FY 2026:

- A. Salary and Wages (4001).
- B. OT Premium Pay (4005).
- C. Shift Differential (4010).
- D. Bonus (4025).
- E. Holiday Pay (4030).
- F. Vacation Pay (4035).
- G. Personal Time Pay (4050).

Response:

The two underlying factors that are causing year-over-year increases in the GL accounts listed above is 1) workforce expansion and 2) annual cost of living increases.

PWSA has increased its workforce by approximately 60 employees between 2020 and 2023 with the plans to add an additional 52 positions between the FPFTY and FY 2026. The chart below demonstrates the cost of living increases from 2020 through 2026 by non-union and union employees.

	Actual				Projected		
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Non-Union	3%	3%	3%	3%	3%	3%	5%
PJCBC	3%	3%	3%	3%	3%	3%	5%
AFSCME 2719	3%	2%	0%	4%	3%	3%	5%
AFSCME 2037	3%	3%	3%	3%	3%	3%	5%

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE-1 to RE-20
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

- Request: I&E-RE-3-D** Reference PWSA Volume I, FR-III.5 concerning payroll and benefits expense, provide the following:
- A. Budgeted and actual total employee counts by month for the calendar years 2020, 2021, 2022, and projected for the FTY, FPFTY, FY 2025, and FY 2026.
 - B. Number of positions that have been eliminated in 2020, 2021, and 2022 and that are expected to be eliminated during the FTY, FPFTY, FY 2025, and FY 2026.
 - C. Number of new employee additions made in 2020, 2021, 2022, and the projected new employee additions in the FTY, FPFTY, FY 2025, and FY 2026.
 - D. Job title and budgeted salary by position regarding the 33 new additions in the FPFTY (PWSA Statement 2, p. 18).
 - E. Number of actual vacant positions by month for the calendar years 2020, 2021, 2022, and in the FTY to date.
 - F. Number of vacant positions projected by month for the FTY, FPFTY, FY 2025, and FY 2026.

Response:

- A. See attached I&E RE-3Da.
- B. No active positions were eliminated in FY 2020, 2021, and 2022 and PWSA does not have plans to eliminate any active positions in FTY, FPFTY, FY 2025, and FY 2026.
- C. There were 13 new employee additions made in 2020, 23 in 2021, 25 in 2022, the headcount is projected remain stable in 2023, increase by 33 in 2024, increase by 19 in 2025, and the remain flat in 2026.
- D. See attachment I&E RE-D-3Dd.
- E. PWSA does not keep records of vacancies per month. PWSA has 102 vacancies at the beginning of 2020, 73 vacancies at the beginning of 2021, 89 vacancies at the beginning of 2022, and 48 at the beginning of 2023.
- F. PWSA does not keep track of vacancies per month. Also, it is difficult for PWSA to project vacant positions per year without knowing the result of this rate case.

Response provided by: Edward Barca, Director of Finance

Dated response provided: June 21, 2023

Budgeted and Actual Employee Counts By Months 2020-2026

	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Executive Director	5	5	5	5	5	6	6	6	7	7	7	7
Safety & Security	0	0	0	0	0	0	0	0	0	0	0	0
Customer Service	60	58	61	62	60	60	59	59	60	60	62	59
Management Information Systems	8	8	8	8	9	10	11	11	11	10	10	10
Finance	14	14	14	15	16	15	15	15	15	16	15	15
Human Resources	5	5	5	5	5	5	5	5	5	5	5	5
Legal	5	7	7	7	7	7	7	7	7	7	7	7
Warehouse	4	5	5	5	5	5	4	4	6	6	6	6
Public Affairs	8	8	8	8	7	8	8	8	8	8	8	8
Water Quality (Lab)	5	5	7	7	7	7	7	7	7	7	7	7
Water Treatment Plant	44	43	45	45	45	44	44	45	45	47	47	47
Water Distribution	110	113	112	112	111	110	110	108	108	106	107	106
Sewer Operations	29	26	26	26	25	25	23	23	23	23	23	24
Engineering & Construction	32	36	38	38	39	38	39	39	39	39	40	41
Environmental Compliance	5	5	5	5	5	5	5	5	5	5	5	5
Total	334	338	346	348	346	345	343	342	346	346	349	347

	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021
	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Executive Director	6	8	8	8	9	11	11	10	10	10	10	8
Safety & Security	0	0	0	0	0	0	0	0	0	0	0	0
Customer Service	61	62	65	65	65	66	67	72	70	70	69	69
Management Information Systems	16	17	17	17	16	15	16	17	17	17	17	19
Finance	17	14	14	14	15	15	15	15	15	15	15	15
Human Resources	5	6	6	6	7	7	7	7	7	7	8	8
Legal	5	4	3	3	3	2	3	3	3	3	3	3
Warehouse	6	5	5	5	6	6	6	6	6	5	5	5
Public Affairs	8	8	8	8	8	8	9	9	9	9	9	9
Water Quality (Lab)	6	6	6	6	7	7	8	7	8	8	8	8
Water Treatment Plant	46	46	45	45	44	46	46	48	51	51	51	51
Water Distribution	105	106	105	105	103	106	108	110	110	113	116	115
Sewer Operations	21	22	21	21	18	19	19	19	20	20	19	20
Engineering & Construction	36	35	35	35	36	36	36	34	35	36	36	33
Environmental Compliance	6	7	7	7	7	7	7	7	7	7	7	7
Total	344	346	345	345	344	351	358	364	368	371	373	370

	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022
	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Executive Director	5	5	5	5	5	5	6	6	6	5	5	6
Safety & Security	4	4	5	5	4	4	4	4	4	5	6	6
Customer Service	66	67	67	71	71	76	73	72	73	71	73	72
Management Information Systems	20	21	21	21	21	23	22	21	21	22	22	23
Finance	15	15	15	15	16	18	17	16	15	15	15	16
Human Resources	8	9	9	9	10	10	9	9	9	9	9	9
Legal	3	3	3	4	4	4	4	4	4	5	5	5
Warehouse	5	6	6	5	5	5	6	6	6	6	6	6
Public Affairs	9	9	9	9	9	9	9	9	9	9	9	8
Water Quality (Lab)	15	13	12	10	9	10	11	13	13	13	13	13
Water Treatment Plant	52	52	53	53	51	50	50	49	50	49	46	47
Water Distribution	115	115	115	119	118	118	117	116	118	116	121	120

Budgeted and Actual Employee Counts By Months 2020-2026

Sewer Operations	20	18	18	18	19	18	18	19	19	19	20	21
Engineering & Construction	33	33	33	33	35	35	35	36	37	37	37	37
Environmental Compliance	1	2	3	4	6	6	6	6	6	6	6	6
Total	371	372	374	381	383	391	387	386	390	387	393	395

	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023
	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Executive Director	6	6	6	6	6	6	6	6	6	6	6	6
Safety & Security	5	4	4	4	4	4	4	4	4	4	4	4
Customer Service	73	73	72	72	72	72	72	72	72	72	72	72
Management Information Systems	23	23	23	24	25	25	25	25	25	25	25	25
Finance	17	17	16	16	15	15	15	15	15	15	15	15
Human Resources	8	8	9	10	10	10	10	10	10	10	10	10
Legal	6	6	5	5	5	5	5	5	5	5	5	5
Warehouse	5	5	5	5	5	5	5	5	5	5	5	5
Public Affairs	8	8	7	7	7	7	7	7	7	7	7	7
Water Quality (Lab)	13	13	13	13	13	13	13	13	13	13	13	13
Water Treatment Plant	48	50	50	50	49	49	49	49	49	49	49	49
Water Distribution	118	114	114	113	114	114	114	114	114	114	114	114
Sewer Operations	21	21	20	20	16	16	16	16	16	16	16	16
Engineering & Construction	40	40	41	41	41	41	41	41	41	41	41	41
Environmental Compliance	6	5	6	6	6	6	6	6	6	6	6	6
Total	397	393	391	392	388	388	388	388	388	388	388	388

	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024	2024
	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Executive Director	6	6	6	6	6	6	6	6	6	6	6	6
Safety & Security	6	6	6	6	6	6	6	6	6	6	6	6
Customer Service	75	75	75	75	75	75	75	75	75	75	75	75
Management Information Systems	28	28	28	28	28	28	28	28	28	28	28	28
Finance	17	17	17	17	17	17	17	17	17	17	17	17
Human Resources	13	13	13	13	13	13	13	13	13	13	13	13
Legal	5	5	5	5	5	5	5	5	5	5	5	5
Warehouse	5	5	5	5	5	5	5	5	5	5	5	5
Public Affairs	9	9	9	9	9	9	9	9	9	9	9	9
Water Quality (Lab)	14	14	14	14	14	14	14	14	14	14	14	14
Water Treatment Plant	52	52	52	52	52	52	52	52	52	52	52	52
Water Distribution	114	114	114	114	114	114	114	114	114	114	114	114
Sewer Operations	27	27	27	27	27	27	27	27	27	27	27	27
Engineering & Construction	43	43	43	43	43	43	43	43	43	43	43	43
Environmental Compliance	7	7	7	7	7	7	7	7	7	7	7	7
Total	421	421	421	421	421	421	421	421	421	421	421	421

	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025	2025
	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Executive Director	6	6	6	6	6	6	6	6	6	6	6	6
Safety & Security	6	6	6	6	6	6	6	6	6	6	6	6
Customer Service	77	77	77	77	77	77	77	77	77	77	77	77
Management Information Systems	28	28	28	28	28	28	28	28	28	28	28	28
Finance	17	17	17	17	17	17	17	17	17	17	17	17
Human Resources	17	17	17	17	17	17	17	17	17	17	17	17
Legal	5	5	5	5	5	5	5	5	5	5	5	5

Budgeted and Actual Employee Counts By Months 2020-2026

Warehouse	5	5	5	5	5	5	5	5	5	5	5	5
Public Affairs	12	12	12	12	12	12	12	12	12	12	12	12
Water Quality (Lab)	14	14	14	14	14	14	14	14	14	14	14	14
Water Treatment Plant	52	52	52	52	52	52	52	52	52	52	52	52
Water Distribution	121	121	121	121	121	121	121	121	121	121	121	121
Sewer Operations	27	27	27	27	27	27	27	27	27	27	27	27
Engineering & Construction	46	46	46	46	46	46	46	46	46	46	46	46
Environmental Compliance	7	7	7	7	7	7	7	7	7	7	7	7
Total	440	440	440	440	440	440	440	440	440	440	440	440

	2026	2026	2026	2026	2026	2026	2026	2026	2026	2026	2026	2026
	January	February	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Executive Director	6	6	6	6	6	6	6	6	6	6	6	6
Safety & Security	6	6	6	6	6	6	6	6	6	6	6	6
Customer Service	77	77	77	77	77	77	77	77	77	77	77	77
Management Information Systems	28	28	28	28	28	28	28	28	28	28	28	28
Finance	17	17	17	17	17	17	17	17	17	17	17	17
Human Resources	17	17	17	17	17	17	17	17	17	17	17	17
Legal	5	5	5	5	5	5	5	5	5	5	5	5
Warehouse	5	5	5	5	5	5	5	5	5	5	5	5
Public Affairs	12	12	12	12	12	12	12	12	12	12	12	12
Water Quality (Lab)	14	14	14	14	14	14	14	14	14	14	14	14
Water Treatment Plant	52	52	52	52	52	52	52	52	52	52	52	52
Water Distribution	121	121	121	121	121	121	121	121	121	121	121	121
Sewer Operations	27	27	27	27	27	27	27	27	27	27	27	27
Engineering & Construction	46	46	46	46	46	46	46	46	46	46	46	46
Environmental Compliance	7	7	7	7	7	7	7	7	7	7	7	7
Total	440	440	440	440	440	440	440	440	440	440	440	440

I&E Analysis

Average Annual Employee Count: I&E-RE-3Da Attachment							
	2020	2021	2022	2023	FPFTY	FY2025	FY2026
January	334	344	371	397	421	440	440
February	338	346	372	393	421	440	440
March	346	345	374	391	421	440	440
April	348	345	381	392	421	440	440
May	346	344	383	388	421	440	440
June	345	351	391	388	421	440	440
July	343	358	387	388	421	440	440
August	342	364	386	388	421	440	440
September	346	368	390	388	421	440	440
October	346	371	387	388	421	440	440
November	349	373	393	388	421	440	440
December	347	370	395	388	421	440	440
	4130	4279	4610	4677	5052	5280	5280
Average Employee Count	344	357	384	390	421	440	440

PAYROLL ADJUSTMENTS					
	HTY	FTY	FPFTY	FY2025	FY2026
Average Employee Payroll:					
IE Adjusted Total Payroll	\$ 29,461,084	\$ 31,118,062	\$ 34,600,930	\$ 37,247,367	\$ 38,364,788
Average Employee Count	384	390	421	440	440
Average Payroll per Employee	\$ 76,688	\$ 79,841	\$ 82,187	\$ 84,653	\$ 87,193
Total Payroll Expense:					
Prior Year Payroll Expense		\$ 29,461,084	\$ 31,118,062	\$ 34,600,930	\$ 37,247,367
Additional Employees x Avg Payroll		\$ 460,130	\$ 2,475,074	\$ 1,561,562	\$ -
Cost of Living Increase		\$ 1,196,849	\$ 1,007,794	\$ 1,084,875	\$ 1,117,421
Payroll Expense Allowance	\$ 29,461,084	\$ 31,118,062	\$ 34,600,930	\$ 37,247,367	\$ 38,364,788
PWSA Payroll Expense Claim	\$ 29,461,084	\$ 35,521,459	\$ 41,932,394	\$ 44,008,104	\$ 46,226,239
IE Adjustment	\$ -	\$ (4,403,397)	\$ (7,331,464)	\$ (6,760,737)	\$ (7,861,451)

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE-1 to RE-20
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-5-D Reference PWSA Volume I, FR-III.5b concerning the payroll increase, provide copies of all current union contracts and outline all contractual pay increase percentages and effective dates for the FTY, FPFTY, FY 2025, and FY 2026.

Response: All contractual cost of living pay increases typically go into effect Jan. 1 of the following year.

	FTY	FPFTY	FY 2025	FY 2026
PJCBC	3%	3%	TBD	TBD
AFSCME 2719	4%	3%	3%	3%
AFSCME 2037	3%	3%	TBD	TBD

Response provided by: Edward Barca, Director of Finance

Dated response provided: June 16, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE-1 to RE-20
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-6-D Reference PWSA Volume I, FR-III.5c concerning payroll expense:

- A. Provide supporting documentation for all pay increases for non-union employees (supervisory/management) indicating effective dates for the FTY, FPFTY, FY 2025, and FY 2026.
- B. Clarify whether any pay increases have been implemented since December 2020 for non-union employees. Include specific dates and dollar amounts of any pay increases since December 2020.

Response:

- A. All non-union employees received a 3% cost of living increase in the FTY. PWSA budgeted a 3% cost of living increase in the FPFTY and FY 2025 and a 5% cost of living increase in FY 2026 for non-union employees.
- B. Yes, PWSA provided cost of living increasing for non-union employees since 2020. The cost of living adjustments are effective January 1 of the following year with the table below showing the increase per year.

	Actual				Budgeted within the 2023 Rate Case		
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Non-Union Employees	3%	3%	3%	3%	3%	3%	5%

Response provided by: Edward Barca, Director of Finance

Dated response provided: June 16, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
 to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
 Set RE-1 to RE-20
 Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-7-D Reference PWSA Volume I, FR-III.5d concerning increases to salaries and benefits expense, provide the following:

- A. Total annual payroll increases in HTY 2022.
- B. Basis and calculation of HTY, FTY, FPFTY, FY 2025, and FY 2026 increases broken down by salaries and wages, overtime, other compensation, and benefits expense.

Response:

- A. See attachment I&E RE-7D.
- B. See percentage increase assumptions below.

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Non-Union COLA				3.00%	3.00%	3.00%	5.00%
PJCBC COLA				3.00%	3.00%	3.00%	5.00%
AFSCME 2719 COLA				4.00%	3.00%	3.00%	3.00%
AFSCME 2037 COLA				3.00%	3.00%	3.00%	5.00%
FICA Taxes				6.20%	6.20%	6.20%	6.20%
Medicare Taxes				1.45%	1.45%	1.45%	1.45%
Short-term Disability				4.00%	4.00%	4.00%	4.00%
Long-term Disability			Based on actual expense data	4.00%	4.00%	4.00%	4.00%
AD&D				4.00%	4.00%	4.00%	4.00%
Dental				1.00%	1.00%	1.00%	1.00%
Vision				4.00%	4.00%	4.00%	4.00%
401a Retirement				Based on plan	Based on plan	Based on plan	Based on plan
Medical				18.00%	13.00%	18.00%	20.00%
State Unemployment				6.00%	6.00%	6.00%	6.00%

Response provided by: Edward Barca, Director of Finance

Dated response provided: June 16, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-26-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail any year-over-year increases of \$25,000 and 10% or greater in the following sub-categories of Employee Benefits Expense for each calendar year from 2020 through 2026 and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY, FPFTY, FY 2025 and FY 2026:

- A. Medical Health Insurance (4135).
- B. Short Term Disability (4145).
- C. Dental Insurance (4165).
- D. Tuition Reimbursement (4180).
- E. Retirement Benefit (4185).

Response: See below.

- A. Medical Health Insurance (4135) – The increases in FY 2020, FY 2021, and FY 2022 are the result of a combination of increased insurance premiums and staffing. The FTY is based on historical actuals and the FPFTY increase is 13% per PWSA’s agreement with Highmark Health. An increase of 18% is assumed in FY 2025 and 20% in FY 2026. The 2022 health insurance renewal saw all bids with over 20% increases to the premium. PWSA negotiated hard to get the increase well under 20% in the FTY and FPFTY. However, there is not guarantee that this will happen in FY 2025 and FY 2026.
- B. Short Term Disability (4145) – The increases in FY 2020, FY 2021, and FY 2022 are the result of a combination of increased insurance premiums and staffing. The FTY budget is based on historical actuals. The FPFTY, FY 2025, and FY 2026 increase 4% per year as an inflationary factor.
- C. Dental Insurance (4165). - The increases in FY 2020, FY 2021, and FY 2022 are the result of a combination of increased insurance premiums and staffing. The FTY budget is based on historical actuals. The FPFTY, FY 2025, and FY 2026 increase 1% per year as an inflationary factor.
- D. Tuition Reimbursement (4180). – The increases in FY 2020, FY 2021, and FY 2022 are the result of increase employee utilization of PWSA’s tuition benefit. The FTY and FPFTY budget is based on historical actuals. The FY 2025 and FY 2026 increase 4% per year as an inflationary factor.
- E. Retirement Benefit (4185). – The increases in FY 2020, FY 2021, and FY 2022 are the result of increased staffing. The FTY budget is based on historical actuals. The FPFTY, FY 2025, and FY 2026 increase 4% per year as an inflationary factor.

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

Pittsburgh Water & Sewer Authority
Operating Expenses by Account

FTY
As of 6.30.2023

Direct Operating Expenses

<u>Wages & Salaries</u>		
4001	Salary Wages	12,581,992
4005	OT Premium Pay	957,817
4010	Shift Differential	67,467
4015	Semi Skill	-
4020	Pay Adjustments	-
4025	Bonus	85,256
4030	Holiday Pay	648,896
4035	Vacation Pay	808,528
4040	Other	-
4045	Sick Pay	6,675
4050	Personal Time Pay	604,380
4055	Comp Time Taken	-
4060	Comp Time Earned	-
4065	Jury Duty	1,637
4070	Military Leave	9,087
4075	Supper Pay	14,106
4080	Bereavement	24,010
4081	Paid Parental Leave	46,539
4085	Special	18,000
4090	Admin Leave	19,090
4095	Severance	-
	Total Wages & Salaries	15,893,480

<u>Employee Benefits</u>		
4110	Fed Ins Contr Act Tx	965,184
4115	Medicare	226,138
4120	Fed Unemploy Tax	-
4125	State Unemploy Tax	23,131
4130	Workers Comp Insur	-
4135	Med Health Ins	2,695,834
4140	Med Hlth Ins Waiver	31,204
4145	Short Term Disability	181,713
4150	Long Term Disability	15,692
4155	Life Ins <50k	24,221
4160	Accident Death Dismember	3,229
4165	Dental Ins	88,859
4170	Vision Insur	12,857
4174	Cust Serv Week	-
4175	Uniforms	(1,595)
4180	Tuition Reimburse	22,960
4185	Retirement Benefit	232,332
4195	Misc Benefits	(27,409)
4199	Payroll Upload Except	-
	Total Employee Benefits	4,494,349
	TOTAL SALARIES & BENEFITS	20,387,829

<u>Chemicals</u>		
5005	Alum	241,484
5010	Boiler Chemicals	18,971
5015	Calcium Hypochlorite	-
5020	Cat Floc TL	33,737
5025	Caustic Soda	690
5030	Chlorine Cylinders	268

5035	Chlorine Rail Car	312,492
5040	Citric Acid	-
5045	Copper Sulphate	-
5050	Ferric Chloride	1,597,995
5055	Hydrofluorosil Acid	105,256
5060	Lime	289,150
5065	Potassium Permanganate	-
5070	Powdered Active Carbon	-
5075	Soda Ash	542,052
5080	Sodium Hypochlorite	809,959
5085	Sodium Carbonate Peroxyhy Chemicals	6,480 3,958,534

Equipment

5120	Computer & Peripherals	30,849
5125	Computers Networking	32,345
5140	Furniture Fixture	2,688
5145	Grounds Maint	49,252
5147	Lab Equip	17,583
5150	Machinery	209,420
5160	Office Equipment	2,571
5170	Pumps & Motors	125,593
5180	SCADA Equipment	22,136
5190	Vehicles Equipment	727,376 1,219,812

Materials

5205	Asphalt Cold Patch	42,949
5210	Asphalt Cold-City	-
5215	Asphalt Hot-City	-
5220	Asphalt Hotmix	1,605
5225	Asphalt Patch Bit Sealer	-
5227	Brick	-
5230	Cement Bagged	2,039
5235	Gravel	-
5240	Iron Steel Brass	-
5245	Lumber	16,344
5250	Sand	-
5255	Slag	271,210
5260	Stone	-
5265	Top Soil	3,499
	Materials	337,646

Operating Contracts

5305	Annual Sewer Contract	2,623,574
5310	Boiler Compressr Elevtr	-
5315	CB Cleaning	162,790
5316	CB Repairs	-
5328	Curb Box Repair	-
5330	Debris Removal	134,345
5335	Drag Bucket	181,372
5340	Dumpster	14,389
5341	Vactor Debris Remove Cont	97,264
5342	Emergency WaterLine Repair	1,188,037
5343	Manhole & Point Repair Contract	300,804
5344	Pump & Motor Contract	-
5345	Inspection	6,497
5347	Inspection Field	759,882
5348	Line Televising	-
5350	Key Lock Serv	1,973
5355	Landscape (Grounds)	12,613
5360	Meters	131,356

5370	Operating Contract Other	161,241
5375	Radionuclides	374,127
5380	Intr-Gov Proj Panther Hollow	230,811
5383	Sewage Treatment	-
5385	Temporary Help	37,380
5390	Welding	-
5395	Water Relay DISC	-
5396	Sewer Relay DISC	-
	Operating Contracts	6,418,455

Repairs & Maintenance

5402	Annual Software Support	1,848,636
5405	Bldg Property Repairs	52,942
5408	Computer Hardware	83,580
5411	Computer Software Support	175,652
5413	Concrete Repairs	2,562,662
5415	Cranes Repairs	430
5417	Electrical Repairs	22,371
5420	Fence Repairs	3,644
5422	Fence Installation	66,301
5427	GIS Hardware Software	1,455
5432	Hardware Repairs	-
5437	Heavy Equip Repair	6,214
5439	HVAC Plumbing	84,340
5444	Hydrant A Section	-
5445	Hydrant Misc Parts	-
5447	Hydrant Repair Parts	-
5452	Machinery Repairs	116,008
5457	Office Equip Repairs	1,181
5462	Plant Repairs	142,808
5467	Power Tool Repairs	-
5472	Road Repair Plant	-
5475	Scanner	-
5482	Tool Repairs	2,480
5484	Hand Tool Repairs	-
5486	Misc Tool Repairs	-
5488	CC TV Repairs	-
5490	Vactor Repairs	-
5491	Vehicle Repairs	424,405
5496	Repair Maint Other	13,014
	Repairs & Maintenance	5,608,124

Misc. Operating

5570	Testing Misc	98,167
	Misc. Operating	98,167

Inventory - Castings

6015	Casting Manhole CBasin	-
6025	Casting Risers Lids	-
6035	Casting Sewer Inlet	-
6060	Casting Water Valve Box	-
	Inventory - Castings	-

Inventory - Clarifier

6115	Clarifier Part Flocc	-
6120	Clarifier Part Screw	-
6125	Clarifier Part Sludge	-
	Inventory - Clarifier	-

Inventory - Equipment

6200	Inventory-Equip	50,583
6220	Fire Extinguishers	-

6245	Materials Handling	-
6260	Safety Equipment	-
6280	Vacuum Chlorinators	-
	Inventory - Equipment	50,583

Inventory - Hardware

6300	Inventory-Hardware	509,849
6315	Fittings	-
6320	Hardware Other	-
6325	Hose Fitting	-
6330	Keys & Locks	-
6335	Lights	-
6340	Machinery Misc	-
6345	Meters	-
6350	Plumbing Inv Exp	-
6355	Power Tool Inv Exp	-
6360	Tools Inv Exp	-
6365	Hand Tools Inv Exp	-
	Inventory - Hardware	509,849

Inventory - Heavy Equipment

6420	Backhoe	-
	Inventory - Heavy Equipment	-

Inventory - Miscellaneous

6500	Inventory-Misc	30,089
6506	Batteries	-
6515	Cleaning	-
6518	Concrete Accessories	-
6520	Copier Paper	-
6525	Filters	-
6526	Filters HVAC	-
6530	FirstAid	-
6540	Lamps	-
6544	Lubricating Oil	-
6548	Paint Oils Putty Glass	-
6552	Paper Products	-
6555	Pump Oil	-
6565	Sewer Matls Supplies	-
6570	Testing Dyes	-
6580	Vehicle Oil	-
6585	Welding Supplies-Inventory	-
	Inventory - Miscellaneous	30,089

Inventory - Parts

6645	Parts Other	21,091
6680	Yard	-
	Inventory - Parts	21,091

Inventory - Pipe

6705	Pipe	134,498
6710	Pipe Ductile	-
6755	Pipe Plastic	-
6765	Pipe Service Line	-
	Inventory - Pipe	134,498

Inventory - Valves

6805	Valves <12in	-
6810	Valves >16in	-
6820	Valves GA	-
6825	Valves Misc	143,687
	Inventory - Valves	143,687

INVENTORY TOTAL	889,797
DIRECT OPERATING TOTAL	38,918,363
<u>Fees</u>	
7003 Bank Fees	1,166
7005 Certification Fees	2,135
7010 Membership Fees	49,570
7015 Permits	67,126
7020 Registration Fees	2,646
7030 Licenses	800
7035 Customer CC Fees	228,195
Total Fees	351,638
<u>Freight and Postage</u>	
7105 Freight Hauling	-
7110 Freight Shipping	1,721
7115 Postage	235,246
Total Freight and Postage	236,967
<u>Leases & Rents</u>	
7210 Copier Fax Machine	28,005
7215 Equip Rental	48,148
7255 Office Rent	609,593
7260 Pagers	-
7265 RadioLease(City)	28,880
Total Leases & Rents	714,626
<u>Professional Services</u>	
7305 Advertising	8,838
7306 Annual Report	-
7307 Advertising - Marketing	-
7310 Annual Audit	56,723
7315 Billing Contract	130,292
7321 Coll Agency Sewage	-
7323 Consultants	1,810,735
7325 Consumer Confidence Rpt	-
7328 Contingencies	-
7330 Construction Management	557,218
7332 Consulting Engineers	16,677
7335 Misc Serv NonCapital	16,723
7345 Ins Auto	75,672
7348 Ins Commercial Prop	316,231
7353 Ins Gen Liability	21,213
7359 Ins Officers Director	165,343
7365 Ins WorkersComp	338,447
7366 Ins WorkersComp City	8,952
7368 Internet Connection Serv	70,912
7370 Legal	1,348,434
7371 Legal Self Ins	-
7373 Minority Women Bus Enter	-
7375 Meter Services	430,664
7382 Payroll Services	75,181
7383 Prof Service Other	972,543
7389 Trust Admin	12,685
7390 Water Liens	-
Total Professional Services	6,433,484
<u>Supplies</u>	
7405 Computer Software Supplies	1,301
7422 Fuel-Gasses	178,543
7423 Fuel Kerosene	-
7424 Fuel Propane	719

7435	GIS Plotter Xerox	-
7440	Grounds & Maint Supp	293,274
7443	ICE	-
7445	Lab Chemicals	-
7447	Lab Supplies	64,655
7450	Office Supplies	15,355
7460	Uniforms	68,512
7490	Welding Supplies	7,836
	Total Supplies	630,197

Travel & Entertainment

7505	TE Airfare	-
7510	TE Auto Rentals	-
7520	TE Fuel	-
7540	TE Lodging	-
7545	TE Meals	6,347
7550	TE Mileage	-
7555	TE SeminarsConferences	210
7560	TE Training	53,260
7575	TE Travel Misc	29,496
7590	TE Travel Purch Orders	-
	Total Travel & Entertainment	89,312

Utilities

7605	Electric	3,673,173
7650	Natural Gas City	288,300
7675	Telemeter	110,831
7680	Cellular Phone	99,970
7681	Local Phones	91,193
7682	Long Distance	-
7683	Internet	18,115
	Total Utilities	4,281,583

Miscellaneous Admin

7705	Bad Debt	-
7710	Capital Asset Reclass	-
7711	DISC Asset Reclass	-
7712	Cash Discount Taken	(1,846)
7715	Claims Deductibles	57,924
7720	Customer Refund CSM	(511,322)
7721	Customer Refund AP	533,441
7730	Fines Penalties	4,000
7735	LienBuyBkExp	-
7742	Education & Outreach	45,316
7743	Employee Fund	-
7750	Inv Adjustments	-
7760	Misc Gen Admin Exp	35,814
7765	One Call	6,540
7770	Publication Subscription	12,436
7787	3rd Pty LW Exp	-
7789	3rd Pty Sew Trt Exp	-
7799	Grants Awarded by PWSA	-
8005	City Indirect Costs (Pension & Taxes)	-
8070	Sewer Direct	-
8071	Sewer Indirect	-
8180	Non.City Water Reimburse	81,349
	Total Miscellaneous Admin	263,651

DIRECT OPERATING EXPENSES 51,919,822

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-33-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail any year-over-year increases of \$25,000 and 10% or greater in the following sub-categories of Operating Contracts Expense for each calendar year from 2020 through 2026 and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY, FPFTY, FY 2025 and FY 2026:

- A. Annual Sewer Contract (5305).
- B. Manhole & Point Repair Contract (5343).
- C. Pump & Motor Contract (5344).
- D. Inspection Field (5347).
- E. Landscape (5355).
- F. Meters (5360).
- G. Operating Contract Other (5370).
- H. Radionuclides (5375).
- I. Intr-Gov Proj Panther Hollow (5380).

Response: See below.

- A. Annual Sewer Contract (5305) – The increases in FY 2020, FY 2021, FY 2023, FPFTY, FY 2025, and FY 2026 is related to urgent sewer line brakes. In addition, pricing increases are also driving the increases in FPFTY – FY 2026.
- B. Manhole & Point Repair Contract (5343) – The increases in FTY, FPFTY, FY 2025, and FY 2026 are driven by anticipated pricing increases to continue necessary manhole & point repair work.
- C. Pump & Motor Contract (5344) - The increases in FTY, FPFTY, FY 2025, and FY 2026 are driven by anticipated pricing increases to continue necessary pump and motor repair work.
- D. Inspection Field (5347). - The increases in FY 2020, FY 2021, FY 2022, FTY, FPFTY, FY 2025, and FY 2026 are driven by anticipated pricing increases to continue necessary field inspection work that is associated with repair and maintenance contracts.
- E. Landscape (5355). - The increases in FY 2020, FY 2021, FY 2022, FTY, FPFTY, FY 2025, and FY 2026 are driven by anticipated pricing increases to continue necessary landscaping work.
- F. Meters (5360). – This GL account has been repurposed for flagging work. The increases in the FTY, FPFTY, FY 2025, and FY 2026 are driven by anticipated pricing increases to continue necessary flagging work.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

- G. Operating Contract Other (5370). The increases in FY 2020 – FY 2022 and FPFTY – FY 2026 are driven by price increases to continue operating contract work, such as reservoir cleaning and tank cleaning, along with the anticipated work resulting from PWSA’s Wet Weather Consent Decree. The costs included to fund the Wet Weather Consent Decree are \$7,500,000 in the FPFTY, \$9,750,000 in FY 2025, and \$12,675,000 in FY 2026.
- H. Radionuclides (5375). – This GL account has been repurposed for external security guards. The increases in the FTY, FPFTY, FY 2025, and FY 2026 are driven by anticipated pricing increases to continue providing security at both of PWSA’s water treatment plants.
- I. Intr-Gov Proj Panther Hollow (5380). – This GL account has been repurposed for Line Locating services. The increases in the FTY, FPFTY, FY 2025, and FY 2026 are driven by anticipated pricing increases to continue line locating services.

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: I&E-RE-46 Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the increase from HTY to FTY in the following sub-categories of Operating Contracts Expense and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY and FPFTY:

- A. Drag Bucket.
- B. Line Televising.

Response:

- A. The expense included in the HTY was for a repair to the brag bucket. There are no expenses included in the FTY or FPFTY.
- B. There are no expenses included in the HTY, FTY, or FPFTY.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 14, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-36-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail any year-over-year increases of \$25,000 and 10% or greater in the following sub-categories of Leases and Rents Expense for each calendar year from 2020 through 2026 and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY, FPFTY, FY 2025 and FY 2026:

- A. Office Rent (7255).
- B. Pagers (7260).

Response: See below:

- A. Office Rent (7255). – The increases in FY 2022 and FY 2023 are the result of increased rent costs for PWSA’s headquarter location at 1200 Penn Avenue. The increases in the FPFTY, FY 2025, and FY 2026 are attributable to leasing costs for an anticipated new PWSA headquarter location.
- B. Pagers (7260). – This GL account has been repurposed for the portion of parking costs that is covered for employees. The increase in FTY, FPFTY, FY 2025, and FY 2026 reflect increased parking costs and the increased employee headcount.

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
 to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
 Set RE-1 to RE-20
 Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

I&E-RE-13-D Reference the PWSA Volume I, FR-III.9 and 2024 Cost of Service Study and Rate Design – FR-III.1 concerning lease and rent expenses, provide the following:

- A. Mathematic reconciliation of leases discussed in FR-III.9 versus 2024 Cost of Service Study and Rate Design – FR-III.1 Leases & Rents line item (line 280).
- B. Dollar amount by individual lease in the FTY, FPFTY, FY 2025, and FY 2026.
- C. Copy of lease agreements identifying the annual lease amounts that support the FTY, FPFTY, FY 2025, and FY 2026 claims.

Response:

A. Based on the assumption this question is referring to FR-III.7 and not FR-III.9. See below for the GL associated with each lease listed in FR-III.7. Note that the Sensus USA, Inc. lease is captured under 7375 (Meter Services) since it is the lease for PWSA’s metering infrastructure.

Lease	GL Account
The Buncher Corporation	7255
Public Parking Authority of Pittsburgh	7260
Pitney Bowes	7210
Sensus USA, Inc.	7375

B. See below.

Lease	GL Account	FTY	FPFTY	FY 2025	FY 2026
The Wilson Group	7210	\$54,522	\$57,901	\$61,487	\$65,290
The Buncher Corporation	7255	\$960,530	-	-	-
New Corporation Headquarter Lease	7255	-	\$1,975,659	\$2,094,199	\$2,219,851
Pitney Bowes	7210	\$3,600	\$3,708	\$3,819	\$3,934
Sensus USA, Inc.	7375	\$666,307	\$686,296	\$706,885	\$728,091
Public Parking	7260	\$60,000	\$63,600	\$67,416	\$71,461

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)**

Set RE-1 to RE-20

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Authority of Pittsburgh					
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C. See I&E RE-13Dc Attach A through I&E RE-13Dc Attach D.

Response provided by: Edward Barca, Director of Finance

Dated response provided: June 21, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-37-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail any year-over-year increases of \$25,000 and 10% or greater in the following sub-categories of Professional Services Expense for each calendar year from 2020 through 2026 and provide the detailed basis, calculation, and supporting documentation for these expense projections in the FTY, FPFTY, FY 2025 and FY 2026:

- A. Advertising (7305).
- B. Billing Contract (7315).
- C. Consultants (7323).
- D. Construction Management (7330).
- E. Consulting Engineers (7332).
- F. Misc Serv NonCapital (7335).
- G. Insurance Commercial Property (7348).
- H. Insurance General Liability (7353).
- I. Insurance Officers Director (7359).
- J. Legal (7370).
- K. Professional Services Other (7383).
- L. Water Liens (7390).

Response: See below.

- A. Advertising (7305). – The increases in FY 2021 and FTY are the result of the increase in the number of public bid advertisements for PWSA projects.
- B. Billing Contract (7315). – The increase in FY 2022 was the result of one-time implementation costs for the billing vendor to integrate with SAP.
- C. Consultants (7323). – The increase in FY 2022 and FTY are the result of hiring a consultant to help negotiate the forthcoming Wet Weather Consent Decree and rate case costs.
- D. Construction Management (7330). – The increases in FTY, FPFTY, FY 2025, and FY 2026 are the result of increased costs associated with providing construction management service for PWSA’s operating contracts.
- E. Consulting Engineers (7332). – The increases in FY 2021 and FTY are the result of PWSA’s consulting engineer having to complete a facilities assessment as part of the required consulting engineers annual report.
- F. Misc Serv NonCapital (7335). – There are no increases of \$25,000 or greater than 10%.
- G. Insurance Commercial Property (7348). – The increases in FY 2022, FTY, FY 2025, and FY 2026 are the resulting of an increase in the market rate of insurance and increased assessed value as the result of improvements.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE Nos. 21-44
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

- H. Insurance General Liability (7353). – This GL account has been repurposed for PWSA’s cyber insurance policy. The increases in FY 2020, FY 2021, FY 2022, FTY, FPFTY, FY 2025, and FY 2026 are the result of an increase in the market rate of insurance.
- I. Insurance Officers Director (7359). – The increases in FY 2020, FY 2021, and FY 2022 are the result of an increase in the market rate of insurance.
- J. Legal (7370). – The increases in FY 2020, FY 2021, FTY, FY 2025, and FY 2026 are the result of a combination of legal cost for regulatory compliance, inflation rate for legal services, and rate case expenses.
- K. Professional Services Other (7383). – The increases in FPFTY and FY 2026 are attributable to the PUC Assessment Fee.
- L. Water Liens (7390). – The increase in FY 2021 and FTY are the result of an increase the amount to file a lien and an increase in the number of liens that are filed.

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE-1 to RE-20
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

- Request: I&E-RE-2-D** Reference PWSA Volume I, FR-III.4 concerning rate case expense. Provide the following:
- A. Copies of all current outside service contract agreements for rate case-related services.
 - B. Invoices/receipts for the rate case-related expenses incurred to date for the current filing and continue to provide updates for invoices as they are incurred.
 - C. Explanation/clarification for showing rate case expense claims of \$3,835,750 in the FTY and \$2,565,895 in the FPFTY in the table produced in FR-III.4.
 - D. A breakdown of rate case expense between the base rate case and DSIC proceedings for the following:
 - 1. Legal Counsel Costs: FTY (\$2,865,750) and FPFTY (\$2,137,695).
 - 2. Other Consultants: FTY (\$970,000) and FPFTY (\$428,200).
 - E. Identify the account name(s), number(s), and dollar amounts of all 2023 rate case-related expense items included in the FTY, FPFTY, FY 2025, and FY 2026.
 - F. Identify the account name(s), number(s), and dollar amounts of any 2021 rate case-related expense items included in the HTY, FTY, FPFTY, FY 2025, and FY 2026.
 - G. Identify the account name(s), number(s), and dollar amounts of any future rate case-related expense items which are included in PWSA’s current filing for the FTY, FPFTY, FY 2025, and FY 2026.
 - H. State when PWSA intends or expects to file its next base rate case.

Response:

- A. See attachment I&E RE-2Da Attach A through Attach C.
- B. See attachment RE-2Db Attach A through Attach B.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
 to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
 Set RE-1 to RE-20
 Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

C. FR-III.4 shows the total amount budgeted for the general ledger accounts for where rate case expenses are expensed. However, the total amount budgeted in the general ledger accounts listed is not all for this rate case. See the breakdown below.

GL	GL Description	FY 2023	FY 2024	Total
916-7370	Legal Counsel Costs	\$ 2,865,750	2,137,695	
	<i>Eckert Seamans - Rate Case</i>	1,057,303	350,000	1,407,303
	<i>Non Rate Case Legal Expenses</i>	1,808,447	1,787,695	
913-7323	Other Consultant	970,000	428,200	
	<i>Raftelis - Rate Case</i>	770,000	150,000	920,000
	<i>Public Resources Advisory Group - Rate Case</i>	200,000	50,000	250,000
	<i>Non Rate Case Consulting Expenses</i>	-	228,200	
Total Rate Case Expenses		\$ 2,027,303	550,000	\$ 2,577,303

D. See below.

GL	GL Description	FY 2023	FY 2024	Total
916-7370	Eckert Seamans - Rate Case	\$ 1,057,303	350,000	1,407,303
	<i>Base Rate Case</i>	951,573	315,000	
	<i>DSIC Proceedings</i>	105,730	35,000	
913-7323	Raftelis - Rate Case	770,000	150,000	920,000
	<i>Base Rate Case</i>	693,000	135,000	
	<i>DSIC Proceedings</i>	77,000	15,000	
913-7323	Public Resources Advisory Group - Rate Case	200,000	50,000	250,000
	<i>Base Rate Case</i>	180,000	45,000	
	<i>DSIC Proceedings</i>	20,000	5,000	

E. See below.

GL	GL Description	FY 2023	FY 2024	FY 2025	FY 2026
916-7370	Eckert Seamans - Rate Case	\$ 1,057,303	350,000	-	-
913-7323	Raftelis - Rate Case	770,000	150,000	-	-
913-7323	Public Resources Advisory Group - Rate Case	200,000	50,000	-	-
		\$ 2,027,303	550,000	-	-

F. There are no 2021 rate case expenses in the HTY, FTY, FPFTY, FY 2025, or FY 2026.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE-1 to RE-20
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

G. There are no future rate case expenses in the HTY, FTY, FPFTY, FY 2025, or FY 2026. However, future rate case expenses may need to be incurred in the FPFTY, FY 2025, or FY 2026 depending on the result of the 2023 rate case.

H. The next base rate case filing is to be determined.

Response provided by: Edward Barca, Director of Finance

Dated response provided: June 16, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
Set RE-1 to RE-20
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

I&E-RE-14-D Reference PWSA Volume I, FR-III.1 concerning operating expenses by account, provide the following:

- A. Identify all expenses attributable to lobbying by expense account name, expense account number, and dollar amount for the HTY, FTY, FPFTY, FY 2025, and FY 2026.
- B. State whether the company is claiming lobbying related expenses in the revenue requirement, and if so, explain the reasoning.

Response:

A. See below.

Fiscal Year	GL Account	Amount – Actual	Amount – Budget
2022	910-7370	\$98,419	-
2023	910-7370	-	\$92,700
2024	910-7370	-	\$98,262
2025	910-7370	-	\$104,158
2026	910-7370	-	\$110,407

- B. As a public, municipal organization, the work of Saxton and Stump provide legislative and regulatory updates to PWSA including issues that result in benefits for ratepayers, such as helping to obtaining low-interest financing.

Response provided by: Edward Barca, Director of Finance

Dated response provided: June 21, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
 to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
 Set RE Nos. 21-44
 Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RE-31-D Reference PWSA Volume I, FR-III.1 and the 2024 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. List any equipment expenses budgeted in the FPFTY, FY 2025, or FY 2026 that have a useful life of greater than one year. Identify the account, dollar amount, and years of useful life for each expense.

Response: All of the equipment purchases occurring in the FPFTY, FY 2025, and FY 2026 for the GL accounts below have a useful life greater than one year.

GL Account	GL Name	FPFTY	FY 2025	FY 2026	Useful Life
5120	Computer & Peripherals	\$290,691	\$308,132	\$326,620	3-5 Years
5140	Furniture Fixture	13,257	14,052	14,895	7 Years
5147	Lab Equip	106,000	112,360	119,102	3-5 Years
5150	Machinery	352,980	374,159	396,608	5-10 Years
5190	Vehicles	2,067,840	2,191,910	2,323,425	5-7 Years
6260	Safety Equipment	64,872	68,764	72,890	3 years

Response provided by: Edward Barca, Director of Finance

Date Response provided: June 27, 2023

**I&E Statement No. 2-SR
Witness: Vanessa Okum**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2023-3039919, R-2023-3039920 & R-2023-3039921

Surrebuttal Testimony

of

Vanessa Okum

Bureau of Investigation and Enforcement

Concerning:

**OPERATING AND MAINTENANCE EXPENSES,
MULTI-YEAR RATE PLAN, CUSTOMER ASSISTANCE CHARGE**

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CUSTOMER ASSISTANCE CHARGE 26

1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Vanessa Okum. My business address is Pennsylvania Public Utility
4 Commission (Commission), Commonwealth Keystone Building, 400 North Street,
5 Harrisburg, PA 17120.

6
7 **Q. ARE YOU THE SAME VANESSA OKUM WHO SUBMITTED DIRECT**
8 **TESTIMONY IN I&E STATEMENT NO. 2 AND I&E EXHIBIT NO. 2?**

9 A. Yes.

10

11 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

12 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of
13 the following Pittsburgh Water and Sewer Authority (PWSA or Authority)
14 witnesses:

- 15 • Edward Barca (PWSA Statement No. 2-R) regarding PWSA's operating
16 and maintenance (O&M) expenses, the claimed multi-year rate plan, and
17 proposed Customer Assistance Charge (CAC).
- 18 • Mr. King (PWSA Statement No. 4-R) regarding the Wet Weather Consent
19 Decree.

1 **Q. DOES YOUR SURREBUTTAL TESTIMONY INCLUDE AN EXHIBIT?**

2 A. No. However, I refer to my direct testimony and accompanying exhibit in this
3 surrebuttal testimony (I&E Statement No. 2 and I&E Exhibit No. 2).
4

5 **Q. WHAT CHANGES DID PWSA MAKE TO ITS CLAIMED REVENUE**
6 **INCREASE AND TOTAL O&M EXPENSES IN REBUTTAL**
7 **TESTIMONY?**

8 A. PWSA submitted a revision to its rate case tables showing a slight change in the
9 fully projected future test year (FPFTY) total annual revenue increase request
10 from \$46,507,280 to \$46,506,381. However, PWSA did not make any revisions to
11 its FPFTY gross total operating expenses of \$135,911,272.¹
12

13 **MULTI-YEAR RATE PLAN**

14 **Q. SUMMARIZE YOUR DISCUSSION FROM DIRECT TESTIMONY**
15 **ABOUT THE RELIABILITY AND REASONABLENESS OF PWSA'S**
16 **FPFTY O&M EXPENSE CLAIMS IN THIS PROCEEDING.**

17 A. As discussed in my direct testimony, although overall it appears that PWSA's
18 actual expenses have been very close to its budget amounts in fiscal years (FY)
19 2021 and 2022, the data at the account level and expense category level shows
20 large variances. The number of individual accounts that were significantly over or
21 under budget (defined as at least 10% and \$25,000 variance) increased from 29%

¹ Exhibit WJP-4, Updated rate case tables.

1 in 2020, to 30% in 2021, and 32% in 2022. PWSA has not supplied sufficient
2 explanations to support these variances, raising concerns about the reliability and
3 reasonableness of the future test year (FTY) and FPFTY claims in this proceeding.
4 Coupled with the use of a traditional forecasting method for FY 2025 and FY
5 2026, where unsupported blanket increases are applied to groups of expenses,
6 these concerns have led to my recommended disallowance of the proposed multi-
7 year rate plan.²

8
9 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

10 A. Yes. PWSA witness Edward Barca disagrees with my comments about the
11 reliability and reasonableness of the FPFTY budgeted claims in this proceeding.

12
13 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

14 A. Mr. Barca states that the account-level variances are not a reason to reject a multi-
15 year rate plan, but in fact are a basis of support for its reasonableness. He asserts
16 that there is no Commission regulation mandating budget accuracy at the account
17 level as a requirement for a multi-year rate plan, therefore PWSA's accuracy in
18 projecting its operating expenses at the budget level is a significant reason for
19 acceptance of PWSA's projections for FY 2025 and FY 2026.

20 Additionally, Mr. Barca asserts that requiring a utility to show budget
21 accuracy on an account level feels like an argument designed to reject any multi-

² I&E Statement No. 2, pp. 4-6.

1 year rate plan proposed by PWSA or any other utility. He continues that in his
2 vast experience formulating budget projections, no entity can project to the dollar,
3 but rather focuses on accuracy on an overall basis. He concludes that it is unfair to
4 require account-level accuracy for approval of a multi-year rate plan.³

5
6 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S COMMENT**
7 **REGARDING THE BUDGETING PROCESS AND REASONABLENESS**
8 **OF THE FPFTY O&M EXPENSE CLAIMS?**

9 A. Budgeting is commonly completed at the account level, and surely PWSA
10 appreciates the value of an account-level budget since its own FPFTY budget uses
11 a zero-based approach at the account level. Accuracy is important on an overall
12 basis, but one cannot claim to be sticking to the plan when costs in one area are
13 significantly over budget, forcing the entity to find cost savings elsewhere. With a
14 multi-year rate plan, there would be no opportunity for adjustments to be made in
15 such a situation where the shifting of expenses in year one will have an ongoing
16 impact on the budget in the later years of the plan.

17 Additionally, Mr. Barca mischaracterizes my statement regarding the multi-
18 year rate plan. I did not state there were any official requirements for approval of
19 a multi-year rate plan, I simply stated that the high level of PWSA's unexplained
20 variances is concerning. Combined with the fact that years two and three of the
21 multi-year rate plan are not analyzed through a zero-based budgeting approach,

³ PWSA Statement No. 2-R, pp. 28-29.

1 but a much less analytical approach where unsupported blanket inflation increases
2 are applied, I recommend rejection of the multi-year rate plan.

3 Finally, Mr. Barca's argument that entities strive for accuracy only at the
4 overall budget level is not categorically true for utilities regulated by the
5 Commission. A relatively accurate account-level budget is essential for evaluation
6 and recommendation for approval of any rates in a base rate case filing, especially
7 when a multi-year rate plan is requested.

8
9 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION?**

10 A. No. I continue to recommend disallowance of the multi-year rate plan. For this
11 reason, the adjustments in my surrebuttal testimony below will focus primarily on
12 the FPFTY. If the Commission decides to allow PWSA's proposed multi-year
13 rate plan, then I refer you to my direct testimony regarding my FY 2025 and FY
14 2026 recommendations (I&E Statement No. 2).

15
16 **SUMMARY OF RECOMMENDED ADJUSTMENTS**

17 **Q. PLEASE SUMMARIZE YOUR RECOMMENDED ADJUSTMENTS AS**
18 **SHOWN HEREIN.**

19 A. I recommend O&M expense adjustments for the FPFTY as shown below:

1

	PWSA Updated Claim	I&E Updated Recommended Allowance	I&E Updated Adjustment
Payroll Expense	\$41,932,394	\$34,600,930	(\$7,331,464)
Payroll Tax Expense	\$3,240,779	\$2,674,161	(\$566,618)
Retirement Benefits	\$899,208	\$516,671	(\$382,537)
Operating Contracts Other	\$8,866,242	\$1,366,242	(\$7,500,000)
Office Rent	\$1,975,659	\$916,176	(\$1,059,483)
Legal Expense	\$2,251,857	\$2,153,595	(\$98,262)
Equipment Expense	\$3,411,233	\$1,210,116	(\$2,201,117)
COVID-19 Expense	<u>\$263,215</u>	<u>\$166,241</u>	<u>(\$96,974)</u>
Total O&M Expense Adjustments			<u>(\$19,236,455)</u>

2

3 **Q. SUMMARIZE YOUR RECOMMENDED ALLOCATION OF UPDATED**
4 **EXPENSE ADJUSTMENTS BETWEEN THE WATER, WASTEWATER,**
5 **AND STORMWATER SYSTEMS.**

6 A. I continue to allocate the above O&M expense adjustments using a ratio of
7 66.11% for water, 17.22% for wastewater, and 16.67% for stormwater based on
8 PWSA’s FPFTY 2024 Cost of Service Study and Rate Design as shown in the
9 table below:⁴

⁴ PWSA filing, FPFTY 2024 Cost of Service and Rate Design, RevReq Allocation tab, Column R, lines 25-27.

1

	<u>I&E Updated Adjustment</u>	<u>Water (66.11%)</u>	<u>Wastewater (17.22%)</u>	<u>Stormwater (16.67%)</u>
Payroll Expense	(\$7,331,464)	(\$4,846,831)	(\$1,262,478)	(\$1,222,155)
Payroll Tax Expense	(\$566,618)	(\$374,591)	(\$97,572)	(\$94,455)
Retirement Benefits	(\$382,537)	(\$252,895)	(\$65,873)	(\$63,769)
Operating Contracts Other	(\$7,500,000)	(\$4,958,250)	(\$1,291,500)	(\$1,250,250)
Office Rent	(\$1,059,483)	(\$700,424)	(\$182,443)	(\$176,616)
Legal Expense	(\$98,262)	(\$64,961)	(\$16,921)	(\$16,380)
Equipment Expense	(\$2,201,117)	(\$1,455,158)	(\$379,032)	(\$366,926)
COVID-19 Expense	(\$96,974)	(\$64,110)	(\$16,699)	(\$16,166)
Total O&M Expense Adjustments	<u>(\$19,236,455)</u>	<u>(\$12,717,220)</u>	<u>(\$3,312,518)</u>	<u>(\$3,206,717)</u>

2

3 **PAYROLL, PAYROLL TAX, AND RETIREMENT BENEFITS EXPENSE**

4 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
5 **FOR PAYROLL EXPENSE.**

6 A. I recommended an allowance of \$34,600,930 for payroll expense, or a reduction of
7 \$7,331,464 (\$41,932,394 - \$34,600,930) to PWSA’s FPFTY claim. My
8 recommendation for payroll expense used a zero-based budgeting approach by
9 adjusting the historic test year (HTY) payroll expense for projected employee
10 additions and annual cost-of-living increases.⁵

⁵ I&E Statement No. 2, p. 10.

1 **Q. PLEASE SUMMARIZE YOUR RELATED PAYROLL TAX AND**
2 **RETIREMENT BENEFITS EXPENSE ADJUSTMENTS.**

3 A. I recommended an allowance of \$2,674,161 for payroll tax expense, or a reduction
4 of \$566,618 (\$3,240,779 - \$2,674,161) to PWSA's FPFTY claim. This adjustment
5 was based on the corresponding decrease to payroll expense and was calculated by
6 multiplying PWSA's total payroll tax rate by the amount of my payroll expense
7 deduction.⁶

8 I recommended an allowance of \$516,671 for retirement benefits, or a
9 reduction of \$382,537 (\$899,208 - \$516,671) to PWSA's FPFTY claim. This
10 adjustment was also based on the corresponding payroll expense adjustment and
11 was calculated by annualizing the FTY year-to-date amount and applying a year-
12 over-year increase in line with the percentage increase in the I&E adjusted total
13 payroll expense.⁷

14
15 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

16 A. Yes. PWSA witness Edward Barca disagrees with my recommended payroll
17 expense adjustment and therefore also with my payroll tax and retirement benefits
18 expense adjustments.

⁶ I&E Statement No. 2, pp. 12-14.

⁷ I&E Statement No. 2, pp. 14-16.

1 **Q. SUMMARIZE MR. BARCA’S RESPONSE TO YOUR PAYROLL,**
2 **PAYROLL TAX, AND RETIREMENT BENEFITS EXPENSE**
3 **ADJUSTMENTS.**

4 A. Mr. Barca states that my recommendation for these expenses would result in an
5 FPFTY budget amount that is \$425,776 lower than PWSA’s FTY amount. He
6 asserts that this recommendation does not allow PWSA to: (1) recover increased
7 expenses for additional employees in the FPFTY; (2) fund the nondiscretionary
8 3% cost of living adjustment for union employees; and (3) fund increases in health
9 insurance costs.⁸

10

11 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S ASSERTIONS**
12 **REGARDING PAYROLL, PAYROLL TAX, AND RETIREMENT**
13 **BENEFITS EXPENSE.**

14 A. First, I reiterate from my direct testimony that PWSA did not explain the
15 significant increase in budgeted payroll expenses from the HTY to the FTY,
16 considering that headcount remained relatively flat. As shown in the table below,
17 the FTY budget for total payroll and benefits expense was 23% higher than HTY
18 actuals:

19

	HTY Actuals	FTY Budget	% Change
Total Payroll and Benefits	\$37,699,936	\$46,438,518	23% 20

⁸ PWSA Statement No. 2-R, pp. 42-43.

1 Additionally, PWSA’s response to I&E-RE-47 containing year-to-date
 2 actuals⁹ shows that the Authority is on track to underspend the FTY budget by
 3 12%:

	FTY Budget	FTY Annualized Actuals	% Change
Total Payroll and Benefits	\$46,438,518	\$40,775,658	-12%

5 When considering the annualized actual FTY data, my recommendation is
 6 13% above the FTY amount, which is reasonable:

	FTY Annualized Actuals	I&E FPFTY Allowance	% Change
Total Payroll and Benefits	\$40,775,658	\$46,012,742	13%

8 My recommended adjustment is specifically designed to allow PWSA to
 9 recover increased expenses for additional employees and fund a 3-4% cost of
 10 living adjustment. I did not make any recommended adjustments to the budget
 11 regarding health insurance costs.

13 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
 14 **PAYROLL EXPENSE, PAYROLL TAX, AND RETIREMENT BENEFITS**
 15 **EXPENSE?**

16 A. No. I continue to recommend an allowance of \$34,600,930 for payroll expense, or
 17 a reduction of \$7,331,464 (\$41,932,394 - \$34,600,930) to PWSA’s FPFTY claim,
 18 \$2,674,161 for payroll tax expense, or a reduction of \$566,618 (\$3,240,779 -

⁹ I&E Exhibit No. 2, Schedule 10, p. 1.

1 \$2,674,161) to PWSA's FPFTY claim, and \$516,671 for retirement benefits, or a
2 reduction of \$382,537 (\$899,208 - \$516,671) to PWSA's FPFTY claim. This
3 results in a total reduction of \$8,280,619 to PWSA's payroll and benefits claim.
4

5 **OPERATING CONTRACTS - OTHER**

6 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
7 **FOR OPERATING CONTRACTS - OTHER.**

8 A. I recommended an allowance of \$1,366,242 for operating contracts - other or a
9 reduction of \$7,500,000 (\$8,866,242 - \$1,366,242). My recommendation was
10 based on disallowance of the entire amount for the Wet Weather Consent Decree
11 (Decree) due to the speculative nature of PWSA's claim. The Decree is not
12 expected to be finalized until 2024, and no supporting documentation was
13 provided to substantiate PWSA's claim.¹⁰
14

15 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

16 A. Yes. PWSA witnesses Edward Barca and Barry King both disagree with my
17 recommended adjustment to operating contracts - other.
18

19 **Q. PLEASE SUMMARIZE THE WITNESSES' RESPONSES TO YOUR**
20 **RECOMMENDED ADJUSTMENT.**

21 A. Mr. Barca asserts that there are existing purchase order commitments outstanding

¹⁰ I&E Statement No. 2, pp. 17-18.

1 for wet weather modeling, negotiations, and data gathering that will require
2 payment of \$7.5 million in the FPFTY. He states further that PWSA must incur
3 these costs to properly design the Decree. He continues that not allowing recovery
4 of these costs would hinder PWSA's ability to honor its commitments and raise
5 environmental compliance issues.¹¹

6 Mr. King states that the Decree will result in hundreds of millions of dollars
7 in required improvements, with a significant portion being paid out of the
8 operating budget. He continues that the Decree is the culmination of a series of
9 allegations made by various state and federal government agencies claiming that
10 PWSA is out of compliance with both state and federal environmental laws and
11 that the options for resolving such allegations are: (1) a lawsuit against the
12 Authority resulting in a Consent Order; or (2) a negotiated settlement resulting in a
13 Consent Decree. Mr. King points out that if PWSA is not successful in
14 negotiating a settlement, ratepayers would be required to shoulder litigation costs
15 and civil penalties that would result from litigation, which could exceed the level
16 of penalties in the Decree.

17 Mr. King also points out that PWSA has already committed to \$7.5 million
18 in planning aimed at reducing sewer overflows. He states that upon issuance of
19 the Decree, PWSA will need to begin incurring expenses for action items in FY
20 2024. These action items include development of multiple plans which will
21 require a calibrated and verified hydrologic and hydraulic model, data collection

¹¹ PWSA Statement No. 2-R, p. 45.

1 and analysis, evaluation of alternatives, cost estimates, and a robust stakeholder
2 involvement process.¹²

3
4 **Q. WHAT IS YOUR RESPONSE TO THESE WITNESSES?**

5 A. As discussed in my testimony, the budgeted amount provided with respect to the
6 Wet Weather Consent Decree is speculative in nature. Mr. Barca provided an
7 action plan and a service contract in PWSA Exhibit EB-10. However, this
8 documentation supports neither the amount nor the timing of expenditures. I
9 maintain that the Authority has not provided a breakdown of claimed expenses,
10 relevant calculations, or any other supporting documentation to substantiate its
11 claims relating to the Decree. Simply stating that you are attempting to negotiate a
12 settlement is not enough to support a claim.

13
14 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
15 **OPERATING CONTRACTS - OTHER?**

16 A. No. I continue to recommend an allowance of \$1,366,242 for operating contracts -
17 other, or a reduction of \$7,500,000 (\$8,866,242 - \$1,366,242) to PWSA's FPFTY
18 claim.

¹² PWSA Statement No. 4-R, pp. 1-3.

1 **OPERATING CONTRACTS - DRAG BUCKET AND LINE TELEVISIONING**

2 **EXPENSES**

3 **Q. DID YOU MAKE ANY OTHER RECOMMENDATIONS TO OPERATING**
4 **CONTRACTS IN DIRECT TESTIMONY?**

5 A. Yes. I made recommended adjustments for drag bucket and line televising
6 expenses.

7

8 **Q. PLEASE SUMMARIZE THESE ADJUSTMENTS.**

9 A. I recommended disallowance of the entire amount of \$780,372 for the drag bucket
10 claim, as well as the entire \$763,995 claim for line televising. Both accounts
11 increased significantly in the FPFTY, and upon request for documentation of these
12 claimed expenses in I&E-RE-46,¹³ the Authority responded that no expenses were
13 budgeted in these accounts for the FPFTY.¹⁴

14

15 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

16 A. Yes. PWSA witness Edward Barca disagrees with my recommendations for the
17 drag bucket and line televising claims.

18

19 **Q. PLEASE SUMMARIZE MR. BARCA'S RESPONSE.**

20 A. Mr. Barca points out that both accounts have been repurposed and the budgets
21 were previously located in different accounts. He outlined the prior amounts for

¹³ I&E Exhibit No. 2, Schedule 12.

¹⁴ I&E Statement No. 2, pp. 18-21.

1 each account to show historical costs as compared with the current budget.¹⁵

2

3 **Q. DO YOU ACCEPT THIS EXPLANATION?**

4 A. Yes.

5

6 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION?**

7 A. Yes. I withdraw my recommended adjustments to both accounts and accept the
8 full \$780,372 drag bucket claim and \$763,995 for the line televising claim in the
9 FPPTY based on PWSA's explanation.

10

11 **OFFICE RENT EXPENSE**

12 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
13 **FOR OFFICE RENT EXPENSE.**

14 A. I recommended an allowance of \$916,176, or a reduction of \$1,059,483
15 (\$1,975,659 - \$916,176) for office rent expense. My recommendation was based
16 on a three-year average of actual office rental expense rather than accepting the
17 Authority's claim which was based on an unsupported move to a new location.¹⁶

18

19 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

20 A. Yes. PWSA witness Edward Barca disagrees with my recommended adjustment
21 for office rent expense.

¹⁵ PWSA Statement No. 2-R, pp. 45-49.

¹⁶ I&E Statement No. 2, pp. 22-23.

1 **Q. SUMMARIZE MR. BARCA’S RESPONSE.**

2 A. Mr. Barca states that sufficient information was provided to support PWSA’s
3 claim for higher rent in the FPFTY. He continues that details are not known at
4 this time, but the ability to find a proper space in the City of Pittsburgh is limited
5 and the Authority must have funds available to act quickly should PWSA find a
6 suitable location.

7 Mr. Barca opines that my adjustment rests on the assumption that PWSA
8 can replace its existing headquarters with a new location for the same amount of
9 rent. He claims that it is unreasonable to only look to past lease expenses since
10 this does not project future lease expenses at a new location.¹⁷

11
12 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S CLAIM REGARDING**
13 **OFFICE RENT EXPENSE?**

14 A. PWSA’s FPFTY claim is more than 100% higher than its FTY claim, yet it is clear
15 from Mr. Barca’s testimony that PWSA has not identified a new location for the
16 proposed leasing of a new headquarters. Therefore, PWSA’s claim is purely
17 speculative. The Authority has not provided any data in support of its claim.
18 Consequently, the only solid data to rely on is historical data. My recommended
19 allowance based on historic rental expense is appropriate and reasonable in the
20 absence of information demonstrating a cost basis for a new space, timing of
21 relocation, or a lease that PWSA has not yet pursued.

¹⁷ PWSA Statement No. 2-R, pp. 49-50.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
2 **OFFICE RENT EXPENSE?**

3 A. No. I continue to recommend an allowance of \$916,176 for office rent expense, or
4 a reduction of \$1,059,483 (\$1,975,659 - \$916,176) to PWSA's FPFTY claim.
5

6 **LEGAL EXPENSE**

7 **Lobbying Expense:**

8 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
9 **FOR LEGAL EXPENSE.**

10 A. I recommended an allowance of \$2,153,595, or a reduction of \$98,262
11 (\$2,251,857 - \$2,153,595) in the FPFTY for legal expense. My recommendation
12 was based on disallowance of the entire lobbying expense of \$98,262.¹⁸
13

14 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

15 A. Yes. PWSA witness Edward Barca disagrees with my recommendation for legal
16 expense.
17

18 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

19 A. Mr. Barca states that he understands and acknowledges the Commission's general
20 rule with respect to lobbying expenses, but he submits that this claim is reasonable
21 for PWSA as a municipal authority. Mr. Barca also claims that PWSA has an

¹⁸ I&E Statement No. 2, pp. 26-28.

1 obligation to maintain lines of communication with other parts of government.
2 Moreover, he states that PWSA's government relations professionals assist in
3 obtaining information and appropriate funding from PENNVEST, and
4 accordingly, these expenditures are not so much "lobbying" but government
5 relations expense. He continues that since PWSA has no shareholders, the
6 benefits of all lobbying efforts accrue directly to customers. Therefore, Mr. Barca
7 concludes that it is inappropriate to exclude PWSA's claim for lobbying expense
8 in its entirety and that I&E's adjustment should be rejected.

9 Additionally, Mr. Barca asserts that normal regulatory treatment of
10 lobbying expenses is not appropriate for PWSA since it is not an investor-owned
11 utility. He then states that he is informed by counsel that the Commission can
12 waive provisions of the Public Utility Code if such a waiver would be reasonable
13 considering PWSA's special circumstances.¹⁹

14
15 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S ASSERTIONS**
16 **REGARDING LOBBYING EXPENSE?**

17 A. As discussed in my direct testimony, I reiterate that the lobbying expense claim of
18 \$98,262 (included in the legal expense claim of \$2,251,857) is not necessary for
19 the utility to provide safe and reliable service; therefore, it should not be funded by
20 ratepayers. As advised by counsel, the provision of 66 Pa. C.S. § 1316 prohibits

¹⁹ PWSA Statement No. 2-R, pp. 74-75.

1 claims for lobbying expense in ratemaking, and PWSA is not exempt from this
2 rule based on its municipal status.

3
4 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
5 **PROFESSIONAL SERVICES?**

6 A. No. I continue to recommend an allowance of \$2,153,595 for legal expense, or a
7 reduction of \$98,262 (\$2,251,857 - \$2,153,595) to PWSA's FPFTY claim.

8
9 **Rate Case Expense:**

10 **Q. DID YOU PRESENT ANY OTHER RECOMMENDATIONS REGARDING**
11 **LEGAL EXPENSE IN YOUR DIRECT TESTIMONY?**

12 A. Yes. I made a few recommendations regarding rate case expense, which is
13 partially included in both legal expense and consulting expense.

14
15 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS WITH REGARD**
16 **TO RATE CASE EXPENSE.**

17 A. Due to discrepancies in the data between the rate case filing and interrogatory
18 responses, I did not make a numeric adjustment. However, I did recommend that
19 PWSA be required in all future rate case proceedings to account for rate case
20 expense in a separate account to provide the needed transparency around this

1 expense and to establish an appropriate normalized expense for prospective
2 recovery of future rate case activities.²⁰

3
4 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATIONS**
5 **REGARDING RATE CASE EXPENSE?**

6 A. Yes. PWSA witness Edward Barca disagreed with my recommendations.

7
8 **Q. PLEASE SUMMARIZE MR. BARCA'S RESPONSE.**

9 A. Mr. Barca asserts that he does not agree with my statement that PWSA did not
10 properly track rate case expenses. He emphasizes that PWSA requires consultants
11 and external legal staff to indicate rate case expense on invoices to easily track
12 these expenses. Thus, he asserts that it is unnecessary to track these expenses in a
13 separate account since this information is already being captured and can be
14 provided to the Commission.

15 Mr. Barca also states that, as a cash flow company, PWSA cannot be
16 expected to normalize expenses because it must have the full amount available at
17 the time of purchase for any item or service. He asserts that to act as if the
18 Authority can recover these costs over multiple years is not realistic.²¹

19
20 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S ASSTERTIONS?**

21 A. First, Mr. Barca misrepresents my statement regarding proper tracking of rate case

²⁰ I&E Statement No. 2, pp. 24-26.

²¹ PWSA Statement No. 2-R, p. 51.

1 expense. I did not claim the Authority did not properly track the expense. I
2 simply stated that there is confusion and a lack of transparency regarding this
3 expense. I would also argue that PWSA's tracking system for this expense is not
4 as clear cut as Mr. Barca claims since the Authority's original filing reported a
5 total FPFTY rate case expense which included non-rate case related amounts in
6 the legal and consulting accounts. Specifically, in Volume I, PWSA reports rate
7 case expense of \$2,565,895 claimed in the FPFTY.²² However, in response to
8 I&E-RE-2-D (part D), PWSA claims only \$550,000 of that total to be related to
9 rate case expenses.²³

10 Additionally, I understand that as a cash flow utility, PWSA pays and
11 accounts for all expenses within the year they are incurred for accounting
12 purposes, but that does not mean PWSA is prohibited from normalizing expenses
13 over intervening periods for ratemaking purposes. As stated in my direct
14 testimony, if PWSA is allowed to include the full rate case expense in the FPFTY,
15 it would continue to collect the full cost of its current rate case filing from
16 ratepayers each year, regardless of how many years may pass until the next rate
17 case filing.

18
19 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION?**

20 **A.** No. I continue to recommend a simplified approach to tracking rate case expenses

²² PWSA filing, FR-III.4.

²³ I&E Exhibit No. 2, Schedule 15, p. 2.

1 by distinguishing them in a specific rate case expense account, reporting a clear
2 rate case expense claim in each future rate case filing, and establishing an
3 appropriate normalization of the expense for prospective recovery of future rate
4 case activities.

5
6 **EQUIPMENT EXPENSE**

7 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
8 **FOR EQUIPMENT EXPENSE.**

9 A. I recommended an allowance of \$1,210,116 for equipment expense, or a reduction
10 of \$2,201,117 (\$3,411,233 - \$1,210,116) to PWSA's FPFTY claim. My
11 recommendation was based on normalizing the cost of each type of equipment
12 over the useful service life of the respective equipment in contrast to PWSA's
13 claim that reflects the entire projected equipment expense in the FPFTY.²⁴

14
15 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

16 A. Yes. PWSA witness Edward Barca disagrees with my recommended
17 normalization of equipment expense.

18
19 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

20 A. First, Mr. Barca asserts that as a cash flow utility, PWSA fully pays for all
21 expenses incurred within the year they are incurred and must have the funds

²⁴ I&E Statement No. 2, pp. 29-31.

1 available to do so. Additionally, he asserts that from an accounting and budgeting
2 perspective, normalization is not feasible for PWSA. Moreover, he states that
3 while these items of equipment have useful lives that are longer than one year,
4 PWSA expects to experience the same level of equipment expenditures in each
5 subsequent year. Secondly, Mr. Barca states that I assumed all the expenses
6 within equipment expense are eligible to be capitalized per PWSA's Capital Asset
7 Policy.²⁵

8
9 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S ASSERTIONS**
10 **REGARDING EQUIPMENT?**

11 A. First, equipment costs are typically capital expenditures because they are useful
12 for providing service over a period longer than one year and are not consumable or
13 perishable items like inventory or commodities. This fundamental fact does not
14 change for a cash flow utility. Second, from an accounting and budgeting
15 perspective, normalization may not be feasible for PWSA as a cash flow utility;
16 however, for ratemaking purposes, PWSA can claim equipment expense after
17 normalizing it over its useful service life to mitigate an unreasonable impact on
18 rates. Third, the fact that PWSA expects to experience the same level of
19 equipment expenditures in each subsequent year does not mean that PWSA is
20 prohibited from normalizing all such equipment costs for ratemaking purposes. I
21 disagree with Mr. Barca's unsupported statement that PWSA expects to

²⁵ PWSA Statement No. 2, p. 53.

1 experience the same level of equipment expenditures in each subsequent year,
2 when equipment bought in the previous years have longer useful service lives until
3 they are disposed of or removed from service.

4 Considering the above and as discussed in my direct testimony, spreading
5 the cost of equipment over the normal useful life of the equipment for ratemaking
6 purposes is more appropriate and moderates the cost impact on rates.

7 Furthermore, Mr. Barca seems to continue to confuse normalization with
8 amortization in that including a normalized amount of an expense in rates is not
9 done so for the purpose of recovering a historic expenditure but to build a
10 levelized amount into rates to continue to fund future equipment expenditures as
11 those equipment needs occur. Allowing the full amount of any equipment
12 expenditure in an individual rate year, which then remains in rates at that full
13 amount until the equipment is replaced at the end of its useful life, does not result
14 in just and reasonable rates for ratepayers.

15
16 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
17 **EQUIPMENT?**

18 A. No. I continue to recommend an allowance of \$1,210,116 for equipment expense,
19 or a reduction of \$2,201,117 (\$3,411,233 - \$1,210,116) to PWSA's FPFTY claim.

1 **COVID-19 EXPENSE**

2 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
3 **FOR COVID-19 EXPENSE.**

4 A. I recommended an allowance of \$166,241 for COVID-19 expense, or a reduction
5 of \$96,974 (\$263,215 - \$166,241) to PWSA’s FPFTY claim. My recommendation
6 was based on amortization of the full amount over a period consistent with the
7 Authority’s rate case filing frequency.²⁶

8
9 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

10 A. Yes. PWSA witness Edward Barca disagrees with my recommendation to
11 amortize COVID-19 expense.

12
13 **Q. SUMMARIZE MR. BARCA’S RESPONSE.**

14 A. Mr. Barca states that PWSA voluntarily deferred recovery of COVID-19 expenses
15 in the previous rate case to benefit ratepayers but now is being punished for that
16 decision through my recommendation to recover costs over a period longer than
17 one year. He continues that as a cash flow company, this is untenable.²⁷

18
19 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S ASSERTIONS?**

20 A. PWSA’s status as a cash flow company does not prohibit amortization of costs.
21 Failure to amortize such expenses may lead to over-collection and therefore is

²⁶ I&E Statement No. 2, pp. 32-33.

²⁷ PWSA Statement No. 2-R, p. 52.

1 excessive to ratepayers. By amortizing the expense using historic rate case filing
2 frequency, PWSA will be allowed to recover the entire expense over this period.
3 If the Authority is allowed to collect the entire amount each year, ratepayers will
4 continue to overpay in rates until new rates go into effect following a subsequent
5 base rate proceeding. Additionally, Mr. Barca's own argument against
6 normalization where he argues that as a cash flow utility, PWSA must receive
7 reimbursement for the full amount of any expenditure in rates in the year it occurs
8 would deny his own claim for recovery of COVID-19 expenses as the utility does
9 not actually have any out-of-pocket expenses in the test year as this money was
10 spent in a historic period.

11
12 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION?**

13 A. No. I continue to recommend an allowance of \$166,241 for COVID-19 expenses,
14 or a reduction of \$96,974 (\$263,215 - \$166,241) to PWSA's FPFTY claim.

15
16 **CUSTOMER ASSISTANCE CHARGE**

17 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
18 **REGARDING THE PROPOSED CUSTOMER ASSISTANCE CHARGE.**

19 A. I recommended that the proposed implementation of a Customer Assistance
20 Charge (CAC) in FY 2025 be disallowed and stated that since the charge was not
21 being implemented immediately, it should not be considered as part of the instant
22 proceeding but rather a future rate case filing. My recommendation was also

1 based on the lack of transparency of the charge on customer billing, the lack of
2 Commission oversight of the imbedded costs within the context of a rate case
3 filing, and the intended use of this charge to collect additional revenues between
4 rate cases, classifying the charge as single-issue ratemaking.²⁸

5
6 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

7 A. Yes. PWSA witness Edward Barca disagrees with my recommendation.

8
9 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

10 A. Mr. Barca asserts that PWSA believes the CAC will be beneficial for all affected
11 parties. First, he opines it would benefit customers enrolled in assistance
12 programs by ensuring that the Authority would have the funds to expand and
13 enhance these programs between rate cases. Second, he asserts, it would benefit
14 the remainder of PWSA's customers by ensuring that PWSA would collect only
15 the amount that it expends. Third, and lastly, he says it would benefit the
16 Authority because it ensures that PWSA will receive the cash it needs to fund its
17 assistance programs.²⁹

²⁸ I&E Statement No. 2, pp 34-38.

²⁹ PWSA Statement No. 2-R, p. 38.

1 **Q. DID MR. BARCA COMMENT ON A SIMILAR REQUEST BY ANOTHER**
2 **WATER COMPANY THAT WAS RECENTLY REJECTED BY THE**
3 **COMMISSION?**

4 A. Yes. Mr. Barca opines that the Commission’s decision in the 2021 Aqua
5 Pennsylvania, Inc. proceeding to require the utility to recover such costs in base
6 rates, as referenced in my direct testimony, is not determinative because: (1) the
7 need for recovery of costs for a cash flow company is greater than for a utility
8 regulated on a rate of return/rate base basis; and (2) he is informed by counsel that
9 Chapter 32 of the Public Utility Code contains a provision that permits the
10 Commission to alter or amend any section of the Code to accommodate PWSA’s
11 special circumstances.³⁰

12
13 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA REGARDING THE CAC?**

14 A. I maintain that the CAC lacks transparency, hinders Commission oversight of
15 costs, and constitutes single-issue ratemaking, as stated above and in my direct
16 testimony. I disagree that the Authority’s status as a cash flow company equates
17 to a special circumstance that should prompt the Commission to approve such a
18 charge.

³⁰ PWSA Statement No. 2-R, p. 39.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION**
2 **REGARDING THE CAC?**

3 A. No. I continue to recommend that the implementation in FY 2025 of the proposed
4 CAC be denied.

5

6 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

7 A. Yes.

**I&E Statement No. 3 - Revised
Witness: Ethan H. Cline**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Direct Testimony

of

Ethan H. Cline

Bureau of Investigation and Enforcement

Concerning:

**Stormwater Rates
Multi-Year Rate Plan
Capital Improvement Projects
Unaccounted-for Water
Class Cost of Service Study
Water and Wastewater Rate Structure
Fire Protection Rates
Scale Back of Rates**

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1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Ethan H. Cline. My business address is Pennsylvania Public Utility
4 Commission, 400 North Street, Harrisburg, PA 17120.

5

6 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

7 A. I am employed by the Pennsylvania Public Utility Commission (“Commission”) in
8 the Bureau of Investigation and Enforcement (“I&E”) as a Fixed Utility Valuation
9 Engineer.

10

11 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

12 A. An outline of my education and employment experience is attached as
13 Appendix A.

14

15 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

16 A. I&E is responsible for representing the public interest in rate and other
17 proceedings before the Commission. I&E's analysis in this proceeding is based on
18 its responsibility to represent the public interest. This responsibility requires the
19 balancing of the interests of ratepayers, the utility company, and the regulated
20 community as a whole.

1 **Q. WHAT ISSUES DO YOU ADDRESS IN YOUR DIRECT TESTIMONY?**

2 A. I will be addressing Pittsburgh Water and Sewer Authority’s (“PWSA”) class cost
3 of service study and providing a scale back recommendation if the Commission
4 grants less than the full requested increase. I will also be addressing the issues of
5 the proposed the stormwater rates, multi-year rate plan, proposed capital
6 improvement projects, unaccounted-for water, the proposed transition from a
7 usage allowance and minimum charge to a base charge, and fire protection rates.

8
9 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

10 A. Yes. I&E Exhibit No. 3 contains schedules relating to my testimony.

11

12 **Q. DESCRIBE PWSA’S FILING.**

13 A. PWSA has requested a \$46.8 million overall revenue increase in the Fully
14 Projected Future Test Year (“FPFTY”) ending December 31, 2024. PWSA is also
15 proposing to enact a multi-year rate plan (“MYRP”) with an additional increase of
16 \$45.8 million in the year ended December 31, 2025 (“FY 2025”) and a further
17 increase of \$53.9 million in the year ended December 31, 2026 (“FY 2026”). This
18 results in a total requested increase of \$146.1 million (PWSA St. No. 1, p. 13).

1 **STORMWATER RATES**

2 **Q. DOES PWSA CURRENTLY BILL ITS CUSTOMERS FOR**
3 **STORMWATER SERVICE?**

4 A. Yes. As described on page 3 of PWSA Statement No. 5, PWSA’s stormwater
5 tariff and rates were approved by the Commission and became effective in January
6 2022. Since then, the Company has been charging customers a stormwater rate.

7
8 **Q. DID PWSA PROPOSE TO INCREASE ITS STORMWATER RATES IN**
9 **THE PRESENT PROCEEDING?**

10 A. Yes. PWSA proposed to increase its stormwater rates in the FPPTY based on a
11 cost of service study included as and PWSA Exhibits HJS-1SW through HJS-
12 13SW attached to PWSA Statement No. 7. PWSA is also proposing to increase its
13 stormwater rates in 2025 and 2026 as part of its Multi-Year Rate Plan proposal as
14 discussed on page 31 of PWSA Statement No. 5.

15
16 **Q. HAVE THERE BEEN ANY RECENT COURT RULINGS THAT MAY**
17 **AFFECT PWSA’S STORMWATER RATES?**

18 A. Yes. I am advised by counsel that the Pennsylvania Commonwealth Court
19 recently ruled that charging a stormwater fee constitutes a tax and not a fee¹
20 (“West Chester Order”). I am further advised by counsel that the West Chester

¹ *The Borough of West Chester v. Pennsylvania State System of Higher Education and West Chester University of Pennsylvania of the State System of Higher Education*, 260 M.D. 2018, 291 A3d 455 (Pa. Cmwlth. 2023), *appeal docketed* 9 MAP 2023 (Pa. 2023).

1 Order states that “the Stormwater Charge constitutes a general tax ... because the
2 work funded thereby does not benefit individual properties, but rather, yields a
3 common benefit shared by residents of the Borough generally.”² Finally, counsel
4 has advised me that the West Chester Order has been appealed to the Pennsylvania
5 State Supreme Court and that the results of the West Chester Order has been
6 stayed. Therefore, this case currently does not affect PWSA’s proposals regarding
7 its stormwater fees, but that may change in the future and will need to be
8 addressed at that point.

9
10 **MULTI-YEAR RATE PLAN**

11 **Q. WHAT IS A MULTI-YEAR RATE PLAN?**

12 A. Section 1330 of the Pennsylvania Public Utility Code (“Code”) defines an MYRP
13 as follows:

14 A rate mechanism under which the commission sets base rates
15 and revenue requirements for a multiyear plan period and
16 authorizes periodic changes in base rates, including, but not
17 limited to, adjustments to accounts for inflation and capital
18 investments without the necessity for base rate proceedings
19 during the approved plan period.

20 Act 58 of 2018 added Section 1330 to Chapter 13 of the Code to allow utilities to
21 seek approval of alternative rate making mechanisms, such as an MYRP.

² *West Chester Order*, p. 19.

1 **Q. IS PWSA PROPOSING AN MYRP?**

2 A. Yes. PWSA is proposing a three-year rate increase which would increase
3 revenues by \$46.8 million in the FPFTY (FY 2024), \$45.4 million in FY 2025,
4 and \$53.9 million in FY 2026 (PWSA St. No. 2, p. 44).

5

6 **Q. WHAT SUPPORT DOES PWSA PROVIDE REGARDING ITS PROPOSED**
7 **MYRP?**

8 A. PWSA witness Barca, on pages 45-46 of PWSA Statement No. 2, provided
9 responses to certain questions that the Commission set forth in a Policy Statement
10 after Section 1330, regarding alternative rate mechanisms, was added to the Public
11 Utility Code. Mr. Barca also claimed that an MYRP increases administrative
12 efficiency and reduces costs and stated that “[n]ot knowing what the revenue
13 levels will be for the following year forces PWSA to ‘guess’ what levels to assume
14 when creating” its annual operating and capital budgets (PWSA St. No. 2, p. 47).
15 PWSA witnesses Pickering and Mechling also claimed that a multiyear rate
16 request provides more transparency for customers over the three-year period as to
17 the increases that will be implemented (PWSA St. No. 1, p. 14 and PWSA St. No.
18 6, p. 26). Mr. Smith, on PWSA Statement No. 7, pages 34 and 47, provided a
19 discussion of how MYRPs are implemented in Rhode Island.

20

21 **Q. DO YOU SUPPORT THE PROPOSED MULTI-YEAR RATE PLAN?**

22 A. No. Based on my review of this case, recent history of PWSA’s revenue, and the

1 testimony of other I&E witnesses, the Commission cannot prudently determine
2 that the MYRP PWSA proposed would result in just and reasonable rates in FY
3 2025 and FY 2026.

4
5 **Q. DO ANY OTHER I&E WITNESSES PROVIDE TESTIMONY**
6 **REGARDING THE MYRP?**

7 A. Yes. In I&E Statement No. 1, I&E witness Spadaccio, and I&E Statement No. 2,
8 I&E witness Okum, both provide an additional discussion on this topic.

9
10 **Q. WHAT INFORMATION DID YOU CONSIDER WHEN YOU ASSESSED**
11 **PWSA’S PROPOSAL OF A MULTI-YEAR RATE PLAN?**

12 A. I considered information from several sources to determine whether PWSA’s
13 proposed MYRP is reasonable. Specifically, I considered PWSA’s history and
14 current rate filing, including the associated testimony and data responses. I also
15 considered an article from the National Regulatory Research Institute (“NRRI”)
16 “Multiyear Rate Plans and the Public Interest” by Ken Costello, Report No. 16-08,
17 October 2016 (“Costello Report”). I have attached the Costello Report as I&E
18 Exhibit No. 3, Schedule 1.

19
20 **Q. WHY DID YOU TAKE THE NRRI ARTICLE INTO CONSIDERATION**
21 **DURING YOUR ANALYSIS?**

22 A. As I indicated above, to my knowledge, MYRPs have not been used before in

1 Pennsylvania utility ratemaking. The Costello Report, which has a stated
2 objective of attempting to educate state utility commissions on multiyear rate
3 plans, provides a discussion of the pros and cons that regulators should consider
4 when assessing whether an MYRP is in the public interest. The pros listed in the
5 article include some of the benefits discussed by PWSA's witnesses listed above.
6 The Costello Report also listed the cons, and I will assess which cons presented in
7 the report apply to PWSA's proposal and whether those cons outweigh the pros
8 regarding the public interest. Importantly, the Costello Report presented
9 arguments for and against MYRPs from an unbiased perspective that did not
10 attempt to sway regulators one way or the other.

11
12 **Q. WHY DO YOU BELIEVE THE COSTELLO REPORT PRESENTED**
13 **ARGUMENTS FROM AN UNBIASED PERSPECTIVE?**

14 A. As explained in the Costello Report, NRRI was founded by and continues to be
15 linked to the National Association of Regulatory Utility Commissioners. (I&E Ex.
16 No. 3, Sch. 1, p. ii). Therefore, it primarily serves the interests of state utility
17 commissions, which do not represent any specific biased interest.

18
19 **Q. ARE YOU ASSESSING WHETHER MYRPS IN GENERAL ARE A**
20 **REASONABLE RATEMAKING ALTERNATIVE?**

21 A. No. As I stated above, the ability of a utility to propose an MYRP is in the Code,
22 and it is not subject to dispute. Therefore, I am not assessing whether MYRPs in

1 general are a reasonable ratemaking alternative. I am also not assessing whether
2 PWSA can or cannot propose an MYRP in a future proceeding. Alternative
3 ratemaking proposals must be evaluated on a case-by-case basis, and, as such, my
4 recommendation is that PWSA’s MYRP in the present proceeding must be denied.
5

6 **Q. WHY IS IT IMPORTANT TO CONSIDER PWSA’S HISTORY WHEN**
7 **CONSIDERING ITS PROPOSED MYRP?**

8 A. It is important to consider its history because the MYRP is based on an estimation
9 of data and conditions four years past the current, known information contained in
10 the Historic Test Year (“HTY”). According to the Costello Report, “[c]hecking
11 for the accuracy of past forecasts is essential. Since regulation is a repeated game,
12 regulators can learn about the credibility of past utility forecasts and a utility’s
13 attributes as regulators observes the utility’s actions and performance over time.”
14 (I&E Ex. No. 3, Sch. 1, p. 36). Therefore, the only way to assess the reliability of
15 PWSA’s future estimations for the MYRP is to determine the historical accuracy
16 of PWSA’s previous projections.
17

18 **Q. WHICH OF PWSA’S PREVIOUS PROJECTIONS DID YOU ASSESS**
19 **WHEN CONSIDERING THE MYRP?**

20 A. I assessed the accuracy of PWSA’s capital improvement budget compared to its
21 actual capital improvements from 2019 through 2022.

1 **Q. WERE PWSA’S HISTORICAL CAPITAL IMPROVEMENT BUDGETS AS**
2 **COMPARED TO ITS ACTUAL CAPITAL IMPROVEMENTS**
3 **ACCURATE?**

4 A. No, PWSA’s historical capital improvement budgets were not accurate. In its
5 response to I&E RS-1, attached as I&E Exhibit No. 3, Schedule 2, PWSA
6 provided a spreadsheet that shows a comparison of its budgeted capital
7 improvement projects versus its actual capital improvements for the years 2019
8 through 2022 broken down by the following categories: Water Treatment Plant,
9 Water Pumping and Storage, Water Distribution, and Wastewater System. As
10 shown in that response, during the four years in question PWSA only managed to
11 meet or exceed its capital budget for Water Treatment Plant and Wastewater
12 System in FY 2019 and Water Distribution in FY 2021. I&E Exhibit No. 3,
13 Schedule 3, column M shows that on average over the four-year period PWSA
14 underperformed its budget by approximately \$54,794,440. This large level of
15 inaccuracy in projecting its capital improvements does not support PWSA’s
16 MYRP.

17
18 **Q. DOES PWSA HAVE A HISTORY OF NOT MEETING ITS PROPOSED**
19 **BUDGETS EVEN WITHOUT THE RECENT PROBLEMS OF THE**
20 **PANDEMIC AND INFLATION?**

21 A. Yes. PWSA’s historic problems with meeting its proposed budgets were

1 addressed by I&E witnesses in PWSA's rate cases in both 2020 and 2021 (R-
2 2020-3017951 I&E Statement No. 2 and R-2021-3024773 I&E Statement No. 2).

3
4 **Q. HOW DID PWSA WITNESS BARCA SUPPORT THE PROPOSED MYRP?**

5 A. PWSA witness Barca, on pages 45-46 of PWSA Statement No. 2, provided
6 responses to certain questions that the Commission set forth in a Policy Statement
7 after Section 1330, regarding alternative rate mechanisms, was added to the Public
8 Utility Code.

9
10 **Q. DO YOU WISH TO ADDRESS MR. BARCA'S RESPONSES TO THE**
11 **COMMISSION'S QUESTIONS?**

12 A. Yes. Specifically, I will address Mr. Barca's responses to the following questions:
13 1) How the ratemaking mechanism and rate design align with cost causation
14 principles as to both fixed and variable costs.
15 3) Whether the ratemaking mechanism and rate design reflect the level of
16 demand associated with the customer's anticipated consumption levels.
17 12) Whether the alternative ratemaking mechanism and rate design include
18 appropriate consumer protections.
19

20 **Q. HOW DID MR. BARCA RESPOND TO QUESTION 1?**

21 A. Mr. Barca, on page 45 of PWSA Statement No. 2, stated the following in response
22 to question 1:

23 One of the principal benefits of a multi-year rate plan is that it
24 permits a better alignment of fixed and variable costs with
25 revenues. Rates based upon a static test year – even a fully
26 projected future test year – will necessarily diverge from the
27 costs and revenues actually experienced by the utility in

1 subsequent years when the rate award is still in place.
2 Determinations of revenues and expenses in the rate case may
3 be higher or lower than the levels subsequently experienced.
4 A multi-year filing permits a better alignment with the levels
5 of expenses and revenues that are reasonably expected to be
6 experienced in the years following the fully projected future
7 test year.
8

9 **Q. DO YOU AGREE WITH MR. BARCA’S RESPONSE TO QUESTION 1?**

10 A. No. Mr. Barca’s claim that “one of the principal benefits” of a multi-year rate
11 plan is that it permits a better alignment of fixed and variable costs with revenues
12 is not true in the case of PWSA’s proposal. This is because PWSA did not
13 specifically project fixed and variable costs through the two extra years of the
14 multi-year rate plan. Instead, as stated in response to OCA VI-31, attached as I&E
15 Exhibit No. 3, Schedule 4, PWSA “utilized historical actuals and a 6% inflationary
16 factor to develop the revenue requirements in FY 2025 and FY 2026.”
17

18 **Q. HOW DID MR. BARCA RESPOND TO QUESTION 3?**

19 A. Mr. Barca, in response to question 3 stated “[a] multi-year rate plan permits a better
20 alignment with the customer’s anticipated consumption level.” (PWSA St. No. 2,
21 p. 45).
22

23 **Q. DO YOU AGREE WITH MR. BARCA’S RESPONSE TO QUESTION 3?**

24 A. No. Mr. Barca’s claim that a multi-year rate plan permits a better alignment with
25 the customer’s anticipated consumption level only applies in this case to FY 2025

1 because the consumption levels remain the same in FY 2026 for all customers as
2 they were in FY 2025, as shown on PWSA Exhibit HJS-18W and PWSA Exhibit
3 HJS-17WW.

4
5 **Q. HOW DID MR. BARCA RESPOND TO QUESTION 12?**

6 A. Mr. Barca, in response to question 12 stated “[t]he revenue requirement in each
7 year of the multi-year rate plan will be set after an examination of PWSA’s
8 projected revenues, expenses and cash needs for those years. Accordingly,
9 customers will be assured that the rate increases placed into effect will be just and
10 reasonable. If actual costs turn out to be less than projected those revenues will be
11 used to fund future operations and investment.” (PWSA St. No. 2, p. 45).

12
13 **Q. DO YOU AGREE WITH MR. BARCA’S RESPONSE TO QUESTION 12?**

14 A. No. What Mr. Barca described in his response to question 12 is in no way related
15 to consumer protections. Whether or not revenues will be used to fund future
16 operations and investments is immaterial to customers whose bills will not change
17 despite PWSA’s projected costs being incorrect. In fact, Mr. Barca’s statement
18 that PWSA will just use any excess revenues to fund other requirements reflects
19 PWSA’s own uncertainty in its projections as I specifically pointed out as a
20 concern in my review of PWSA’s budgeted versus actual capital spending above.

1 **Q. DID MR. BARCA INCLUDE ANY OTHER CLAIMS IN HIS DIRECT**
2 **TESTIMONY THAT YOU WOULD LIKE TO ADDRESS REGARDING**
3 **THE MYRP?**

4 A. Yes. I would like to address Mr. Barca’s claim on page 47 of PWSA Statement
5 No. 2 that PWSA does not know what its revenue levels are on a yearly basis and
6 that this causes PWSA to be in a “state of uncertainty until rates are finalized.”
7 Specifically, it is unclear why PWSA would not know what its revenue levels are
8 on a yearly basis, and I am unsure what Mr. Barca means by “until rates are
9 finalized.”

10
11 **Q. WHY IS IT UNCLEAR WHY PWSA WOULD NOT KNOW WHAT ITS**
12 **REVENUE LEVELS ARE ON A YEARLY BASIS?**

13 A. Revenues are a function of number of customers, usage, and rates. As shown on
14 PWSA Filing Requirement II.9 historically PWSA’s overall number of customers
15 and usage has largely remained consistent since 2020 and PWSA has projected
16 that will continue in 2024. Furthermore, since the only reason that rates will
17 change for regulated utilities, barring changes to adjustable riders, are through rate
18 cases filed with the Commission, the only reason why PWSA would not know
19 what its revenue levels should be on a yearly basis would be if its projections of
20 usage and number of customers were wrong. If this were the case, extending those
21 projections an additional four years beyond actual data contained in the HTY by

1 implementing a multi-year rate plan would not help PWSA be more sure of its
2 revenues on an annual basis.

3
4 **Q. WHY ARE YOU UNSURE OF THE MEANING BEHIND MR. BARCA’S**
5 **STATEMENT THAT PWSA IS IN A STATE OF UNCERTAINTY “UNTIL**
6 **RATES ARE FINALIZED?”**

7 A. As I stated above, the only reason rates will change for regulated utilities are
8 through rate cases filed with the Commission. During those Commission
9 proceedings the effective date and final rates can generally be at issue, but that
10 uncertainty would only last through the timing of the base rate case and should
11 only affect PWSA’s planning for one year. Rates would then remain the same
12 until the time of the next base rate case. The level of uncertainty claimed by Mr.
13 Barca is concerning for a utility that is requesting an MYRP.

14
15 **Q. PLEASE ADDRESS THE STATEMENT MADE BY PWSA WITNESSES**
16 **PICKERING AND MECHLING REGARDING THE MYRP PROVIDING**
17 **MORE TRANSPARENCY TO CUSTOMERS?**

18 A. The statement made by PWSA witnesses Pickering and Mechling that an MYRP
19 provides more transparency for customers over the three-year period as to the
20 increases that will be implemented is misleading. An MYRP does not add any
21 additional transparency for customers as to rate increases that will be
22 implemented. Customers of PUC regulated utilities are generally provided notice

1 of rate increases before they go into effect. Adding additional annual increases to
2 the notice does not add or detract from transparency. Nor does transparency
3 assure any level of justness and reasonableness.

4
5 **Q. PLEASE SUMMARIZE PWSA WITNESS SMITH'S EXPERIENCE OF**
6 **PREPARING MYRPS FOR OTHER JURISDICTIONS.**

7 A. On page 5 of PWSA Statement No. 7, Mr. Smith stated that he has prepared multi-
8 year filings for two municipal regulated utilities in Rhode Island. First was a four-
9 year plan filed in April of 2011 and the second was a two-year rate plan filed in
10 February 2019.

11
12 **Q. WHAT ARE THE DIFFERENCES BETWEEN FILING AN MYRP IN**
13 **RHODE ISLAND VERSUS PENNSYLVANIA?**

14 A. The first difference between the two jurisdictions is that, as PWSA identified in its
15 response to I&E RS-3, Rhode Island bases its first rate year on an HTY and the Pa
16 PUC generally bases the first year of new rates on an FPPTY (I&E Ex. No. 3, Sch.
17 5). The second difference is that Rhode Island, according to Mr. Smith, approves
18 rates for the first year and grants tentative approval for each of the following years
19 and, prior to each step of the multi-year plan, utilities must submit a compliance
20 filing at least 90 days prior to the proposed effective date of the new rates (PWSA
21 St. No. 7, pp. 5-6).

1 **Q. WHY IS IT NOTABLE THAT RHODE ISLAND BASES ITS FIRST RATE**
2 **YEAR ON A HTY RATHER THAN AN FPFTY?**

3 A. The examples that Mr. Smith gave of the MYRP filings that he has taken part in
4 are notable because the first, four-year rate plan would be approximately
5 equivalent to an MYRP in Pennsylvania that extends one year past the FPFTY
6 while the second, two-year rate plan would be equivalent to an FTY filing.
7 Therefore, Mr. Smith has not been involved in a filing that has extended four full
8 years (future test year, FPFTY, plus two additional rate years) beyond any known
9 actual data. Generally speaking, projections can become less accurate the further
10 removed they are from actual data.

11

12 **Q. WHY IS RHODE ISLAND'S 90-DAY COMPLIANCE FILING**
13 **REQUIREMENT IMPORTANT?**

14 A. The compliance filing requirement 90 days before each rate year goes into effect
15 distinguishes Rhode Island from Pennsylvania and is important because it provides
16 Rhode Island regulators an opportunity to check the projections in costs versus
17 recent, actual data and make adjustments to rates that would ensure customer rates
18 remain just and reasonable for both the utility and its customers.

1 **Q. IS PWSA PROPOSING TO PROVIDE COMPLIANCE FILINGS PRIOR**
2 **TO THE EFFECTIVE DATE OF EACH OF ITS PROPOSED RATE**
3 **YEARS?**

4 A. No. PWSA stated in its response to I&E RS-2 that it is not proposing to file
5 compliance filings 90 days prior to the rate increases in 2025 and 2026. While
6 PWSA stated that it is willing to have discussions regarding this process or other
7 alternatives, it is not proposing to enact this protection at this time. (I&E Ex. No.
8 3, Sch. 6).

9
10 **Q. ARE THERE ANY OUTSIDE FACTORS THAT WILL AFFECT THE**
11 **ABILITY OF PWSA WASTEWATER CUSTOMERS TO BE AWARE OF**
12 **THE CHANGES TO RATES THAT WILL BE IMPLEMENTED OVER**
13 **THE NEXT SEVERAL YEARS?**

14 A. As I discussed above, PWSA's ability to charge stormwater rates has been
15 changed due to the recent ruling of the Commonwealth Court in the West Chester
16 Order. I have been advised by counsel that this ruling has been appealed to the
17 Supreme Court of Pennsylvania. Therefore, the ability for PWSA to charge a
18 stormwater fee remains undecided until that appeal is decided.

1 **Q. EVEN IF THE STORMWATER ISSUE YOU RAISE ABOVE WERE NOT**
2 **AN ISSUE, DO YOU GENERALLY AGREE THAT HAVING MORE**
3 **TRANSPARENCY IS JUSTIFICATION FOR AN MYRP?**

4 A. No. As I explained above, and I&E witnesses Spadaccio and Okum explain in
5 their direct testimonies, several of the assumptions embedded in PWSA's MYRP
6 may be inaccurate. For these reasons, while the MYRP may result in predictable
7 rates, predictability will not mean much if the rates produced are not just,
8 reasonable, and sufficient to enable PWSA to provide safe and effective service.

9
10 **Q. BASED ON THE INFORMATION YOU HAVE REVIEWED; CAN THE**
11 **COMMISSION RELIABLY DETERMINE THAT THE RATES**
12 **PROPOSED IN THE MYRP WOULD BE JUST AND REASONABLE?**

13 A. No. As I discussed above, and including the arguments set forth by I&E witnesses
14 Spadaccio in I&E Statement No. 1 and Okum in I&E Statement No. 2, the
15 Commission cannot reliably determine that PWSA's proposed rates in FY 2025
16 and FY 2026 would be just and reasonable. The projections are too far away with
17 too little information, with estimations that are too unreliable to create rates that
18 are reliably just and reasonable. Further, the historical data provided by PWSA
19 shows that their past attempts at budgeting have been subpar. Therefore, I
20 recommend the Commission deny in full the proposed revenue increases for FY
21 2025 and FY 2026.

1 **CAPITAL IMPROVEMENT PROJECTS**

2 **Q. WHAT LEVEL OF CAPITAL IMPROVEMENTS IS PWSA PROJECTING**
3 **FOR THE FPFTY?**

4 A. As shown on Figure 4 on page 7 of PWSA Statement No. 4, PWSA is projecting a
5 total capital requirement in the FPFTY of \$349,222,497. This total capital
6 requirement amount is broken out into \$26,885,665 for Water Treatment Plant,
7 \$115,127,475 for Water Pumping and Storage, \$125,439,446 for Water
8 Distribution, \$31,442,487 for Wastewater System, \$34,827,423 for Stormwater,
9 and \$15,500,000 for Miscellaneous.

10

11 **Q. DO YOU AGREE WITH THE LEVEL OF CAPITAL IMPROVEMENT**
12 **PROJECTS THAT PWSA IS PROJECTING FOR ITS FPFTY?**

13 A. No. As I discussed above, PWSA has shown a historic tendency to fall short of
14 meeting the capital budget that it sets on an annual basis. PWSA’s response to
15 I&E RS-1 shows that, on average, PWSA has fallen approximately 35% short of
16 its budget projections on a total basis (I&E Ex. No. 3, Sch. 3). This shortfall in
17 completing capital projects is significant because, as a cash flow utility using an
18 FPFTY, PWSA recovers the cost of its projected capital improvement projects
19 through customer rates rather than the costs of projects actually completed.
20 Furthermore, while Mr. Barca stated on page 46 of PWSA Statement No. 2 in his
21 discussion of the MYRP that “[i]f actual costs turn out to be less than projected
22 those revenues will be used to fund future operations and investment,” PWSA’s

1 historical actual capital improvements show that when its capital improvement
2 budget is not met in one year, that does not necessarily translate to additional
3 projects being completed in the next year. Therefore, I believe a more
4 conservative projection of capital improvement projects is warranted.

5
6 **Q. WHAT DO YOU RECOMMEND REGARDING PWSA'S CAPITAL**
7 **IMPROVEMENT PROJECTIONS IN THE FPFTY?**

8 A. I recommend that PWSA's proposed increase to its capital budget in the FPFTY
9 be reduced by \$32,625,303 from \$42,688,673 to \$10,063,371.

10
11 **Q. HOW DID YOU DETERMINE YOUR RECOMMENDED REDUCTION IN**
12 **PWSA'S CAPITAL BUDGET IN THE FPFTY?**

13 A. As shown on I&E Exhibit No. 3, Schedule 3, lines 6-11, I first determined
14 PWSA's proposed capital budget increases for the FPFTY by subtracting the FY
15 2024 budget from the FY 2023 budget. I then determined I&E's adjustment by
16 multiplying the water treatment plant increase by 25% and the water pumping and
17 storage increase by 50%. Finally, I subtracted those adjustments from PWSA's
18 proposed increases to determine I&E's recommended increase.

1 **Q. WHY DID YOU RECOMMEND THE WATER TREATMENT PLANT**
2 **INCREASE BE REDUCED BY 25% AND THE WATER PUMPING AND**
3 **STORAGE PROJECTION BE REDUCED BY 50%?**

4 A. As shown on I&E Exhibit No. 3, Schedule 3, the average difference between the
5 budgeted and actual amounts for the capital improvement for water treatment plant
6 is approximately 37% and the average difference between the budgeted and actual
7 amounts for the capital improvement for water pumping and storage is
8 approximately 75%. Therefore, in order to recognize both PWSA's need for
9 improvements in its system as well as PWSA's history of not completing the full
10 amount of capital projects that are budgeted, I made a downward adjustment of
11 25% for the water treatment plant budget increase and a downward adjustment of
12 50% of the water pumping and storage system budget increase.

13
14 **Q. WHY DID YOU NOT RECOMMEND REDUCING THE PROPOSED**
15 **INCREASE BY THE FULL 37% AND 50% DESCRIBED ABOVE?**

16 A. I selected to reduce the proposed capital budget increases for the water treatment
17 plant and water pumping and storage by 25% and 50% rather than the full 37%
18 and 75%, respectively, in recognition of PWSA's ongoing capital improvement
19 needs and to recognize possible capital improvement impacts related to the
20 pandemic and supply issues. Therefore, despite evidence that would support a
21 larger adjustment, my recommendation is both moderate and reasonable.

1 **Q. WHY DID YOU NOT RECOMMEND AN ADJUSTMENT FOR THE**
2 **WATER DISTRIBUTION SYSTEM AND THE WASTEWATER /**
3 **STORMWATER SYSTEMS?**

4 A. I did not recommend an adjustment for the water distribution system because the
5 average difference between budget and actual for those projects was just 11%.
6 Therefore, it is more likely that PWSA will be able to meet its FPFTY projections
7 for the water distribution system. I did not recommend an adjustment to the
8 wastewater / stormwater systems because PWSA is proposing a reduction in that
9 budget, as shown on I&E Exhibit No. 3, Schedule 3, column C, and this budget
10 could further be impacted by the ultimate impact of the West Chester Order
11 discussed previously.

12
13 **Q. SHOULD THERE BE ANY FURTHER ADJUSTMENTS MADE AS A**
14 **RESULT OF YOUR RECOMMENDED REDUCTION IN CAPITAL**
15 **IMPROVEMENT PROJECTS?**

16 A. Yes. There should be a commensurate reduction in depreciation expense that
17 would occur as a result of my adjustment to the proposed capital improvement
18 projects. However, based on the information provided by PWSA to date, I am
19 unable to calculate that adjustment. I am currently waiting for a response to
20 recently served discovery that will provide this information.

1 **UNACCOUNTED FOR WATER**

2 **Q. WHAT IS UNACCOUNTED FOR WATER?**

3 A. The Commission’s definition of unaccounted-for water is as follows:

4 *PUC v. Total Environmental Solutions, Inc.*, Docket No. R-
5 00072493, et al., Opinion and Order entered July 30, 2008;
6 2008 Pa. PUC LEXIS 1227: Unaccounted-for-water is the
7 difference between the total system output and the amount of
8 metered water that is billed, plus an estimate used for fire
9 service, testing, main flushing and company use. Unaccounted-
10 for-water is commonly caused by under registration of meters,
11 system leaks, theft, and natural losses. Although the
12 Commission permits a reasonable amount of unaccounted-for-
13 water, its policy statement on water conservation cautions that
14 it has found levels above 20% to be excessive. 52 Pa Code
15 §65.20(4). *See also Pennsylvania Public Utility Commission v.*
16 *Dauphin Consolidated Water Supply Company*, 55 Pa.P.U.C.
17 202 (1981) (Unaccounted-for water is water that is acquired,
18 goes into the distribution plant and never reaches a customer
19 meter).
20

21 **Q. WHAT IS PWSA’S MOST RECENT LEVEL OF UNACCOUNTED-FOR**
22 **WATER?**

23 A. In its response to OCA V-3, PWSA identified its unaccounted-for water level in
24 2021 as 42.4% and 2022 as 53.0% (I&E Ex. No. 3, Sch. 7). These levels of
25 unaccounted-for water are extremely concerning.
26

27 **Q. ARE YOU RECOMMENDING AN ADJUSTMENT AS A RESULT OF**
28 **PWSA’S DISTURBING UNACCOUNTED-FOR WATER LEVELS?**

29 A. Not at this time. However, I would like to put PWSA on notice that an adjustment
30 to certain expenses, such as purchased power and chemicals, will be likely in the

1 next base rate case if progress is not shown in reducing the unaccounted-for water
2 levels.

3
4 **CLASS COST OF SERVICE STUDY**

5 **Q. WHAT IS A CLASS COST OF SERVICE STUDY?**

6 A. A Class Cost of Service Study (“CCOSS”) is an analysis of costs that allocates or
7 assigns to each customer or rate class its proportionate share of a company’s total
8 cost of service (i.e., the company’s total revenue requirement). The results of
9 these studies can be utilized to determine the relative cost of service for each class
10 and help determine the individual class revenue requirements and, to the extent a
11 particular class is above or below the system average rate of return, show the
12 subsidy each class receives or conversely the additional revenues that class or
13 classes contribute to a company’s overall revenues.

14
15 **Q. DID PWSA PROVIDE A CLASS COST OF SERVICE STUDY IN ITS**
16 **BASE RATE FILING?**

17 A. Yes. PWSA provided a CCOSS in PWSA Exhibits HJS-1 and HJS-2 HJS-1W
18 through HJS-25W, HJS-1WW through HJS-24WW and HJS-1SW through HJS-
19 13SW to support its proposed revenue requirement and cost allocations for the
20 water, wastewater, and stormwater systems. The CCOSS is described in PWSA
21 Statement No. 7.

1 **Q. WHAT METHODOLOGY DID PWSA USE TO DEVELOP ITS CCOSS?**

2 A. As stated on page 18 of PWSA Statement No. 7, PWSA used the Base/Extra
3 Capacity cost allocation methodology to determine its water division allocations.
4 PWSA witness Smith described, on page 34 of PWSA Statement No. 7, the three
5 steps that PWSA uses to allocate wastewater conveyance costs: 1) assigning costs
6 to functional categories; 2) assigning the costs from each functional category to
7 cost categories; and 3) allocating the costs from each cost category to customer
8 classes based on customer class demand patterns.

9

10 **Q. IS THE BASE/EXTRA CAPACITY A REASONABLE METHODOLOGY**
11 **TO ALLOCATE COSTS IN THIS PROCEEDING?**

12 A. Yes. In general, PWSA's proposal to use the Base/Extra Capacity methodology to
13 develop its CCOSS model is reasonable.

14

15 **Q. DID PWSA AGREE TO ADDRESS ADDITIONAL ISSUES AS PART OF**
16 **THE SETTLEMENT OF ITS LAST BASE RATE CASE?**

17 A. Yes. As noted by witness Harold Smith on page 7 of PWSA Statement No. 7, part
18 of the resolution of the most recent PWSA base rate case (Docket Nos. R-2021-
19 3024773, R-2021-3024774 and R-2021-3024779) was that PWSA would consider
20 the removal of minimum usage allowances.

1 **Q. DID PWSA ADDRESS THE REMOVAL OF MINIMUM USAGE**
2 **ALLOWANCES?**

3 A. Yes. PWSA witnesses Smith and Mechling indicated that PWSA is proposing to
4 eliminate the minimum usage allowance and introduce two new reconcilable
5 charges for the rates proposed for Fiscal Year (“FY”) 2025, which is the year after
6 the FPFTY (PWSA St. No. 7, p. 29, PWSA St. No. 6, pp. 24-25). I will address
7 the proposed elimination of the minimum usage allowance below.

8

9 **WATER AND WASTEWATER RATE STRUCTURE**

10 **Q. WHAT RATE STRUCTURE IS PWSA PROPOSING IN THIS**
11 **PROCEEDING FOR WATER AND WASTEWATER CUSTOMERS?**

12 A. PWSA’s rate structure for water and wastewater were initially presented on
13 PWSA Exhibit Nos. HJS-13W and HJS-11WW. The water and wastewater rates
14 each include a minimum charge determined by meter size and a usage rate that
15 varies based on customer class. The minimum charge includes a water or
16 wastewater allowance that is based upon the size of the meter or connection.
17 (PWSA St. No. 7, pp. 28, 41).

18

19 **Q. IS PWSA PROPOSING TO MAKE CHANGES TO ITS EXISTING RATE**
20 **STRUCTURE?**

21 A. Yes. PWSA is proposing to eliminate the minimum allowance and introduce two
22 new reconcilable charges for the rates proposed for the year that begins when the

1 FPPTY ends, or FY 2025 (PWSA St. No. 7, p. 29, 41). PWSA is proposing to
2 charge a Base Charge to the water and wastewater customers that contains the
3 same components as the previous minimum charge (Billing component,
4 Meters/Services component, and adjustments) while leaving out any usage
5 component (PWSA St. No. 7, p. 47).

6
7 **Q. WHAT ADJUSTMENTS DID PWSA INCLUDE IN ITS BASE CHARGE**
8 **CALCULATION?**

9 A. As shown on PWSA HJS-21W, the adjustments for Water customers include
10 additions for public fire and readiness-to-serve and a reduction for CAP-BDP for
11 those specific residential customers. As shown on PWSA HJS-21WW, the
12 adjustments for Wastewater customers include only an addition for readiness-to-
13 serve (“RTS”) and a reduction for CAP-BDP for the applicable customers.

14
15 **Q. HOW DOES PWSA CALCULATE ITS RTS ADJUSTMENT?**

16 A. The RTS adjustment for the water base charge is 10% of PWSA’s debt service
17 cost allocated to water and for the wastewater base charge is 10% of PWSA’s debt
18 service cost allocated to wastewater (PWSA St. No. 7, pp. 30, 42).

1 **Q. DO YOU AGREE WITH PWSA INCLUDING THE RTS ADJUSTMENT IN**
2 **ITS CALCULATIONS OF THE BASE CHARGE FOR WATER AND**
3 **WASTEWATER?**

4 A. No. I do not agree with PWSA including the RTS adjustment in its calculations of
5 the base charge for water and wastewater.

6

7 **Q. WHY DO YOU NOT AGREE WITH PWSA INCLUDING THE RTS**
8 **ADJUSTMENT IN ITS CALCULATIONS OF THE BASE CHARGE FOR**
9 **WATER AND WASTEWATER?**

10 A. I do not agree with the proposal to include the RTS adjustment in the calculation
11 for the water and wastewater base charges because the RTS does not meet the
12 standards of what costs should be included in a fixed monthly charge.

13

14 **Q. WHAT COSTS SHOULD BE INCLUDED WHEN DETERMINING A**
15 **FIXED MONTHLY CHARGE?**

16 A. A customer cost analysis should include the cost of meters, meter installation,
17 services, billing, and certain Operations and Maintenance expenses, and exclude
18 the cost of mains, or any other upstream plant such as filtration or storage.

1 **Q. IS THERE AN EXAMPLE OF ANOTHER CASH FLOW UTILITY THAT**
2 **DETERMINES ITS PROPOSED CUSTOMER CHARGES THROUGH**
3 **THE USE OF A CUSTOMER COST ANALYSIS?**

4 A. Yes. PGW, a cash flow natural gas distribution company located in the
5 Philadelphia region, regularly uses a customer cost analysis to assist in
6 determining its proposed customer charge. I have included, as I&E Exhibit No. 3,
7 Schedule 8, the customer cost analysis submitted by PGW in its most recent base
8 rate case at Docket No. R-2023-3037933 PGW Exhibit CEH-1, Schedule G.

9
10 **Q. DOES PWSA’S RTS INCLUDE COSTS THAT SHOULD NOT BE**
11 **INCLUDED IN A FIXED MONTHLY CHARGE?**

12 A. Yes. As I discussed above, PWSA’s RTS includes 10% of all debt service costs
13 allocated to water and wastewater. This would undoubtedly include costs of
14 mains, pumping, filtration, storage, and other upstream costs that should not be
15 included in a fixed monthly charge.

16
17 **Q. ARE YOU AWARE OF ANY OTHER PENNSYLVANIA UTILITIES THAT**
18 **INCLUDE AN RTS COMPONENT WHEN CALCULATING ITS FIXED**
19 **MONTHLY CHARGE?**

20 A. No. I am unaware of any other Pennsylvania utility that includes an RTS
21 component when calculating a fixed monthly charge.

1 **Q. IS PWSA AWARE OF ANY OTHER PENNSYLVANIA UTILITIES THAT**
 2 **INCLUDE AN RTS COMPONENT WHEN CALCULATING THE FIXED**
 3 **MONTHLY CHARGE?**

4 A. No. In a response to OCA XIV-19, PWSA witness Smith indicated that he is not
 5 aware of any other utility that includes a readiness-to-serve component of the
 6 customer charge (I&E Ex. No. 3, Sch. 9).

7
 8 **Q. WHAT DO YOU RECOMMEND REGARDING PWSA’S PROPOSED**
 9 **BASE CHARGE?**

10 A. I recommend that the Commission remove the RTS adjustment from the
 11 calculation of the water base charge as shown in the table below:

Meter Size	Present Rate Minimum Charge	Proposed Rate Minimum Charge	PWSA Proposed Base Charge	I&E Recommended Base Charge
5/8"	\$26.52	\$32.43	\$16.82	\$14.41
3/4"	\$46.47	\$54.74	\$23.96	\$20.35
1"	\$102.08	\$113.88	\$38.25	\$32.22
1 1/2"	\$201.85	\$225.41	\$73.97	\$61.92
2"	\$337.28	\$373.78	\$116.84	\$97.56
3"	\$766.42	\$832.40	\$231.14	\$192.58
4"	\$1,313.93	\$1,408.27	\$359.74	\$299.49
6"	\$3,174.80	\$3,332.70	\$716.95	\$596.44
8"	\$5,784.48	\$5,968.71	\$1,145.60	\$952.79
10" & Above	\$9,582.36	\$9,753.09	\$1,645.69	\$1,368.53

12

1 I recommend that the Commission remove the RTS adjustment from the
 2 calculation of the wastewater base charge as shown in the table below:

Meter Size	Present Rate Minimum Charge	Proposed Rate Minimum Charge	PWSA Proposed Base Charge	I&E Recommended Base Charge
5/8"	\$7.32	\$7.42	\$3.98	\$3.19
3/4"	\$11.70	\$11.43	\$4.69	\$3.61
1"	\$24.27	\$22.50	\$6.12	\$4.45
1 1/2"	\$46.19	\$42.56	\$9.69	\$6.55
2"	\$76.29	\$69.68	\$13.98	\$9.08
3"	\$173.03	\$155.24	\$25.41	\$15.81
4"	\$297.52	\$264.10	\$38.26	\$23.38
6"	\$725.62	\$632.71	\$73.97	\$44.42
8"	\$1,330.48	\$1,148.40	\$116.83	\$69.66
10" & Above	\$2,218.44	\$1,896.72	\$166.82	\$99.11

3
 4
 5 **Q. DO YOU HAVE ANY OTHER RECOMMENDATIONS REGARDING THE**
 6 **CALCULATION OF PWSA’S PROPOSED BASE CHARGE?**

7 A. Yes. I recommend that PWSA, in its next base rate case, perform and provide a
 8 customer cost analysis as part of its cost of service study so that an accurate
 9 customer charge can be determined.

1 **Q. DO YOU AGREE WITH PWSA’S PROPOSAL TO CHANGE FROM**
2 **BILLING CUSTOMERS USING A MINIMUM CHARGE TO A BASE**
3 **CHARGE IN FY 2025?**

4 A. Yes. Despite I&E’s recommendation to deny the MYRP, I believe that the change
5 from minimum charge to base charge should occur on the first day of FY 2025 on
6 a revenue neutral basis (subject to my recommendations). This means that, despite
7 the rate change, customers would be generating the same level of revenue in FY
8 2025 as is approved for the FPFTY ending December 31, 2024, but under a
9 different rate structure.

10

11 **Q. WHY DO YOU RECOMMEND THE CHANGE FROM A MINIMUM**
12 **CHARGE TO A BASE CHARGE BE DELAYED UNTIL FY 2025?**

13 A. When eliminating a minimum charge, and more specifically a minimum usage
14 allowance, in favor of a fixed monthly charge such as a customer charge or base
15 charge, the average bill of certain customers can be negatively impacted by the
16 additional usage accounted for in their bill. This negative impact would be
17 exacerbated by any additional revenue added to increase rates. Therefore, despite
18 I&E’s recommendation to deny the base rate increases proposed for FY 2025 and
19 FY 2026, I believe it is reasonable to delay the change from a base charge to a
20 minimum charge in order to lessen the impact on customers’ average bill.

1 **FIRE PROTECTION RATES**

2 **Q. WHAT RATES IS PWSA PROPOSING TO CHARGE FOR FIRE**
3 **PROTECTION IN THE FPFTY?**

4 A. As shown on PWSA Exhibit HJS-13W, PWSA is proposing to increase the
5 minimum charge for the Fire Protection customers by a range of 101.4% to
6 110.9% while proposing to decrease the Fire Protection usage rate by 18.6%.

7
8 **Q. DO YOU AGREE WITH THE COMPANY’S PROPOSAL REGARDING**
9 **THE FIRE PROTECTION RATES IN THE FPFTY?**

10 A. No. It is not reasonable to increase the minimum charge by over 100% while
11 providing a rate decrease to the usage rate. This is particularly true when
12 considering the Company’s proposal to increase the fire protection usage rate by
13 57.4% in FY 2025 as shown on PWSA Exhibit HJS-23W.

14
15 **Q. WHAT DO YOU RECOMMEND REGARDING THE FIRE PROTECTION**
16 **RATES IN THE FPFTY?**

17 A. I recommend that the fire protection usage rate remain at the present rate level of
18 \$39.05 per kgal and reduce the fire protection minimum charges in order to
19 maintain the same level of revenue as originally proposed in the FPFTY. It should
20 be noted that, based on the information provided by PWSA I am unable to use the
21 existing COSS to adjust the minimum charges at this time. I sent additional
22 discovery to PWSA in order to solve this issue but, as of the writing of this

1 testimony, I have yet to receive a response. Finally, my recommendation does not
2 exclude the fire protection minimum charge from being included in any scale
3 back.

4
5 **Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE FIRE**
6 **PROTECTION BASE CHARGE IN FY 2025?**

7 A. Yes. For the reasons described above, I recommend that the fire protection base
8 charge in FY 2025 be calculated without an RTS adjustment. The resulting rates,
9 prior to the application of any scale back, are shown in the following table:

Meter Size	PWSA FPFTY Rate	PWSA FY 2025 Proposed Rate	I&E FY 2025 Proposed Rate
1" or Less	\$31.38	\$29.82	\$23.79
1 1/2" – 3"	\$97.59	\$92.07	\$72.79
4"	\$314.86	\$299.49	\$239.24
6" or Greater	\$654.53	\$628.51	\$508.01

10
11
12 **SCALE BACK OF RATES**

13 **Q. WHAT SCALE BACK DO YOU RECOMMEND IF THE COMMISSION**
14 **GRANTS LESS THAN THE FULL INCREASE?**

15 A. Should the Commission grant an increase less than the full increase requested by
16 PWSA in the FPFTY, I recommend that rates be scaled back based on the CCROSS
17 approved by the Commission. Once the revenue level and rates are determined for

1 the FPFTY, then the revenue neutral transition to the base charge and usage rates
2 can be determined for FY 2025.

3
4 **SUMMARY OF RECOMMENDATIONS**

5 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

6 A. My recommendations are summarized as follows:

- 7 • The Commission should deny in full the proposed revenue increases for FY
8 2025 and FY 2026.
- 9 • The Water Treatment Plant FPFTY capital improvement FPFTY increase
10 should be reduced by \$2,713,863, or 25%, from \$10,885,454 to \$8,141,591.
- 11 • The Water Pumping and Storage FPFTY capital improvement PFTY
12 increase should be reduced by \$29,911,439, or 50%, from \$59,822,878 to
13 \$29,911,439.
- 14 • Put PWSA on notice that an adjustment to certain expenses, such as
15 purchased power and chemicals, will be likely in the next base rate case if
16 progress is not shown in reducing the unaccounted-for water levels.
- 17 • The Readiness-to-Serve adjustment should be removed from the calculation
18 of the base charge.
- 19 • The fire protection usage rate should remain \$39.05 per kgal and the fire
20 protection minimum charge should be reduced in the FPFTY.

- 1 • Should the Commission grant less than the full increase requested by
2 PWSA in the FPFTY, rates should be scaled back based on the CCOSS
3 approved by the Commission.
- 4 • Once the revenue level and rates are determined for the FPFTY, then the
5 revenue neutral transition to the base charge and usage rates can be
6 determined for FY 2025.

7

8 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

9 A. Yes.

ETHAN H. CLINE

PROFESSIONAL EXPERIENCE AND EDUCATION

EXPERIENCE:

03/2009 - Present

**Bureau of Investigation and Enforcement, Pennsylvania Public Utility Commission -
Harrisburg, Pennsylvania**

Fixed Utility Valuation Engineer – Assists in the performance of studies and analyses of the engineering-related areas including valuation, depreciation, cost of service, quality and reliability of service as they apply to fixed utilities. Assists in reviewing, comparing and performing analyses in specific areas of valuation engineering and rate structure including valuation concepts, original cost, rate base, fixed capital costs, inventory processing, excess capacity, cost of service, and rate design.

06/2008 – 09/2008

Akens Engineering, Inc. - Shiremanstown, Pennsylvania

Civil Engineer – Responsible, primarily, for assisting engineers and surveyors in the planning and design of residential development projects

10/2007 – 05/2008

J. Michael Brill and Associates - Mechanicsburg, Pennsylvania

Design Technician – Responsible, primarily, for assisting engineers in the permit application process for commercial development projects.

01/2006 – 10/2007

CABE Associates, Inc. - Dover, Delaware

Civil Engineer – Responsible, primarily, for assisting engineers in performing technical reviews of the sewer and sanitary sewer systems of Sussex County, Delaware residential development projects.

EDUCATION:

Pennsylvania State University, State College, Pennsylvania
Bachelor of Science; Major in Civil Engineering, 2005

- Attended NARUC Rate School, Clearwater, FL
- Attended Society of Depreciation Professionals Annual Conference and Training

TESTIMONY SUBMITTED:

I have testified and/or submitted testimony in the following proceedings:

1. Clean Treatment Sewage Company, Docket No. R-2009-2121928
2. Pennsylvania Utility Company – Water Division, Docket No. R-2009-2103937
3. Pennsylvania Utility Company – Sewer Division, Docket No. R-2009-2103980
4. UGI Central Penn Gas, Inc., 1307(f) proceeding, Docket No. R-2010-2172922
5. PAWC Clarion Wastewater Operations, Docket No. R-2010-2166208
6. PAWC Claysville Wastewater Operations, Docket No. R-2010-2166210
7. Citizens' Electric Company of Lewisburg, Pa, Docket No. R-2010-2172665
8. City of Lancaster – Bureau of Water, Docket No. R-2010-2179103
9. Peoples Natural Gas Company LLC, Docket No. R-2010-2201702
10. UGI Central Penn Gas, Inc., Docket No. R-2010-2214415
11. Pennsylvania-American Water Company, Docket No. R-2011-2232243
12. Pentex Pipeline Company, Docket No. A-2011-2230314
13. Peregrine Keystone Gas Pipeline, LLC, Docket No. A-2010-2200201
14. Philadelphia Gas Works 1307(f), Docket No. R-2012-2286447
15. Peoples Natural Gas Company LLC, Docket No. R-2012-2285985
16. Equitable Gas Company, Docket Nos. R-2012-2312577, G-2012-2312597
17. City of Lancaster – Sewer Fund, Docket No. R-2012-2310366
18. Peoples TWP, LLC 1307(f), Docket No. R-2013-2341604
19. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2013-2361763
20. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2013-2361764
21. Joint Application, Docket Nos. A-2013-2353647, A-2013-2353649, A-2013-2353651
22. City of Dubois – Bureau of Water, Docket No. R-2013-2350509
23. The Columbia Water Company, Docket No. R-2013-2360798
24. Pennsylvania American Water Company, Docket No. R-2013-2355276
25. Generic Investigation Regarding Gas-on-Gas Competition, Docket Nos. P-2011-227868, I-2012-2320323
26. Philadelphia Gas Works 1307(f), Docket No. R-2014-2404355
27. Pike County Light and Power Company (Gas), Docket No. R-2013-2397353
28. Pike County Light and Power Company (Electric), Docket No. R-2013-2397237
29. Peoples Natural Gas Company LLC 1307(f), Docket No. R-2014-2403939
30. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2014-2420273
31. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2014-2420276
32. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2014-2420279
33. Emporium Water Company, Docket No. R-2014-2402324
34. Borough of Hanover – Hanover Municipal Water, Docket No. R-2014-2428304
35. Philadelphia Gas Works 1307(f), Docket No. R-2015-2465656
36. Peoples Natural Gas Company LLC 1307(f), Docket No. R-2015-2465172
37. Peoples Natural Gas Company – Equitable Division 1307(f), Docket No. R-2015-2465181
38. PPL Electric Utilities Corporation, Docket No. R-2015-2469275
39. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2015-2480934
40. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2015-2480937
41. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2015-2480950
42. UGI Utilities, Inc. – Gas Division, Docket No. R-2015-2518438

43. Joint Application of Pennsylvania American Water, et al., Docket No. A-2016-2537209
44. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2016-2543309
45. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2016-2543311
46. City of Dubois – Company, Docket No. R-2016-2554150
47. UGI Penn Natural Gas, Inc., Docket No. R-2016-2580030
48. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2017-2602627
49. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2017-2602633
50. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2017-2602638
51. Application of Pennsylvania American Water Company Acquisition of the Municipal Authority of the City of McKeesport, Docket No. A-2017-2606103
52. Pennsylvania American Water Company, Docket No. R-2017-2595853
53. Pennsylvania American Water Company Lead Line Petition, Docket No. P-2017-2606100
54. UGI Utilities, Inc. – Electric Division, Docket No. R-2017-2640058
55. Peoples Natural Gas Company, LLC – Peoples and Equitable Division 1307(f), Docket Nos. R-2018-2645278 & R-2018-3000236
56. Peoples Gas Company, LLC 1307(f), Docket No. R-2018-2645296
57. Columbia Gas of Pennsylvania, Inc., Docket No. R-2018-2647577
58. Duquesne Light Company, Docket No. R-2018-3000124
59. Suez Water Pennsylvania, Inc., Docket No. R-2018-3000834
60. Application of Pennsylvania American Water Company Acquisition of the Municipal Authority of the Township of Sadsbury, Docket No. A-2018-3002437
61. The York Water Company, Docket No. R-2018-3000006
62. Application of SUEZ Water Pennsylvania, Inc. Acquisition of the Water and Wastewater Assets of Mahoning Township, Docket Nos. A-2018-3003517 and A-2018-3003519
63. Pittsburgh Water and Sewer Authority, Docket Nos. R-2018-3002645 and R-2018-3002647
64. Joint Application of Aqua America, Inc. et al., Acquisition of Peoples Natural Gas Company LLC, et al., Docket Nos. A-2018-3006061, A-2018-3006062, and A-2018-3006063
65. Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority, Docket Nos. M-2018-2640802 and M-2018-2640803
66. Philadelphia Gas Works 1307(f), Docket No. R-2019-3007636
67. People Natural Gas Company, LLC, Docket No. R-2018-3006818
68. Application of Pennsylvania American Water Company Acquisition of the Steelton Borough Authority, Docket No. A-2019-3006880
69. Application of Aqua America, Inc. et al., Acquisition of the Wastewater System Assets of the Township of Cheltenham, Docket No. A-2019-3006880
70. Philadelphia Gas Works, Docket No. R-2019-3009016
71. Wellsboro Electric Company, Docket No. R-2019-3008208
72. Valley Energy, Inc., Docket No. R-2019-3008209
73. Citizens’ Electric Company of Lewisburg, Pa, Docket Non. R-2019-3008212
74. Application of Aqua America, Inc. et al., Acquisition of the Wastewater System Assets of the East Norriton Township, Docket No. A-2019-3009052
75. Peoples Natural Gas Company, LLC 1307(f), Docket No. R-2020-3017850
76. Peoples Gas Company, LLC 1307(f), Docket No. R-2020-3017846

77. Philadelphia Gas Works, Docket No. R-2020-3017206
78. Pittsburgh Water and Sewer Authority, Docket Nos. R-2020-3017951 et al.
79. Columbia Gas of Pennsylvania, Docket No. R-2020-3018835
80. Pennsylvania American Water Company, Docket Nos. R-2020-3019369 and R-2020-3019371
81. PECO Energy Company – Gas Division, Docket No. R-2020-3019829
82. PGW 1307(f), Docket No. R-2021-3023970
83. Peoples Natural Gas Company, LLC 1307(f), Docket No. R-2021-3023965
84. Peoples Gas Company, LLC 1307(f), Docket No. R-2021-3023967
85. UGI Utilities, Inc. – Electric Division, Docket No. R-2021-3023618
86. Columbia Gas of Pennsylvania, Inc., Docket No. R-2021-3024926
87. Duquesne Light Company, Docket No. R-2021-3024750
88. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2021-3025652
89. Pittsburgh Water and Sewer Authority, Docket Nos. R-2021-3024773 et al.
90. Application of Aqua America Wastewater, Inc. et al., Acquisition of the Wastewater System Assets of Lower Makefield Township, Docket No. A-2021-3024267
91. Aqua Pennsylvania Water, Inc. and Aqua Pennsylvania Wastewater, Inc., Docket Nos. R-2021-3027385 and R-2021-3027386
92. Application of Pennsylvania-American Water Company for Acquisition of the Wastewater Collection and Treatment System Assets of the York City Sewer Authority, Docket No. A-2021-3024681
93. City of Lancaster – Bureau of Water, Docket No. R-2021-3026682
94. Application of Aqua America Wastewater, Inc. et al., Acquisition of the Wastewater System Assets of East Whiteland Township, Docket No. A-2021-30246132
95. UGI Utilities, Inc. – Gas Division, Docket No. R-2021-3030218
96. Peoples Natural Gas Company, LLC 1307(f), Docket No. R-2022-3030661
97. Columbia Gas of Pennsylvania, Inc., Docket No. R-2022-3031211
98. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2022-3032242
99. Pennsylvania American Water Company, Docket Nos. R-2022-3031672 and R-2022-3031673
100. The York Water Company, Docket Nos. R-2022-3031340 and R-2022-3032806
101. Columbia Gas of Pennsylvania, Inc., Docket No. R-2022-3032167
102. National Fuel Gas Distribution Corporation, Docket No. R-2022-3035730
103. UGI Utilities, Inc. – Electric Division, Docket No. R-2022-3037368
104. Application of Pennsylvania-American Water Company for Acquisition of the Wastewater Collection and Treatment System Assets of the Butler Area Sewer Authority, Docket No. A-2022-3037047
105. Philadelphia Gas Works, Docket No. R-2023-3037933

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PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Exhibit to Accompany

the

Direct Testimony

of

Ethan H. Cline

Bureau of Investigation and Enforcement

Concerning:

Stormwater Rates
Multi-Year Rate Plan
Capital Improvement Projects
Unaccounted-for Water
Class Cost of Service Study
Water and Wastewater Rate Structure
Fire Protection Rates
Scale Back of Rates



Multiyear Rate Plans and the Public Interest

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Executive Summary

Regulatory experts generally agree that ratemaking should strive to achieve high economic efficiency by utilities, fairness, and reasonable regulatory costs. These three outcomes have characterized good ratemaking going back to the beginning of public utility regulation. Economic efficiency requires utilities to create or adopt new technologies, achieve excellent operating performance, and set rates that correspond to marginal cost. All of these outcomes benefit the long-term economic well-being of utility customers in addition to advancing the public interest. Fairness means that neither customers nor utility shareholders unduly shoulder risks or retain the benefits of utility activities. Fairness is essential for the public credibility of the regulatory process and regulation itself. A large part of regulatory costs are the expenses incurred by utilities and other stakeholders during the course of general rate cases.

Traditional rate-of-return ratemaking has undergone critical review at least since the early 1960s. Various stakeholders and academic economists have offered proposals to improve, replace, or supplement it with mechanisms that attempt to redress the supposed deficiencies underlying traditional ratemaking. The primary question for utility regulators is whether these mechanisms are compatible with the objective of setting just and reasonable rates.

One such mechanism is multiyear rate plans (MRPs). MRPs are a price mechanism that sets a utility's base rates and revenue requirements for longer than a single 12-month period. MRPs specify rates beyond the rate effective year of a rate case by applying a formula or index, or detailed forecasts for allowable rate changes over the duration of the plan. For example, instead of a utility filing a new general rate case when conditions change, an MRP may forecast what these conditions are and adjust rates within a single rate case.

More state utility regulators, for example Georgia, Minnesota and Washington, in recent years have either approved MRPs or have expressed interest in them. The issues surrounding MRPs are more complex than what first meets the eye. Whether MRPs are in the public interest is the ultimate question for regulators to answer, but one that has no clear answer. Since MRPs involve so many facets of regulation, their merits come down to the features of a specific plan. Other countries, for example Australia, Canada and Great Britain, have relied on MRPs more than the U.S., often citing the deficiencies of traditional rate-of-return ratemaking.

The major supporter of MRPs in the U.S., electric utilities, have advanced different arguments. Their main one is that MRPs would improve the regulatory process and their financial condition (e.g., from less regulatory lag). From a regulatory perspective, their arguments seem to fall short of making a compelling case for how their customers would benefit. For example, utilities have emphasized the need for MRPs to facilitate recovery of capital costs between general rate cases. While this may benefit customers, MRPs have other effects on utility customers, either positive or negative. The mixed results from MRPs preclude a *prima facie* case for their approval by regulators.

This paper lays out a general approach for regulators in evaluating MRPs as a ratemaking mechanism with the potential to advance the public interest. It first discusses the expected benefits and outcomes of MRPs over traditional ratemaking practices. The paper then takes a more critical approach by accounting for the downsides of MRPs. The fact that relatively few

utilities are currently operating under an MRP suggests that like most other mechanisms it has its costs as well as benefits. An overall evaluation therefore requires a cost-benefit review, which is not part of this research paper.

Utility customers can potentially benefit from MRPs in four major ways:

1. Lower prices;
2. More moderate price changes over time;
3. Utility supply of more services;
4. Higher reliability and improved customer service; and,
5. More immediate price benefits from improved utility performance.

For regulators, the question is: What would it take to produce these benefits? This paper attempts to answer this question, although some issues are beyond the scope of this paper.

This paper suggests that conceptually MRPs have attractive features that warrant serious attention by regulators. They represent a potentially sound approach to ratemaking that can improve the regulatory process and benefit utility customers. Having said that, a caveat is that the benefits to utility customers come down to on how MRPs are structured and executed. Certain features should be in place, for example to protect customers from excessive rates, to give utilities incentives for cost-efficiency, and to ensure customers that utilities are performing satisfactorily in vital areas such as service quality. When badly structured or implemented, MRPs can wipe out the benefits that potentially would flow to customers. As a crucial factor, when regulators are unable to determine whether a utility's revenue requirement forecasts reflect prudent management and are unbiased, they should discount the capability of MRPs to benefit customers. A positive public-interest outcome, in the end, turns to the details, which this paper identifies. A number of things can go wrong that would jeopardize the efficacy of MRPs to promote the public interest. That might, at least partly, explain why MRPs are relatively uncommon in the U.S.

Finally, although this paper does not definitely answer the ultimate question of whether MRPs are in the public interest, it aims to move ahead the dialogue on a ratemaking mechanism that represents a major if not radical departure from traditional ratemaking. More than anything, this paper attempts to educate state utility commissions on MRPs. It hopes to guide them by identifying those key elements of MRPs that are most crucial in affecting the long-run well-being of utility customers. Appendix A contains a list of generic questions about MRPs, some of which this paper tries to answer. Appendix B lists specific questions that regulators can ask about MRPs when initiated by them or proposed by stakeholders.

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Multiyear Rate Plans and the Public Interest

I. Introduction

The main objective of this paper is to educate state utility commissions on multiyear rate plans (MRPs). An MRP is a price mechanism that sets a utility's rates or revenue requirements for longer than a single 12-month period. It specifies rates¹ beyond the rate effective year of a rate case² by applying a formula or index, or detailed forecasts for allowable rate changes over the duration of the plan. Instead of a utility filing a new general rate case³ when conditions change, for example, an MRP may forecast what these conditions are and adjust rates within a single rate case. One common practice is to allow rates to automatically change for a specified post-test year period.⁴

MRPs differ from traditional rate-of-return (ROR) ratemaking (hereafter called "traditional ratemaking") in that they specify rates or revenues for future years applying data and other information beyond the rate effective year following a rate case. For example, if a rate case sets rates for 2017, a three-year MRP may specify that rates can further increase 3 percent in 2018 and 1 percent in 2019. Traditional ratemaking would determine, a rate increase of, say, 5 percent starting in 2017. Unless the utility files another general rate case, the new rate stays fixed. One perception of MRPs is that they are more of an adaptation to traditional rate-of-return ratemaking, rather than as a radically different ratemaking paradigm. For example, by forecasting revenue requirements out to 3 years, an MRP is just an extension of setting rates based on a future test year.

Many analysts view MRPs as superior to traditional ratemaking in advancing economic efficiency and other areas of utility performance. As discussed later, this outcome depends on how rates are set in the "out years".

¹ Rates in this context refer to base rates. Some MRPs specify allowable revenue changes, which has a different effect on utility behavior than specifying allowable rate changes. The former specification,

² A rate effective year is the first year that new rates go into effect, which could coincide with a future test year.

³ A general rate case also typically covers a multimonth review period over which several parties participate. It is usually initiated at the utility's request, involves large sums of dollars, encompasses all rates, and includes a scrutiny of a utility's costs and revenues by different parties. In a general rate case, the regulator authorizes the rates that a utility could charge its customers. It uses a test year that matches revenues with costs, at least for the first year of new rates.

⁴ A test year is an actual or hypothetical 12-month period over which a utility calculates its costs, including both operating and capital costs, and revenues to determine the need for a rate change. At the core of a test year is the "matching principle" for achieving consistency between costs and revenues. The utility would thus account for both revenue requirements and billing determinants in setting new rates.

As this paper examines, MRPs come in various versions with different expected outcomes and underlying objectives (e.g., price cap regulation).⁵ One extreme example is to set a rate moratorium where rates are fixed for, say, three years. The outcomes of an MRP depend on not only its basic structure but also on its supplemental features and implementation. This paper concludes that strong analytical support exists for MRPs, but regulators need to be aware of pitfalls that can jeopardize their ability to benefit utility customers and advance the public interest. Political considerations might also prevent MRPs from operating at maximum performance in serving customers and the public interest.

Over the past several years, electric utilities have proposed MRPs in a number of states, for example Georgia, Minnesota and Washington. Regulators have applied MRPs in different industries.⁶ MRPs are more common in other countries that regulate public utilities.⁷ One rationale for MRPs in the U.S. is that they modify the timing and surety of capital cost recovery for new investments. This objective differs from the primary goals found in the economics literature for MRPs, which is to provide utilities with better incentives for cost control and more flexibility in their operations and marketing strategies.

The focus of regulators should be on whether MRPs represent good ratemaking. Since its beginning, state utility regulators have strived to balance different interests for the public good. Regulatory experts generally agree that good ratemaking leads to utilities performing at high economic efficiency, fairness, and reasonable regulatory costs. *Economic efficiency* requires utilities to adopt new technologies when economical, achieve excellent operating performance, and set rates that correspond to marginal cost. *Fairness* means that neither customers nor utility

⁵ Under price cap regulation, allowable price changes between general rate cases depend on exogenous input prices and performance benchmarks (e.g., total factor productivity for a peer group of utilities). For example, the maximum price that a utility can charge during a period t equals the base price plus the accumulated changes since the base period, determined by the change in the selected price index (e.g., Gross Domestic product Price Index) minus an X-factor, which commonly relates to a measure of total factor productivity plus a “stretch factor”. Price caps have good incentives for high cost performance, but they can lead to a utility earning high profits. In the absence of an earnings sharing mechanism, in other words, a utility’s actual rate of return could be much higher than the authorized rate of return. This possible outcome derives from periodic price adjustments based on parameters external to an individual utility’s conditions. [One benefit of price caps to customers is that they receive the benefits of productivity growth plus a “stretch factor”, as they are built into the allowable rate changes between rate cases.] A tradeoff exists between giving a utility a strong incentive to control its costs and achieving a rate of return that is within a tolerable range of the utility’s authorized rate of return. See, for example, Mark Lowry and Lawrence Kaufmann, *Price Cap Regulation of Power Distribution*, prepared for the Edison Electric Institute, June 1998; and Wayne P. Olson and Kenneth W. Costello, "Electricity Matters: New Incentives in a Changing Electric Services Industry," *The Electricity Journal*, Vol. 8 (January-February 1995): 28-40.

⁶ These industries include railroads, oil pipelines, and telecommunications. See Mark Newton Lowry et al., *Alternative Regulation for Emerging Utility Challenges: 2015 Update*, prepared for the Edison Electric Institute, 35. In other countries, regulators and other policymakers have usually initiated MRPs.

⁷ Ibid, 35.

shareholders unduly shoulder risks or retain the benefits of utility activities.⁸ A large part of *regulatory costs* is the expenses the utility and other groups (including the regulatory agency) incur over the course of a general rate case.⁹ Frequent rate cases, for example, can impose substantial costs on utility management and regulatory staff resources.

This paper will discuss MRPs from different angles:

1. The rationales for MRPs (e.g., traditional ratemaking creating new problems or magnifying current ones);
2. The different versions of MRPs (e.g., price caps);
3. Why stakeholders have shown more interest in MRPs over the past few years;
4. The contrast between traditional cost-recovery practices, especially for capital costs, and MRPs in terms of mechanics;
5. The advantages and disadvantages of MRPs, compared with other ratemaking options, in achieving different regulatory objectives to advance the public interest¹⁰;
6. Utility incentives under an MRP to control operating and capital costs;
7. How MRPs affect a utility's performance in different areas (e.g., operations costs, reliability, energy efficiency);
8. How MRPs can benefit customers;
9. How MRPs can protect customers from subpar utility performance and utilities earning a rate of return far above the authorized level;
10. The conditions under which MRPs become more justified in setting just and reasonable rates;
11. The different ways to structure MRPs (e.g., core features and add-ons); and
12. How MRPs can hold utilities accountable for costs and other areas of performance (e.g., service reliability).

⁸ Fairness is essential for the public credibility of the regulatory process and regulation itself.

⁹ The initial costs of MRPs to regulators and stakeholders may be high.

¹⁰ These alternatives include cost trackers, infrastructure surcharges, and deferred accounting.

II. Features of Traditional Ratemaking

One motive for MRPs is their ability to reduce both the frequency of general rate cases¹¹ and strengthen utility incentives for cost efficiency. As one example, a major reason for the Washington Utilities and Transportation Commission (WUTC) approving Puget Sound Energy (PSE) multiyear plan was to reduce the frequency of rate cases.¹² PSE agreed to a stay-out period and the Commission in return allowed an annual escalation factor of three percent for certain costs, i.e., an attrition allowance.¹³ The WUTC approved a “stretch goal” that required PSE to achieve cost reductions at a rate greater than historically to reach its authorized rate of return. One objective was to challenge PSE to earn its authorized rate of return. The PSE plan also includes an earnings test that has a 50-50 sharing arrangement for utility returns exceeding the authorized return. In its order, the WUTC cited the landmark *Hope* decision by remarking that it is the “end result”, rather than the means of getting to it, that is the test for whether proposed rates are just and reasonable. The WUTC also articulated that one objective of an MRP is to provide a utility with good incentives to control costs, which allows it to earn a rate of return above its authorized return. It emphasized that even to earn its authorized rate of return, a utility should demonstrate efficient behavior that saves costs.

In other jurisdictions such as Florida, Minnesota, New Jersey, and Virginia, utilities have pushed for MRPs to facilitate their recovery of capital costs for new investments. Relative to traditional ratemaking, MRPs allow utilities to recover their capital costs earlier without having to file multiple general rate cases.¹⁴ This paper advises regulators to view MRPs from a broader public-interest perspective, taking into account the cost efficiency, “fairness”, and other core regulatory objectives.

¹¹ In a general rate case, the regulator determines what rates a utility could charge its customers for a future period. That determination relies on a “test year” *estimate* of future utility expenses, sales, and investment, as well as the cost of debt (interest on loans) and the cost of equity (the cost of attracting shareholders), with debt and equity funding the capital projects necessary to fulfill the utility’s service obligation.

¹² The WUTC used an adjusted historical test year, rather than a future test year, to set initial-year rates. Washington Utilities and Transportation Commission, *In the Matter of the Petition of Puget Sound Energy, Inc. and Northwest Energy Coalition for an Order Authorizing PSE to Implement Electric and Natural Gas Decoupling Mechanisms and to Record Accounting Entities associated with the Mechanisms, Final Order Authorizing Rates*, Dockets UE-130137 and UG-130138, June 25, 2013.

¹³ With price, or average revenue fixed between rate cases, an increase in average cost inevitably leads to the lowering of a utility’s earnings or profits. This creates what analysts called *earnings attrition* which makes it less likely that a utility would earn its authorized rate of return beyond the test year. Attrition is more likely under an historical test year but can occur under a future test year when cost increases dominate sales increases to produce a lower rate of return. On the opposite side of the spectrum is the term accretion, which refers to a utility “overearning” between rate cases.

¹⁴ Utilities have proposed other rate mechanisms to facilitate recovery of capital costs, including formula rates and capital cost trackers.

A. The regulatory objective of “just and reasonable” rates

Some proponents of MRPs have contended that they are compatible with setting “just and reasonable” rates and the “balancing act” of regulation.¹⁵ This paper later elaborates on the validity of this argument, which depends on the structure, details, and implementation of an MRP.

For now, an evaluation of the rates established under an MRP, in terms of the universal regulatory mantra of “just and reasonable”, involves five major items:

1. Rates reflect the costs of an efficient and prudent utility;
2. Rates reflect the cost of serving different customers and providing different services and different levels of service;
3. Rates avoid undue price discrimination;
4. Rates must be fair among customer groups, and between utility shareholders and customers; and,
5. Rates allow a prudent utility a reasonable opportunity to receive sufficient revenues to cover its cost of capital so as to attract new capital and not encounter serious financial problems.¹⁶

Overall, “just and reasonable” rates entail giving a utility a fair chance of earning its authorized rate of return as long as it is performing prudently. Some utilities have argued that when attrition occurs they have no reasonable opportunity to earn their authorized rate of return.¹⁷ Other regulatory objectives for ratemaking include public acceptability, rate stability and gradualism, affordable utility service, efficient consumption, efficient competition, moderate regulatory burden, and promotion of specified social goals (e.g., facilitate recovery of capital

¹⁵ The “balancing act” tries to avoid the extreme positions of parties, whether they are utilities or interveners. It requires regulators to make trade-offs between various ratemaking objectives in reaching an outcome that best serves the general public. For example, although an MRP could help utilities financially, it may expose customers excessively to the risks of forecasting error and bias. Cost trackers also benefit utilities but, in the absence of adequate oversight, can lead to inflated costs that utilities recover from customers.

¹⁶ The U.S. Supreme Court has stated: “The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.” *Bluefield Waterworks v. PSC of WV* 262 U.S. 679 (1923).

Some analysts favor the requirement that if a utility wants to earn its authorized rate of return, it would have to improve its productivity or cost efficiency. This is a more stringent condition for a utility to earn its authorized rate of return and one that stresses the objective of an MRP to enhance a utility’s cost efficiency.

¹⁷ Attrition is the result of revenue growth falling short of revenue-requirement growth, causing erosion in the utility’s rate of return over time in the absence of a rate change.

costs to promote certain social objectives). Any evaluation of MRPs should entail determining whether they perform better or worse than alternative rate mechanisms in advancing these objectives.

From a legal perspective, regulators must set reasonable rates that allow a prudent utility to operate successfully, maintain its financial integrity, attract capital, and compensate its investors in line with actual risks.¹⁸ The emphasis is then on the results reached, not on the methods used. One obvious implication is that the merits of a ratemaking mechanism depend on its likelihood of setting “just and reasonable” rates. Whether rates established under an MRP are just and reasonable is not obvious. As discussed later, MRPs have some downsides that can jeopardize this objective, but other mechanisms have shortcomings as well in achieving just and reasonable rates.

B. The evolution of traditional ratemaking

Traditional ratemaking is the default method that state utility regulators have relied on for decades in setting utility rates. It is also the benchmark used by U.S. regulators to assess other ratemaking practices. Even though some industry observers have written off traditional ratemaking as an anachronism, it remains the core ratemaking paradigm in state utility regulation, notwithstanding the onslaught of alternative rate mechanisms proposed by diverse interest groups over the past two decades.

Typically, the onus is on utilities and other stakeholders to demonstrate the superiority of an alternative approach to traditional ratemaking. A proactive regulator would initiate, or at least consider, other alternative rate mechanisms on its own when conditions change to cast doubt on the efficacy of existing ratemaking methods.

Throughout its history, state utility regulation has had to grapple with finding the “right” ratemaking mechanism that is most compatible with the public good. Back in the late 1960s and 1970s, for example, regulators gave approval to new rate mechanisms and concepts such as future test years, fuel adjustment mechanisms, special rates to certain industrial customers, seasonal rates, construction work in progress in rate base, and phase-ins of new expensive power plants.¹⁹

One lesson from the past is that regulators do adapt to a changed environment, although cautiously, when discord becomes heightened. They tend to depart from traditional practices, including ratemaking ones, only when continuation of the status quo would disrupt the political equilibrium.²⁰ Whether regulators/legislatures have supported MRPs for this reason requires

¹⁸ The U.S. Supreme Court outlined these conditions in its order for *FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 605 (1944).

¹⁹ Paul L. Joskow, “Inflation and Environmental Concern: Structural Changes in the Process of Public Utility Regulation,” *Journal of Law and Economics*, Vol. 17 (1974): 291-327.

²⁰ Two relatively recent examples are revenue decoupling and capital cost trackers. The former mechanism tries to appease those who believe that utilities should promote energy efficiency without being penalized financially.

more detailed study, although it seems that they have. One possible concern triggering MRPs is the frequency of general rate cases that (1) weaken utility performance incentives and (2) place a strain on both the regulator's and utility's resources. Another "distress" situation would be the continuous inability of utilities to earn their authorized rate of return, especially when an efficient utility is engaged in major capital expenditures.

C. Relevant features of traditional ratemaking for evaluating MRPs

Traditional ratemaking has several features that are pertinent to comparing it with MRPs. First, in a general rate case parties closely examine a utility's costs to determine whether proposed rates reflect prudent utility management. While cost disallowances for imprudence are rare, just the threat probably motivates utilities to become less cost inefficient and more mindful of their actions on cost. One of the impetuses for MRPs is that they can motivate utilities to be cost efficient without having to rely on prudence reviews. This is arguably easier to do under an historical test year than a future test year.²¹

Second, the regulator's intent is to give utilities a reasonable opportunity to recover their authorized rate of return, but no assurance that they will. A general practice is for regulators to set rates so that a prudent utility has the opportunity to earn a reasonable (or "fair") return on equity. Under traditional ratemaking, the regulator considers just the first year that new rates go into effect. If the dynamics change, then the expected rate of return would differ from what was expected from the rate case decision. In other words, the regulator cannot guarantee that utilities earn their authorized rate of return. Actual returns, for various reasons, inevitably vary from what is authorized. Reasons may be cost inflation, and sales declines, beyond the test year. Some of them are exogenous to a utility's control while others are subject to utility-management discretion. The regulator's obligation is only to create a reasonable opportunity for utilities to earn the authorized level.

Third, the utility has an incentive to improve its cost efficiency once the regulator sets new rates until the next general rate case. Regulatory lag accounts for this incentive, which is more of a consequence of the impracticability of continuous rate reviews and changing economic conditions than by design. This incentive diminishes in a dynamic environment where utilities frequently file general rate cases. For example, if a utility achieves cost savings in 2016 and files a general rate case in 2017, those savings would normally start to flow back to customers when new rates go into effect. The reason lies with the mechanics of traditional ratemaking in setting the price, not the actual earnings of a utility. To the extent that utilities are able to hold down costs, their earnings and rate of return are higher. Customers do not receive the benefits, however, of lower utility costs until regulators include them in new rates after the next general rate case.

Fourth, rate levels are set based on costs and sales estimates for at most a one-year future period. In the past a utility could absorb unexpected cost increases because of increased sales and revenues relative to those for the test year. Especially during a time, such as now, where sales and revenue growth is much more constrained, a utility may have to file a general rate case

²¹ Ken Costello, *Future Test Years: Challenges Posed for State Utility Commissions*, NRRI 13-08, July 2013.

to recover increased cost lying outside the test-year calculation. Low general inflation over the past several years has lessened this possibility, however.

Fifth, base-rate changes require a utility to file a general rate case. Because utilities usually initiate rate cases under traditional ratemaking, they can file for new rates, for example, when their costs rise because of lax management. This ability to file rate cases whenever they like would seem to weaken utilities' incentive to control costs. Such filings are expensive and time-intensive for all participants. Their opportunity costs are the beneficial activities that participants would otherwise engage in the absence of general rate cases. Regulatory staff, for example, could devote more time to workshops and other investigations that focus on important issues (e.g., utility planning, cyber security, distributed generation).

Sixth, outside of a rate case, cost recovery occurs only under restrictive conditions; for example, a large cost item, hard-to-predict costs, costs largely outside the control of a utility. Such recovery normally happens by way of a rider, tracker or surcharge, which can diminish a utility's incentive for cost management. The most common riders apply to changes in fuel costs for electric utilities and purchased gas for natural gas utilities. In recent years, riders have grown to include cost recovery for a wide array of utility functions. Regulators have departed from past practices of approving cost trackers only under "extraordinary circumstances."²²

Overall, under traditional ratemaking regulators try to balance the interests of different stakeholders in achieving just and reasonable rates.²³ The implication for MRPs is that they should avoid being one-sided, unduly favoring utilities or certain customers and other non-utility stakeholders that would compromise the public interest.²⁴ Allowing utilities to recover their capital costs without regulatory review would be an imbalanced decision. Authorizing excessive subsidies to promote a certain energy resource would also violate the "balancing act" of regulation.

D. Criticisms of traditional ratemaking

Traditional ratemaking has its problems that MRPs advocates say should disqualify it as the default ratemaking paradigm. As some readers recall, back in the 1990s when the electric

²² See Ken Costello, *How Should Regulators View Cost Trackers?* NRRI 09-13, September 2009.

²³ Balancing means that a regulator has reached an equilibrium outcome in which different stakeholders, although not completely satisfied with a decision, are not willing to expend much effort in either the legislative or regulatory arena to contest the decision or to take other major action. One interpretation of balance is the utility having strong incentives to control its costs without earning unreasonably high profits or unable to attract capital or maintain financial health required to make investments that benefit customers.

²⁴ State utility regulators attempt to balance the rights of utilities and their customers by accounting for three main factors: (a) *legal constraints*—for example, utilities have a right to a reasonable opportunity to be financially viable, and customers have a right to just and reasonable prices; (b) *the regulator's perception of fairness*; and (c) *compatibility with a broader interest*. Regulators try to balance the interests of the different stakeholders with the overall objective of promoting the general good.

industry went through major restructuring, many experts believed that traditional ratemaking would not survive.²⁵ They thought that price caps or more flexible ratemaking mechanisms would replace it because they were more in conformance with the new market environment; but this did not happen. One reason was that regulators were not willing to give up traditional ratemaking as the basic paradigm, although they were willing to modify it around the edges. In accordance with several electric-industry restructuring plans, regulators require utilities to operate under lengthy multiyear rate freezes. Also in the 1990s, several newly privatized utilities in other countries operated under price-cap and other multiyear rate plans.²⁶

The perceived deficiencies of traditional ratemaking have evolved over the years, some of which MRPs are able to address:

1. *Weak incentives for long-term cost efficiency.*

X-inefficiency, a term used by economists, refers to the situation where utilities waste resources by operating above their cost frontier. While X-inefficiency occurs in

²⁵ While several states contemplated restructuring of the electric industry within their respective state boundaries (or known as retail choice), ultimately only 14 states kept retail choice by 2007 and one additional one in the last two years. Also, some of these states limited the number of customers or classes of customers who could avail retail choice. Therefore, all retail choice programs were not the same.

²⁶ One example of an MRP is the Revenue set to deliver strong Incentives, Innovation and Outputs (RIIO), created by the Office of Gas and Electricity Markets (Ofgem), which is the electricity and natural gas regulator in Great Britain. The RIIO model contains the following features: (a) A detailed set of outputs expected of the utility based on a comprehensive business plan, (b) an 8-year rate plan, (c) explicit incentives for achieving certain performance targets, (d) extensive stakeholder involvement, (e) external benchmarking of costs, (f) a total expenditure concept, and (g) uncertainty mechanisms.

RIIO represents a radically different ratemaking paradigm than what U.S. regulators apply to their electric utilities. It focuses less on the utility's earned rate of return and more on the utility's performance. RIIO uses the mantra "value for money." It incorporates an incentive system with rewards and penalties tied to operational efficiencies, as well as funding for innovation and opportunities for utilities to include third parties in the delivery of energy services. Regulators can use the RIIO framework to monitor a utility's performance in serving its customers. If the evidence shows subpar performance, for example, the regulator could impose a penalty. Likewise, the utility could receive rewards for exceptionally good performance in meeting the needs of its customers. For example, the utility may support a platform that accommodates DG and provide real-time information to customers.

Whether RIIO is feasible for the U.S. is highly doubtful at this time. Would state utility regulators be willing to accept a radically new approach to utility regulation, like the UK has? U.S. regulators typically make changes incrementally rather than boldly. Even if not adopted in the U.S., RIIO contains some commendable ideas that state regulators might want to consider in any new ratemaking approach that they adopt. Especially attractive is the notion that a primary criterion for utility revenue is its correlation with *the value that customers receive* from utility service. Benchmarking, which state utility regulators rarely do, rightly shifts the focus from inputs to outputs and holds utilities accountable for subpar performance. See, for example, Peter Fox-Penner et al., "A Trip to RIIO in Your Future," *Public Utilities Fortnightly*, October 2013: 60-5; and Ofgem, "Handbook for Implementing the RIIO Model," October 4, 2010.

every industry, it is probably more severe in utility industries by the fact that utilities lack the strong incentives of non-regulated firms to control costs on a sustainable basis. From a long-term perspective, traditional ratemaking resembles a cost-plus contract.²⁷

2. *Weak incentives for innovation, especially under tight price regulation.*

Tight regulation means that changes in rates occur soon after a utility's costs change, allowing the utility little opportunity to profit. Various features of public utility regulation affect how much and how utilities make R&D/innovation investments. They include regulatory commitment, degree of information symmetry, cost recovery, allocation of the benefits, and risk incidence. For example, depreciation policy can help ensure recovery of invested funds over the economic life of the physical capital. The economics literature has devoted relatively little attention to regulated firms' incentive to engage in R&D, and develop and adopt new technologies. Nevertheless, the conventional thinking is that regulation tends to make utilities cautious about innovating and taking risks. Utilities therefore fall short in their R&D activities and deployment of new technologies.²⁸

3. *Fixed base rates between general rate cases, which strengthen incentives for cost efficiency but its rigidity could result in extremely high or low rates of return under dynamic conditions.*

Base rates under traditional ratemaking have two characteristics: (a) the regulator sets them in a formal rate case, and (b) they remain fixed until the utility files a new rate case and the regulator makes a subsequent decision. The costs represent those calculated for a designated test year and exclude those costs recovered in trackers and other mechanisms. Under traditional ratemaking, no matter how much the actual utility's costs and revenues deviate from their test-year levels, base rates remain fixed until the regulator approves new ones in a future rate case. The exception is when a regulator allows for interim rate relief under abnormal conditions that jeopardize a utility's financial condition.

A utility's costs can vary radically from year-to year, for example from ongoing capital expenditures and large unexpected costs such as from severe storm damage, jeopardizing its ability to earn the authorized rate of return or allowing it to earn an excessively high rate of return.

²⁷ See Harvey Leibenstein, "Allocative Efficiency vs. 'X-Efficiency,'" *American Economic Review* 56 (June 1966): 392-412; and Paul L. Joskow and Nancy L. Rose, "The Effects of Economic Regulation," in *Handbook of Industrial Organization, Volume II*, Richard Schmalensee and Robert D. Willig, eds., 1449-1506 (New York: Elsevier Science Publishers, Inc., 1989).

²⁸ See Elizabeth E. Bailey, "Innovation and Regulation," *Journal of Public Economics*, Vol. 3 (August 1974): 285-95; and Stanford V. Berg and John Tschirhart, *Natural Monopoly Regulation: Principles and Practice* (Cambridge, UK: Cambridge University Press, 1988).

4. *Excessive regulatory lag, for example under conditions of new investment needs and stagnant sales growth, that makes it hard if not possible for utilities to earn their authorized rate of return.*

Regulatory lag can either benefit or harm utilities, depending on whether average cost is decreasing or increasing relative to average revenue. [Average cost is a utility's total cost divided by billing determinants such as sales volumes. It therefore rises with cost inflation and lower sales.] Over the history of state utility regulation, regulatory lag has benefited utilities during some periods while hurting them in other periods. For example, utilities generally benefit when prices remain fixed over several years while their average cost is declining. Regulatory lag can cause severe cash-flow problems for utilities. If the costs are substantial and utility recovery of those costs occurs several years after they incurred, they can weaken a utility's financial condition to increase its cost of capital or make it more difficult to attract capital. Problems from delays in a utility's recovery of capital costs for large projects could also jeopardize its cash flow and financial viability.

5. *Regulatory lag deferring the benefits of efficiency gains to customers.*

Customers benefit from cost savings only after the new base rates go into effect. If a utility, for example, does not file a general rate case for several years, it has strong incentive for controlling its costs. Customers are deprived, however, of the benefits for an extended period, which actually occurred for electric utilities until around the late 1960s.

6. *High regulatory costs.*

The regulatory costs of traditional ratemaking include the expenses incurred by utilities, interveners, and regulators for rate filings, rulemakings, and other matters falling under regulatory jurisdiction. Traditional ratemaking requires regulators to have access to a great deal of information, which they demand from utilities, for making informed decisions. The difficult job for regulators is to take the conflicting information provided by different parties, "unscramble" it, and ultimately reach a decision balancing the welfare of the various interest groups.

7. *Frequent rate cases in a dynamic environment (i.e., a changing relationship between revenues, costs and rate base) where the utility's average cost increases.*

Average cost increases whenever the combined growth in input prices and levels exceeds the growth in billing determinants such as sales volumes. Under a condition of moderate to high inflation, large investments in new facilities and slow sales growth, average cost would likely rise. Average cost equals total cost divided by

billing determinants. Total cost, in turn, equals the sum of the product of input prices and input levels.²⁹

8. *Rigid prices that preclude a utility from offering discount or special rates to certain customers dictated by market conditions.*

Pricing rigidity prevents a utility from responding in a timely fashion to changing market conditions. These conditions can arise from general inflation, new technological developments, and changes in the intensity of competitive forces and in consumer demand. Allocative inefficiencies result because of effective prices moving farther away from marginal costs and consumers' willingness to pay for utility service.

9. *Cost-shifting and affiliate abuses that are more likely to occur when utilities operate in mixed competitive-non-competitive markets (e.g., a regulated utility that has an affiliate selling coal in the open market).*

This suggests that price caps may be attractive to regulators if only because of their ability to mitigate these problems.³⁰

10. *Incentive for excessive capital investments, under certain conditions (e.g., the Averch-Johnson effect).³¹*
11. *Disincentive to embrace cost-effective energy efficiency, peak demand management, distributed generation, and other distributed energy resources (DER).*

E. Four primary goals of ratemaking

Regulators have assigned four major objectives to ratemaking:

1. Foster economic efficiency;
2. Ensure that a prudent utility is financially healthy;

²⁹ Expressed differently from rearranging terms,

$$\text{Average Cost (AC)} = \text{price of inputs} / \text{total factor productivity}$$

Thus, $\% \Delta \text{AC}$ equals $\% \Delta$ price of inputs minus $\% \Delta$ total factor productivity, or $\% \Delta$ price of inputs plus $\% \Delta$ inputs minus $\% \Delta$ output. As an example, if input prices increase by an average three percent, input levels by one percent and output by two percent, average cost would rise by two percent.

³⁰ There is evidence that this partly explains the widespread use of price caps in the U.S. telecom industry.

³¹ What analysts call the Averch-Johnson (A-J) effect says that a utility would use excessive capital input relative to other inputs such as labor, fuel, and materials. This outcome assumes that a utility faces a binding rate-of-return constraint on its rate base and its allowed rate of return exceeds its actual cost of capital. See Harvey Averch and Leland L. Johnson, "Behavior of the Firm Under Regulatory Constraint," *American Economic Review* 52 (December 1962): 1052-69.

3. Achieve fairness not only between utility customers and shareholders, but also among the different customer classes; and,
4. Advance social objectives or public benefits.

Economic efficiency takes into account: (a) the cost to society from satisfying the demands of utility consumers (i.e., productive efficiency) and (b) the value that consumers place on utility service (i.e., allocative efficiency). Key actions for achieving economic efficiency are setting rates based on marginal cost principles, and providing utilities strong incentives to operate efficiently. Economic efficiency involves maximizing total net economic value, while equity or fairness involves the distribution of net value among producers and consumers. Another way to look at the two concepts is that what matters to economic efficiency is maximizing the size of the pie, while equity or fairness cares about the slicing of the pie. Ratemaking involves treating these two concepts interdependently as maximizing the size of the pie requires efficient pricing to consumers, which inevitably encompasses slicing the pie as well. MRPs have a more direct effect on the latter component, which is discussed in a later section of this paper.

To ensure that a prudent utility is financially healthy may require that a utility recovers its capital costs in a timely manner to avoid severe cash-flow problems. It may also involve regulators making some sort of commitment to a utility's capital project so as to moderate risk to the utility. Regulatory commitment can be full, partial or none. Partial may involve, for example, the regulator pre-approving a capital project. Any imprudence in utility decision-making affecting completion of the project is still subject to disallowance. Completely eliminating the risk to utility shareholders would tend to overly blunt utilities' incentive to contain the costs of projects and carefully evaluate their economics. In general, regulators typically satisfy their duty to protect customers from excessive costs through substantial oversight of capital projects and the traditional regulatory prerogative to examine a utility's books and management and potentially disallow imprudently incurred costs.

To achieve fairness has to be not only between utility customers and shareholders, but also among the different customer classes. The term "fairness" and its derivative, "fair," appear commonly in regulatory circles. We often hear of a "fair rate of return," "fair and reasonable rates," "fair value," and a "fair process." Because fairness is elusive and enters the domain of philosophy, it becomes difficult to know what is fair and to say that one action is fairer than another is.³² Since stakeholders perceive fairness differently, the regulator's job is to balance them so as to best advance the public interest. Balancing interests may satisfy the regulator's own interests (e.g., achieving political equilibrium), rather than the public interest. Achieving this goal may result in regulatory approval of a ratemaking mechanism that shares features of different mechanisms. One example is an MRP that contains an earnings sharing component.

Advancing social objectives or public benefits are relatively recent and not presently universally accepted as legitimate objectives to be pursued by state utility regulation. They can include energy efficiency, affordability, and clean energy.

³² It is probably easier to know when something is unfair, at least from a preliminary reaction.

F. Widespread interest in new ratemaking mechanisms

The recent surge of new ratemaking mechanisms stems from shortcomings of traditional ratemaking like those we previously discussed. The relevant question for regulators is: Should regulation change around the edges or at the core?³³

Much of the push for non-traditional rate mechanisms such as MRPs comes from stakeholders (e.g., utilities, environmentalists, consumer advocates) with diverse interests.³⁴ While some economists find MRPs appealing, its strongest supporters in the U.S. have been utilities. It does not seem to be so much because utilities desire stronger incentives for cost efficiency, which certain MRPs can provide; but more because they prefer fewer rate cases, more prompt recovery of cost, especially capital costs.³⁵ Some utilities view new market and operating conditions, for example, rising average costs and the slowdown of demand growth, as *prima facie* reasons for MRPs.

Utilities would find MRPs especially appealing in that they are forward looking and reflect a multiyear commitment by regulators. They can involve regulatory preapproval of capital projects and accelerated recovery of capital costs. This gives utilities greater certainty over cost recovery. Whether or not this benefits utility customers in the long run is the question that regulators should ask.

G. Current status of MRPs

Interest in various variations of MRPs has slowly spread across states. Conditions are favorable to MRPs, specifically with low or no growth in sales for electric utilities along with increasing demand for capital expenditures. According to one study by Lowry and Woolf,

In the U.S. electric utility industry, MRPs [multiyear rate plans] were first used extensively in California, where a Rate Case Plan was established in the 1980s that, with modifications, has limited the frequency of general rate cases to this day. Iowa, Maine, Massachusetts and New York have also been MRP innovators. An MRP for Central Maine Power afforded the company considerable flexibility in marketing to price-sensitive paper mill customers. MidAmerican Energy operated under a lengthy rate freeze that extended to its energy costs but permitted the company to keep margins from its off-system sales. The use of MRPs in the United States has recently spread to

³³ Incidentally, throughout the history of public utility regulation, stakeholders have petitioned commissions to revisit old rate mechanisms and consider new ones (e.g., late 1960s and early 1970s).

³⁴ Added regulatory objectives over the past three decades have included the advancement of energy efficiency and renewable energy, and utility service affordability.

³⁵ Although utilities may argue that an MRP being proposed would improve cost efficiency, their motivation seems to lie more with improving their financial condition.

vertically integrated utilities in a diverse collection of other states that includes Colorado, Florida, Georgia, Virginia and Washington.³⁶

Recent studies and other investigations have examined different forms of MRPs, such as rate freezes, revenue caps, formula rate plans³⁷, and price caps. While the evidence from these mechanisms do not indicate any serious problems, most utility regulators appear reluctant to part with traditional ratemaking, which determines rates solely from a test year.

³⁶ Mark Newton Lowry and Tim Woolf, *Performance-Based Regulation in a High Distributed Energy Resources Future*, LBL-1004130, January 2016, 30.

³⁷ Formula rate plans can function as a safety net for regulators by preventing utilities from earning extremely high or low profits between formal rate reviews. They do this by adjusting base rates between general rate cases, which in that sense falls under the meaning of an MRP. Also like some other MRPs, formula rate plans specify how a utility can change its base rates for periods beyond the rate effective year. A utility can adjust rates, for example, when its rate of return fall outside some predetermined range. Some analysts place formula rate plans outside the category of MRPs. One study, for example, considers a formula rate plan as a comprehensive cost tracker. *Ibid.*, 9. *See also supra* note 6. Other analysts would contend that formula rates differ fundamentally from MRPs.

Formula rate plans can allow customers to benefit visibly and directly when conditions favor a utility to earn high profits. Economic analyses have shown that compared to a pure price-cap regime, earnings-sharing-type mechanisms may better improve the long-term economic welfare of consumers. [*See, for example, Richard Schmalensee, "Good Regulatory Regimes," Rand Journal of Regulation* 20 (Autumn 1989): 417-36; and Thomas P. Lyon, "A Model of Sliding-Scale Regulation," *Journal of Regulatory Economics* 9 (May 1996): 227-47.] Formula rate plans attempt to balance both an economic and political test, which pure price-cap regulation does not attempt to do. Some regulatory plans in the U.S. add an earnings-sharing component to an MRP, which try to give utilities strong incentive for cost efficiency while placing bounds on their profits. These bounds recognize the possibility that a utility can earn extreme profits that can conflict with both "equity" and political standards. The challenge in structuring earnings sharing is to not seriously diminish the utilities' cost efficiency.

III. Objectives of MRPs

A common motive for MRPs is to reduce regulatory cost and improve the regulatory process.³⁸ The presumption is that under traditional ratemaking utilities would file continuous rate cases because of their costs growing faster than sales.

A. Utility perspective

Supporters of multiyear rate plans in the U.S., typically utilities, point to six benefits:

1. More predictable revenues for utilities, bolstering their financial health;
2. Spreading of rate increases over a longer period;
3. More predictable rates for customers;
4. Stronger performance incentives;
5. Timely recovery of costs for new capital projects; and
6. Fewer general rate cases over time.³⁹

These benefits, although at first glance they may not seem terribly impressive from the perspective of utility customers, can dominate any downsides, making multiyear rate plans worthwhile to consider.

Supporters contend that MRPs avoid “earnings” attrition by preventing the erosion of a utility’s rate of return that could occur under an historical test year with the past relationship between revenues, expenses and rate base not relevant for the future. Some proponents of MRPs argue that since they ease the financial burden on utilities when they invest in new infrastructure, customers stand to benefit in the long run.⁴⁰

³⁸ It is imperative that a more efficient regulatory process does not compromise transparency and oversight. By shortcutting certain regulatory activities, for example, the regulator may be slighting some activities that are essential to its duty. One prime example is rubber stamping some costs that the regulator should expend time in reviewing their prudence. An alternative is for the regulator to provisionally allow a utility to recover all of its costs but then in, say, the next general rate case perform a prudence review. One practical problem is that several years may have passed between when the utility made the expenditures and when the regulator carries out the prudence review.

³⁹ Regulators do not like frequent rate cases: They expose regulators to public scrutiny and confront them with the difficult task of balancing the interests of politically charged stakeholders. Besides, rate cases are time consuming and expensive, leaving the regulators with less resources to pursue other activities integral to their duties. Another negative effect from frequent rate cases is that they tend to diminish the incentive of utilities to control their costs, since the benefits to them get more quickly passed on to customers.

⁴⁰ See, for example, Toby Brown et al., “Incentive-Based Ratemaking: Recommendations to the Hawaiian Electric Companies,” prepared for the Hawaiian Electric Companies, May 20, 2014, 23.

From a utility's perspective, the biggest benefit from MRPs probably comes from an improved opportunity to earn its authorized rate of return. That is, the mitigation of regulatory lag that can jeopardize a utility's financial health

In a dynamic environment, utilities also find appealing that MRPs allow their revenues to change in post-test years to reflect the costs of new investments and other additional expenses between rate cases. That is MRPs allow more prompt recovery of costs associated with investments. Otherwise, as some utilities have argued, they would be hard pressed to earn their authorized rate of return between rate cases.

B. Improving utility performance

From a public-interest perspective, the most positive aspect of MRPs derives from improving utility performance, which goes beyond a utility's financial health.⁴¹ After all, regulation has an obligation to induce high-quality utility performance, whether it is customer service, physical operation of the utility system, service reliability, cost controls, or the adoption of new technologies. The economics literature shows that public utilities left unregulated, or regulated ineffectively, would perform poorly. They would set prices too high, price discriminate among customers, provide an inferior quality of service, deploy a nonoptimal mix of inputs, and devote deficient effort to control costs and innovate.⁴²

MRPs have the potential to enhance utility performance through different means:

1. *For a utility to earn its authorized rate of return, the regulator could require the utility to improve cost efficiency:* The Washington Utilities and Transportation Commission, for example, agreed in a settlement that Puget Sound Energy should achieve lower-than-historical cost increases in certain categories to earn its authorized rate of return.⁴³
2. *Facilitation of cost recovery for capital projects can mitigate a utility's disincentive to make socially desirable investments and has other benefits to customers:* By spreading capital cost recovery over a longer period of time than what is the traditional practice, an MRP can also mitigate rate shock⁴⁴, lower a utility's risk, improve utilities' cash flow during construction, and avoid delays in capital cost

⁴¹ Utility performance derives from two distinct factors: *internal efficiencies and external conditions*. The first factor encompasses utility competence in combining and deploying labor, capital, and other resources to manage performance. The second factor accounts for market, operational, business, and other conditions over which an individual utility has minimal control.

⁴² See, for example, *supra* notes 27 and 31.

⁴³ *Supra* note 12.

⁴⁴ An MRP, for example, can levelize rate changes by spreading a \$100 million rate increase over three years instead of placing all of it in the rate-case test year, which begins soon right after the end of a rate case. Rate moderation mechanisms, however, only defer and do not eliminate the need for rate relief. Customer frequently have to pay the utility a carrying charge for stretching cost recovery out over time to achieve more stable year-to-year rate changes.

recovery; these investments can include supporting DER and other new technologies that would benefit utility customers and are compatible with state or federal energy policies.⁴⁵

3. *An automatic rate adjustment mechanism not linked to a utility's actual cost changes can motivate it to achieve higher cost efficiency:* In setting revenue requirements beyond the test year, utilities can either rely on forecasts of their actual costs or use an index for determining allowable cost changes in rates. Because the index does not track a utility's actual cost changes, the utility benefits financially when it achieves cost changes below the index level. For example, if an index for O&M costs allows a utility to increase its revenues by a certain amount, the extent to which the utility "beats" the index, it profits at least until the general rate case.
4. *Performance metrics to evaluate and take appropriate action can provide utilities with an added incentive to improve their performance in non-cost functions:* Most MRPs in operation contain separate performance metrics to ensure customers that a utility has not allowed its performance in reliability or customer service to deteriorate during the course of an MRP.
5. *Price flexibility, which some MRPs allow, gives utilities the ability to vary their price to different customers based on economic and other circumstances.*
6. *A "fair" share of benefits from improved utility performance between the utility and its customers can occur before the next general rate case.*

From a regulatory-process perspective, MRPs can help consolidate different rate mechanisms, making it more efficient and holistic/systematic. A utility could eliminate some riders and surcharges, as certain costs are recoverable under an MRP whereas they were not previously. Riders, where a utility can recover cost changes for certain items outside of a rate case, can cause problems.⁴⁶ By including these costs in base rates, they are likely to receive closer regulatory review, and utility incentives for managing them become more compatible with other costs.

MRPs can also avoid "extreme" utility financial outcomes. By including an earnings-sharing component, they can confine a utility's actual earnings within a tolerably acceptable range. The structure of earnings sharing affects a utility incentive for cost control; a poor structure, for example, could lead to cost-plus-type incentives that would tend to inflate a utility's costs and be detrimental to utility customers.

Finally, as contended by some observers, MRPs can bolster a utility's incentive for supporting energy efficiency and DER.⁴⁷ For example, by limiting revenue changes over a

⁴⁵ See *supra* note 36.

⁴⁶ *Supra* note 22.

⁴⁷ *Supra* note 36.

multiyear period, an MRP can motivate a utility to focus less on increasing sales and discouraging customers from self-generation.⁴⁸

⁴⁸ The intent is to steer utilities away from allowing utilities to profit from increased sales and capital expenditures and toward maximizing value that their customers receive from utility services.

IV. Core and Add-On Features of MRPs

MRPs have a core structure supplemented by secondary features or add-ons. This section will identify and discuss them. MRPs come in different forms depending on such factors as their objectives, the political landscape, and the bargaining strengths of the various stakeholders. In the U.S., MRPs for utilities tend to reflect compromises that make them less than ideal from a theoretical perspective, for example, in terms of maximizing a utility's incentive for cost efficiency.

A. Core structure

The primary structure of MRPs has three components. The first is the starting base rate or revenue, which derives from test year cost and revenue statistics. Most plans use a future test year. Alternatives include an historical test year and a benchmarking method⁴⁹ that reflects the costs of an efficient utility.

As an illustration, an historical test year (HTY) could be 2015, in which the utility would have actual data for the 12-month period. An HTY uses data for a 12-month period that ends prior to a rate filing. In contrast, a partially future or hybrid test year could cover the last six months of 2015 and the first six months of 2016. A future test year (FTY) could be the calendar year 2017. An HTY uses only costs and sales statistics that are known and measurable, unlike a FTY that uses estimates. The tradeoff is that while an HTY uses exact data, it may reflect poorly the conditions during the period over which new rates are in effect. Even if the utility makes *pro forma* adjustments to historical data, in practice they are usually limited to known and measurable changes.

The second component relates to changes in base rates or revenues outside the test year. This is where MRPs are most distinct from traditional ratemaking. A utility can apply detailed cost forecasts or escalation factors attached to the base rate or revenue. An escalation factor acts as an attrition adjustment. An MRP can allow rate changes to be independent of actual cost changes. As discussed later, this gives utilities an incentive to control their costs. Alternatively, rate changes can be a function of a predetermined amount (or value); for example, an amount forecasted during the previous rate case. Forecasts can derive from detailed cost of service analysis, a utility's budget, or a combination of both.

The third component is the duration of an MRP. When an MRP predetermines the time for a future general rate case, the length of regulatory lag becomes known to the utility and other

⁴⁹ The generic definition of *benchmarking* is the comparison of an individual utility's performance against some predefined reference (e.g., peer group). This definition focuses on outcomes, for instance the services provided by a utility per unit of labor or capital, or the level of reliability. An alternate definition of benchmarking would center on a utility's practices and uses of different technologies: Has the utility adopted "best practices" in the form of state-of-the-art technologies and management processes?

stakeholders.⁵⁰ The longer is the duration the more incentive a utility has to control its costs.⁵¹ The duration determines the length of regulatory lag, which affects both cost incentives and the likely range of a utility's rate of return until the next general rate case. A longer duration would tend to increase the likelihood that a utility's rate of return will fall within a wider range.

B. Add-ons

1. Optional but important

The noncore elements of an MRP are practical features needed for political acceptability and the prevention of "extreme" outcomes that might jeopardize the future of an MRP. One reason for add-ons is to protect customers from outcomes during the duration of the plan that were not anticipated at the beginning of an MRP. Such outcomes can include poor performance in service quality, exceptionally high rates of return, grossly forecasted capital costs, and imprudent utility costs. Examples of protections are refunds for an excessive rate of return, caps on recoverable capital costs, monitoring of utility performance, and detailed audits to determine appropriate cost recovery.⁵²

One common component of MRPs is performance metrics for non-cost utility functions, such as reliability and customer service.⁵³ A concern is that utilities under an MRP may jeopardize the quality of its service in the process of controlling costs to increase their rate of return. Some MRPs have performance standards or incentives for service quality and other outcomes.⁵⁴

⁵⁰ Sometimes the end of an MRP may not predetermine the timing of the next rate case. Utilities have been able to have an MRP end and stay out of a rate case. Central Maine Power is one example of such a utility

⁵¹ Regulatory lag is a less-than-ideal method for rewarding an efficient, and penalizing an inefficient, utility. Some of the additional costs could fall outside the control of a utility (e.g., increase in the price of materials), and any cost declines might not correlate with a more managerially efficient utility (e.g., deflationary conditions in the general economy). Experience has shown that state utility regulators are more receptive to mitigating regulatory lag when it causes a substantial downward movement in a utility's rate of return between rate cases. This in part explains the proliferation of trackers and surcharges in recent years.

⁵² Utility cost recovery in the absence of regulatory oversight would ostensibly (a) be unfair to customers and (b) create a "moral hazard" problem that diminished a utility's incentive to manage its costs.

⁵³ Developing metrics can be particularly challenging.

⁵⁴ When the utility receives additional revenues from higher performance, a natural question is what benefits go to customers. Do these benefits at least cover the additional revenues that customers have to pay the utility? Do the benefits of improved performance to customers, for example, coincide with the additional revenues to the utility? Although in many instances the benefits to consumers are non-quantifiable, the regulator should be able to make an informed decision on whether the benefits to consumers from improved utility performance correspond to the additional revenues that the utility receives. The problem with customer benefits falling short of additional revenues is that the utility receives a windfall gain in its profits at a cost to customers.

The following is a litany of add-ons that regulators have either approved or required:

1. “Off-ramps” (i.e., conditions for plan suspension or termination);
2. Cap or floor (“collar”) on annual rate increases;
3. Earnings test;
4. True-ups/deferrals⁵⁵;
5. Stay-out period;
6. Refunds to customers (e.g., from an unexpected cancelled or delayed capital project; from imprudent utility costs identified by an *ex post* review)⁵⁶;
7. Rate design as part of an MRP⁵⁷;
8. Efficiency carryover (e.g., counter ratchet effect⁵⁸); and
9. Utility pricing flexibility (designating a price floor and ceiling)

2. Discussion

Under traditional ratemaking, the utility receives the benefits of “exceptional” performance between rate cases. The earnings test can allocate some of those benefits to customers prior to the next rate case.⁵⁹ It can prevent the utility from earning an extremely high or low rate of return. The biggest challenge with earnings sharing is to avoid compromising a utility’s incentive to control costs. The essential features of earnings sharing are the dead band

⁵⁵ True-ups and earnings tests can substitute for each other in the sense of protecting customers from excessive utility profits because of inaccurate or biased forecasts.

⁵⁶ Such refunds would have to fall outside the realm of retroactive ratemaking.

⁵⁷ The general rate case can address issues related to rate design and cost allocation in addition to the revenue requirement. This is one reason for why the duration of an MRP should have an upper limit, say, three to five years.

⁵⁸ What analysts call the ratchet effect affects the resetting of rates at the next general rate review (i.e., prior actual outcomes affects future rate determination). If the utility knows that the regulator will use the information about its realized costs as a factor in resetting future rates, this will affect its behavior *ex ante*, as discussed later. The utility may have an incentive, for example, to engage in less cost reduction to mislead the regulator into thinking that it is a high cost utility in the latter years of an MRP so that it can justify a higher new base rate or revenues.

⁵⁹ Reasons for excessive/deficient earnings include (a) abnormal costs and revenues from temporary factors like high inflation, a slowdown in the economy, weather), (b) normal costs and revenues differing from levels used in setting base rates in the last general rate case because of systematic forecasting problems like forecasts of normal levels susceptible to large error and inaccurate forecasting, and (c) exceptionally good or bad utility-management competence.

region⁶⁰, the sharing ratio, and the post-adjustment rate of return relative to the authorized return.⁶¹ Regulators should avoid resetting annual rates based on a utility's actual cost in the absence of a prudence review, and on its authorized rate of return in the last general rate case.

Regulators generally apply a three-part test for expense deferral: (1) the cost is material and extraordinary in nature, (2) the cost was incremental to what was allowed in rates, and (3) the utility is not over-earning. Regulators should have strict guidelines on what costs a utility can defer.

As a matter of policy, true-ups should only apply to those expenses that are difficult to forecast and over which the utility has little or no control. Customers receive protection when actual expenses are less than forecasted and the utility receives protection when actual expenses exceed the expected level. A key challenge for the regulator is to determine when the utility should have reasonably foreseen the variance.

In line with theory, some evidence shows that utilities tend to aggressively reduce costs during the early part of an MRP but then to inflate costs at the end of the plan so as to better justify a higher revenue requirement for the plan's next cycle.⁶² Efficiency carryover would mitigate this in addition to allowing utilities to retain for a longer period the benefits of superior performance; or to absorb for a longer time the costs associated with inferior performance, each of which would strengthen their incentive to control cost. Efficiency carryover works by trueing-up the revenue requirement in the next rate case at less than 100 percent.

"Off-ramps" gives the regulator the discretion to terminate or amend an MRP when things go really bad.⁶³ It acts as a safety net, but one that regulators should exercise with caution. By excessively relying on "off-ramps" when outcomes are less than satisfactory, regulators create an aura of uncertainty that could jeopardize a utility's behavior to control costs and take other actions that are in the public interest. The same outcome could come from a utility filing an interim rate case during the MRP period when its rate of return drops to what it

⁶⁰ The dead band determines the range of the rate of return within which no rate adjustment takes place. It recognizes the effects of unexpected outside factors or random events on the actual rate of return. Within this range, the utility has strong incentives for cost efficiency similar to that under traditional ratemaking between general rate cases. In theory, the range should include: (a) a lower value that does not place the utility in a "difficult" financial situation and (b) a higher value that does not reflect "exorbitant" earnings for the utility.

⁶¹ In sharing the earnings outside the dead band region, the utility might adjust rates to bring the rate of return to either the "boundary point" or the authorized rate of return (e.g., the midpoint of the band). These adjustments provide the utility with less robust incentives for cost efficiency than if the regulator adjusts rates so that the utility earns a return outside the dead band region. The tradeoff is that the utility is more likely to experience financial problems, or is able to retain a higher share of the gains from superior cost efficiency.

⁶² Paul L. Joskow, "Incentive Regulation in Theory and Practice: Electricity Distribution and Transmission Networks," working paper, January 21, 2006, 15.

⁶³ The regulator may subsequently reset rates to whatever level it deems just and reasonable.

would consider a critically low level. A stay-out provision would avoid this by prohibiting a utility from requesting an adjusted rate change for the duration of a plan.

V. Specific Issues for Regulators

A. Articulating a rationale

State utility regulators should articulate their rationale for supporting MRPs. One rationale is that traditional ratemaking makes it improbable for a utility to recover its prudent costs. Beyond a future test year, for example, attrition may erode a utility's rate of return to an unacceptable level.⁶⁴ Using this rationale solely says that regulators should support an MRP only when there are unusual, extraordinary, and significant concerns about cost recovery.⁶⁵ This view seems excessively narrow, since other reasons can justify MRP as a ratemaking mechanism that has the potential to benefit utility customers and the public at large. These reasons include lowering of regulatory costs, increased incentives for cost control from less frequent general rate cases, and moderate rate changes compared with one-time large increases. Another rationale that utilities have stressed is that MRPs would allow for more timely recovery of capital costs for new investments, which could benefit customers in addition to themselves.

One issue is whether regulators should establish regulatory guidelines or standards to articulate their criteria for reviewing and approving an MRP. Guidelines can steer utilities and other stakeholders toward particular aspects of an MRP that the regulator would view as either favorable or unfavorable. A regulator can convey its views on MRPs in a policy statement, rules and regulations, or an order. Each of these has different effects. A policy statement, for example, has less import than rules, but it still can be effective in reducing the uncertainty over how a regulator would respond to a particular proposal for an MRP.⁶⁶

Regulators should demand that utilities justify an MRP proposal over alternative ratemaking mechanisms. For example, a utility could articulate the advantages that an MRP has over alternative approaches in addressing the underlying problems with traditional ratemaking.

B. What are the issues?

MRPs pose several questions for regulators, some being more difficult and more important to address than others. The major ones are:

1. Length of the multiyear period;

⁶⁴ A future test year uses projections of costs and revenues usually over a twelve-month period during which new rates would apply, as the basis for determining the annual revenue requirement. If the projections are accurate, and if costs continue to grow more than sales do, a future test year compared with an historical test year would increase the likelihood of a utility earning its authorized rate of return. It achieves this outcome by reducing regulatory lag.

⁶⁵ A counterargument is that if utilities believe that they will under-earn in the near future, they can always file a rate case. Because utilities initiate rate cases under traditional ratemaking, they can file for new rates, for example, when their costs rise because of lax management. This ability to control the timing of rate cases would somewhat weaken utilities' incentive to control costs. See, for example, Ellen M. Pint, "Price-Cap versus Rate-of-Return Regulation in a Stochastic-Cost Model," *RAND Journal of Economics*, Vol. 23, No. 4 (Winter 1992): 564-78.

⁶⁶ A policy statement also may not bind a future commission.

2. Base period revenues and costs;
3. Allowed costs in base rates;
4. Focus on rate changes or revenue changes;
5. Attrition allowance for post-test year rates or revenues;
6. Cost escalation by forecasting or indexing⁶⁷;
7. Conditions for recovery of capital costs⁶⁸;
8. Capital cost included in MRP (e.g., actual, projected)⁶⁹;
9. Adjustments to customer charge or volumetric charge;
10. Inclusion of a “stretch factor” (e.g., motivating a utility to achieve higher cost-efficiency than in the recent past);
11. Additional rate adjustments during a multiyear period (e.g., true-ups for individual costs, earnings sharing⁷⁰): rationale⁷¹; and

⁶⁷ As expressed by one Minnesota utility:

A fundamental consideration of any MRP [multiyear rate plan] proposal is whether rates will be established for each year of the plan within the rate case or, alternatively, a formula (or annual adjustment mechanism) will be established in the rate case by which rates can be adjusted for each year of the multiyear period based on a set of predetermined inputs. While both approaches have merit, the Company recommends that the Commission allow the latter approach because it may provide the greatest amount of benefits to stakeholders in the regulatory process, including customers. While multiple forecasted test years could be used to establish rates for each year of an MRP during a rate case, determining a formula by which rates will be set for each year of the MRP could be administratively more efficient. Nevertheless, the determination of whether an MRP establishes rates for each year of the plan at the time of the general rate case or instead sets a formula to calculate the annual MRP rate adjustments should be made based upon the specific needs, business environment, and MRP proposal of each individual utility.

[CenterPoint Energy, *Comments of CenterPoint Energy, In the Matter of the Minnesota Office Of the Attorney General – Antitrust and Utilities Division’s Petition for a Commission Investigation Regarding Criteria and Standards For Multiyear Rate Plans under Minn. Statute §216B.16, subd. 19; Docket No.: E,G999/M-12-587, October 15, 2012, 8.*]

⁶⁸ For example, should a utility be able to recover capital costs for a project during the duration of an MRP even if the in-service date falls beyond the last year of the MRP?

⁶⁹ An MRP allows a utility to recover capital costs based on a formula, a budget forecast or a fixed escalation rate, or a combination of these factors.

⁷⁰ Earnings sharing can allow customers to share in the benefits of lower utility costs earlier in time. It has the problem of weakening a utility’s incentive to control costs.

12. Adjustments to the authorized rate of return (e.g., for reduced risk imposed on the utility and accelerated utility recovery of capital costs) and changes in the rate of return during the course of a plan⁷².

C. Discussion of major issues

1. Procedural questions

One fundamental question is whether a utility has the discretion to use an MRP, or whether the decision is solely in the hands of the regulator. Should an MRP, for example, be relied on as a ratemaking tool only as a last resort? One sensible view is that regulators should have the discretion to choose the test year, assuming they have the authority. The preferred ratemaking mechanism, whether traditional ratemaking or an MRP, from a public-interest perspective depends on the actual utility's conditions.

Why should regulators allow utilities to select the ratemaking mechanism when they should expect a utility to choose one that best advances the utility's interest rather than the public interest? What happens, for example, if a utility proposes an MRP and the regulator's staff believes it is incapable of evaluating the forecasts? In this instance, the utility would have a distinct incentive to inflate its costs and hopes that the regulator would not detect it. This utility prerogative is akin to allowing the utility to choose rate design or a cost-of-service methodology, with the regulator relegated to a secondary role in fine-tuning a proposal. Most regulators would understandably find this status unacceptable. Legislatures threaten the independence of regulators, and overstep their authority, when they mandate the use of a specific ratemaking mechanism, no matter the circumstances or actual conditions that a utility faces.

Another issue is the filing requirements for an MRP proposal. Should an MRP be part of a rate case, or a separate proceeding? The last alternative may be appropriate, for example, when a utility requests recovery of costs for a major capital project. In its filing, a question is whether post-test year revenues should derive from a detailed cost of service analysis or just represent incremental changes from test year costs.⁷³ In Minnesota, for example, the Public Utilities Commission ruled that during the second and third years of an MRP, utilities can recover costs

⁷¹ Reopeners can occur as a request for recovery of "certain, limited cost items" (like in Wisconsin) in a streamlined filing, or as a full-rate-case-type filing (like in Minnesota). One criterion for reopeners is extremely high or low utility earnings resulting from factors beyond management control.

⁷² Does the use of an MRP, for example, have any material effect on a utility's current risk compared to its peers? One argument is that a utility's cost of capital would decrease because of the reductions in regulatory lag and cost-recovery risk for the utility.

⁷³ Where MRPs involve forecasts, utilities should provide complete documentation to allow a thorough review by the regulator's staff and interveners of the forecasting methodology, data sources, assumptions, and the past forecasting record of the utility. These parties should have access to transparent information from the utility that allows them to understand and verify the forecasts. Only then can a regulator rule on the validity of the utility's forecasts in setting new rates.

that relate to “specific, clearly identified capital projects and, to the extent appropriate, related to non-capital costs.”⁷⁴

2. Treatment of capital costs

a. Five sub-issues

There are five areas of interest about capital projects in the context of MRPs: (1) capital projects allowed in base rates and to be tracked, (2) estimate of the in-service date, (3) projected annual capital costs, (4) ratemaking treatment of forecasting error (hard cap⁷⁵, soft cap⁷⁶, deferral, cost sharing of overruns with dead bands to account for exogenous factors), and (5) ratemaking treatment of changes in the in-service date, project status and costs. Variances between actual and budgeted costs can occur because of changes in project scope and costs, as well as from plant cancellation or postponement.

b. How utilities can recover capital costs

Over the history of public utility regulation, utilities have recovered their capital costs from customers in various ways. They include:

1. The utility requests cost recovery in the following rate case once a project has been completed.⁷⁷
2. The utility provides forecasts of capital costs and after approval the regulator allows cost recovery on an ongoing basis prior to completion.⁷⁸
3. The regulator pre-approves a project but not its capital costs (i.e., partial regulatory commitment).
4. The regulator allows construction work in progress (CWIP) in rate base.

⁷⁴ Minnesota Public Utilities Commission, *In the Matter of the Minnesota Office of the Attorney General – Antitrust and Utilities Division’s Petition for a Commission Investigation Regarding Criteria and Standards for Multiyear Rate Plans under Minn. Stat. § 216B.16, subd. 19, Docket No. E,G-999/M-12-587, Order Establishing Terms, Conditions, and Procedures for Multiyear Rate Plans*, June 17, 2013, 5.

⁷⁵ A problem with a hard cap is that when a utility reaches it or comes close to it, it may defer capital expenses to the following years, which may delay the completion of a project depriving customers of its benefits.

⁷⁶ A soft cap gives the utility an opportunity to justify any costs that exceed it. It is more appropriate when the performance metric (e.g., capital expenses for a large project) is difficult to predict and partially outside the control of utility management.

⁷⁷ The scenario is that all costs are already expended and the project is benefitting customers.

⁷⁸ One issue is how to allocate cost overruns and underruns between utility shareholders and customers.

5. The regulator applies a used and useful standard (i.e., cost recovery requires completion of a project and its operation that benefits customers).
6. The regulator allows phase-in of capital costs (i.e., longer delay of cost recovery) subsequent to the in-service date.⁷⁹

In recent years, state utility regulators have approved mechanisms (for example, cost recovery riders and surcharge mechanisms) that allow utilities to recover their costs on an “interim” basis outside of a general rate case. These mechanisms attempt to balance (a) the concern of utilities for waiting several years before recovering capital costs and (b) consumer interests in ensuring that recovered costs are just and reasonable or prudent. Regulators can protect customers from excessive utility costs by scrutinizing a utility’s costs in a rate case or by approving an incentive mechanism (with explicit rewards and penalties) that motivates a utility to act efficiently in project management.

Ratemaking practices can affect the propensity of a utility to perform efficiently. Cost riders (such as an infrastructure surcharge), especially when they preclude certain costs from undergoing a thorough review by regulators, can compromise a utility’s incentive to control those costs, all else being equal.⁸⁰ Although regulators may approve a utility’s investment plan, the actions of utility management will ultimately determine the final costs and the benefits to customers from the investment.

One option is to allow “interim” recovery of costs for new investments, through a MRP, which will later undergo a prudence review, say, every three years in a general rate case.⁸¹ Utilities will therefore not have to wait several years to receive cost recovery and consumers will get the assurance of a prudence review prior to permanent recovery of costs.

Some state utility regulators have tied cost recovery for investments to utility performance in terms of cost and construction milestones. They have also required a utility to develop a comprehensive strategy, as well as a short-term action plan. Some regulators also conduct a retrospective review to assure customers, for example, that the previous year’s or years’ costs are consistent with the utility’s action plan and prudent construction practices.⁸²

Some regulators also cap the amount that the utility can recover through a surcharge. Finally, it is common for utilities to convert cost recovery from the “surcharge” account to base rates in the next general rate case. In the context of an MRP, the regulator can cap the annual capital expenditures that a utility is able to recover. In the next general rate case, the regulator

⁷⁹ The objective is to spread out cost recovery after project operation so as to moderate rate changes over future periods.

⁸⁰ Lack of an adequate review causes a utility to worry less about the regulator disallowing recovery some of its costs in rates.

⁸¹ Three years could be the duration of an MRP.

⁸² The intent is to assure that the surcharge charge passed through to customers equals only the prudent portion of the costs incurred by the utility.

would determine whether the utility can recover (or refund) any variance of actual expenditures from expenditures that the utility already collected (via the MRP).

Most state utility regulators have approved surcharges, or cost trackers or riders, or MRPs for qualified investments.⁸³ The usual rationales are that they would:

1. Avoid cash-flow problems and other financial risks for utilities from large investments;
2. Reduce the number of general rate cases;
3. Mitigate short-term high rate increases (i.e., rate shock);
4. Allow regulators to periodically (e.g., annually) review the prudence of a project; and
5. Eliminate any disincentive that a utility would otherwise have to undertake economical investments.

Overall, capital cost surcharges, riders and MRPs can help to avoid drastic one-time rate increases from large projects and mitigate cash flow for utilities by reducing the accumulation of financing costs and regulatory lag. They allow for more timely (“interim”) cost recovery during construction outside of a general rate case. On the downside, these mechanisms can result in less-than-satisfactory cost performance by utility management when the regulator exercises inadequate oversight by failing to conduct, for example, a prudence review prior to permanent cost recovery (e.g., rate basing).⁸⁴ They also inherently shift risk to utility customers by requiring them to pay for new projects before completion and operation.⁸⁵

3. Challenges with performance targets

Regulators can set either a hard or a soft target for determining the financial effect on a utility from its performance. A hard target results in a penalty when the utility fails to meet the predetermined target, without exceptions, no matter the circumstance. As an example, a utility could recover the actual cost of a capital project, as long as it does not exceed 110 percent of the forecasted cost. One presumption is that costs above this level reflect utility imprudence in managing the project. Setting a target as the threshold for utility prudence, however, can convey a false precision to how regulators are able to interpret different levels of an activity’s cost or outcome.

⁸³ A prominent one for the natural gas industry is new pipes replacing old pipes, especially for safety reasons. A major justification is that investments in replacing aging pipelines (e.g., cast-iron and bare-steel pipes) by themselves do not generate additional revenues for the utility.

⁸⁴ Regulatory tools for controlling investment costs include: (a) regulatory monitoring and oversight, (b) mandatory utility reporting of costs, (c) retrospective review, (d) regulatory lag in cost recovery, (e) symmetric incentives, and (f) cost caps (hard or soft).

⁸⁵ The risk derives from customers paying for a project before it becomes used and useful. Conceivably, a project could encounter problems that make its completion, and thus its benefits to customers, less imminent.

A dubious practice is to hold a utility to a hard standard or target based, for example, on a peer group of utilities or even on the utility's previous performance. It is presumptuous to conclude that anytime a utility fails to achieve its target, it has acted imprudently. This policy might be unfair to the utility because, say, an "excessive" project cost might come from factors outside its control; or that a relatively low reliability level for a utility might derive from severe weather causing unavoidable outages.⁸⁶

On the other hand, regulators should assume that utilities have some control over the capital cost of a project or their performance in other areas of operation. A perception to the contrary inevitably leads to an open-ended invitation for the utility to pass through all costs to customers with minimal regulatory oversight. Both of these extreme positions seem to make false assumptions that inevitably would lead to inefficient and inequitable outcomes.

A "stretch factor" might be justified if the regulator believes that the utility has a history of being cost-inefficient and has opportunities under better management to improve its efficiency over time. The stretch factor has the benefit of motivating a utility to become more efficient if it hopes to earn its authorized rate of return, which would benefit customers in the long run from lower rates.

Performance evaluation could penalize a utility for not meeting certain threshold levels of performance as measured by selected metrics.⁸⁷ Regulators should require utilities to perform well in return for more timely cost recovery and diminished utility risk. They would want to assure the public that the utility does not underperform in any one area, especially when it jeopardizes customer welfare.

⁸⁶ Regulators can legitimately ask, however, if a prolonged outage was the utility's fault. Bad outcomes do not necessarily signify an imprudent utility. Penalizing the utility without conducting a retrospective review presumes imprudence when other reasons may explain an unexpectedly bad outcome. Most observers would probably conclude that, besides giving utilities incentives for distorted behavior, this regulatory practice is also unfair.

⁸⁷ A poorly structured incentive mechanism can have unintended consequences. Specifically, strategic behavior or gaming by a utility can result in a zero-sum outcome or, worse, distortive utility behavior. The former outcome allocates all the benefits to the utility while producing no real gains to its customers. Distortive utility behavior reduces efficiency as the utility over-allocates its resources to improving the targeted performance area, which decreases the overall performance of the utility. An incentive mechanism can also unfairly harm the utility when (a) its design understates the penalties relative to the rewards or (b) the benchmark is set at a value or range of values that makes it overly easy or difficult for the utility to surpass or even achieve them.

D. Regulators should focus on outcomes

1. Which are most important?

Regulators should focus on certain outcomes in evaluating an MRP, both *ex ante* and *ex post*.⁸⁸ The principal ones are:

1. Changes in the efficiency and the cost of the regulatory process;
2. Utility incentives for cost efficiency (e.g., controlling capital costs);
3. Customer benefits in the form of lower, more predictable and moderate changes in rates;
4. Timing and allocation of efficiency gains between the utility and its customers;
5. Ratchets (i.e., resetting new rates relying on past utility costs); and
6. Avoidance of extreme outcomes to strengthen regulatory commitment to an MRP (e.g., via earnings sharing and performance monitoring).

Enhancement of incentives for cost-efficiency can result from no updating of rates between general rate cases⁸⁹ and the determination of the allowed revenues for the post-test years beforehand. Incentives for cost control on capital investments depend on (1) regulatory oversight, (2) mandatory reporting of costs and (3) the risk of imprudent allowance. Disincentives for general cost control can come from true-ups that automatically allow utilities to recover unforeseen or under-forecasted costs and to refund customers for over-forecasted costs.

Incentives almost always require some kind of regulatory lag and differences between actual revenues and cost of service revenues. The challenge for regulators is to create a balance between effective incentives and prevention of politically unacceptable high profitability levels or the threat of utility financial suppression jeopardizing capital attraction and other utility activities.

Ratchets dull incentives for cost efficiency.⁹⁰ With a three-year plan, for example, a dollar of cost savings in year one is worth more to the utility than a cost savings of one dollar in year two, since the utility retains the cost savings for a longer period until the next rate reset

⁸⁸ *Ex ante* evaluation helps to determine whether the regulator should approve an MRP. *Ex post* evaluation monitors the outcomes to determine whether the plan performed as expected and how the regulator can improve the plan to achieve better outcomes in the future.

⁸⁹ This can occur with a rate freeze, a stay-out provision or the absence of an earnings sharing component.

⁹⁰ Ratchets involve the regulator's adjustment of future forecasts based on past forecasting errors. The regulator observes the utility's actual costs *ex post* to reset a future price. The "ratchet effect" reflects dynamic strategic behavior that analysts and practitioners often ignore in predicting the actions of public utilities and their regulators.

occurs. The regulator would presumably look at a utility's costs and deduct from them the amount that the utility over-forecasted in a prior period. Since regulation is a repeated game, regulators can learn about a utility's true cost attributes as they observe its behavior and performance over time. A utility would tend to inflate costs during the test year, so that it can better justify higher costs in future years. This assumes that the utility expects future earnings to depend on the calculation of test-year costs and revenues. The lower the test-year costs are, for example, the lower future rates will be and, other things held constant, a utility's earnings.

2. Expected outcomes from MRPs

What should regulators expect from MRPs in terms of utility performance? The answer depends on the combination of the core features and add-ons that we previously discussed, and the execution of an MRP. One critical factor is the calculation of revenues during the post-test year period. The calculation can represent forecasts of a utility's costs or indices based on some general or industry-specific price index. Another crucial element relates to which capital costs get included in an MRP.

One positive feature of MRPs, relative to traditional ratemaking, is that they return sooner in time to customers the benefits of improved utility operating efficiency. Lengthening regulatory lag or otherwise strengthening incentives postpones the ultimate objective of passing on benefits to customers. This tradeoff is also inevitable in any incentive plan where the regulator attempts to balance the strength of an incentive and customers benefitting from improved utility performance.⁹¹

MRPs have a distinct advantage over traditional ratemaking in alleviating the likelihood of the utility's encountering financial difficulties. For example, MRPs provide for quicker and more certainty of utility recovery of capital costs.

Yet, the ultimate question for regulators comes down to how customers would benefit. Benefits to customers largely depend on whether the utility becomes more cost-efficient and that customers receive some of those benefits through lower rates. A financially stronger utility also benefits customers in the long run. For example, facilitating utility recovery of project costs may reduce the cost of capital for new investments and the hesitance of a utility to invest in projects that can benefit customers.⁹²

Fewer general rate cases can benefit both utilities and regulators. For customers with a longer duration between general rate cases, utilities should have more incentive to control their costs. Fewer rate cases also drive down the regulatory costs for utilities and other stakeholders.

⁹¹ A tradeoff exists between providing a strong incentive for the utility to manage its costs and ensuring an adequate distribution of the gains to customers. Any incentive mechanism would need to balance these two objectives, implicitly setting a value for s that reflects the relative weights assigned by a regulator to creating "high-powered" incentives and assuring sufficient benefits to customers.

⁹² Otherwise, a utility may not undertake socially desirable capital projects in the absence of an MRP. Whether this premise is true requires regulators to conduct a case-by-case review.

MRPs can increase the predictability of rates to customers. Still, the presence of riders and surcharges may prevent customers from knowing with complete certainty what rates they will pay over, say, the next three to five years.

To the extent that the test-year concept under traditional ratemaking is incapable of setting rates for a multi-year period, some alternative way for utilities to recover costs becomes necessary. The term “incapable” here refers to the inability of test-year costs and revenues to reasonably reflect conditions during the effective periods of new rates. Piecemeal approaches such as cost trackers for individual functions (e.g., investments in new projects) and revenue trackers only partially address some of these problems. MRPs could more effectively and comprehensively overcome them, especially in a dynamic environment, with a “static” test-year approach featured under traditional ratemaking.

VI. Major Concerns with MRPs

A. Challenges in evaluating utility forecasts

Regulators may find it difficult enough to check the accuracy of baseline costs and revenues under a future test year.⁹³ Checking the accuracy of forecasts three or more years out into the future, which some MRPs require, poses even more challenges.

1. Information asymmetry

Forecasts, whether multiyear or single-year, have intrinsic problems. One is information asymmetry in which regulators observe only a utility's performance, not the separate effect of management effort on cost, service quality and other outcomes affecting customers' well-being.⁹⁴

It becomes difficult for regulators to know whether the utility's forecasts are reasonable and objective.⁹⁵ Utilities should have the burden to support their forecasts.⁹⁶ An example of information asymmetry is what economists call the "market for lemons." In that market, the party with the better information will leverage its favorable position to its advantage. A seminal economics article says that in markets plagued by information asymmetry, the market participant holding an information advantage will likely dominate the outcome at the expense of others.⁹⁷ For multiyear forecasts, the implication is that any outcome would be favorable to the utility and harmful to its customers.⁹⁸ This possibility raises a serious concern that may partly explain why most state utility regulators have withheld their support for MRPs and even for future test years.

Supporters of MRPs (largely utilities and Wall Street investment houses) seem to understate the seriousness of information asymmetry. Information asymmetry reflects the relatively less knowledge that a regulator has (relative to the utility's) on the correlation between

⁹³ *Supra* note 21.

⁹⁴ *Supra* note 62.

⁹⁵ Consumer groups and others may argue that forecasts of capital investments are not "known and measurable."

⁹⁶ Although the utility may have the burden to demonstrate the reasonableness of its forecasts, any proposed adjustments by other parties would require an evaluation showing the forecasts' inaccuracies. The utility has a big advantage over other parties in knowing its prudent costs. It is difficult for a regulator's staff and interveners to either (a) show that the utility's costs are excessive or (b) produce their own forecasts that reflect efficient utility management. For the regulator, it comes down to a judgment call in determining the appropriate cost under an MRP.

⁹⁷ George A. Akerlof, "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *The Quarterly Journal of Economics*, Vol. 84, No. 3 (August 1970): 488-500.

⁹⁸ As a rule, regulators should apply caution in interpreting information that is asymmetrical, insufficient, and uncertain.

forecasted costs and utility-management competence.⁹⁹ When a utility files a cost forecast, how does the regulator know whether it reflects competent management? The analyst or auditor can evaluate the forecast applying state-of-the-art techniques; still, however, a level of uncertainty remains that leaves unknown the utility's level of managerial competence embedded in the forecast.

2. Biased forecasts

Knowing whether utility forecasts under an MRP are objective and unbiased is essential for protecting customers from unreasonable rates. Utilities would have an incentive to overstate their costs and understate revenues.¹⁰⁰ They may also have subpar forecasting capability and some costs or revenue items may just be inherently difficult to forecast.

One approach to eliminating forecasting bias comes from the United Kingdom. The country's distribution utilities can choose from various plans that have different combinations of revenue requirements and earnings-sharing arrangements. A utility can opt for a plan that has a high revenue requirement for which it retains a low share of the cost savings; or a plan that has a lower revenue requirement for which the utility keeps a higher share of the cost savings. The benefit of this approach is that the utility would select the option that reveals its own unbiased estimate of future costs, thereby mitigating if not avoiding the over-forecasting of costs.¹⁰¹

Checking for the accuracy of past forecasts is essential. Since regulation is a repeated game, regulators can learn about the credibility of past utility forecasts and a utility's attributes, as regulators observe the utility's actions and performance over time.¹⁰²

⁹⁹ Asymmetry comes from the absence of the regulator's knowledge about the utility's cost opportunities and managerial effort. Because of this reality, the utility has a strategic advantage over the regulator and non-utility stakeholders.

¹⁰⁰ A utility would be more inclined to overstate costs than to understate costs. The utility expects the regulator to lower its cost forecasts, so it would tend to initially file inflated costs. There is little payback for a utility that hedges on the low side. The likelihood of the utility's actual costs being higher would increase, thus jeopardizing its rate of return and penalizing its shareholders.

¹⁰¹ *Supra* note 40.

¹⁰² Regulators can require utilities to measure the accuracy of their past forecasts. They can then compare the actual costs and revenues with what the utility forecasted during the previous rate cases. If a utility applied a model to derive these forecasts, it should identify the different causes of forecast errors. To what extent were errors the result of (a) wrong assumptions for specific predictors or (b) model estimation errors? The legitimacy of applying the same model to predict the future partially depends on the model's historical forecasting performance.

A regulator can also view whether forecast errors occurred predominantly in one direction: Were cost forecasts consistently high or sales forecasts consistently low? A regulator can also rely on past forecasting errors as a guide to set a tolerance level for an MRP. If past forecasts exhibited large errors, a regulator might want to consider alternatives to using an MRP for setting future rates.

3. Generic issues with forecasts

Reliance on multiyear forecasts raises the legitimate question: Are forecasts sufficiently accurate for setting rates? For sales and large cost components, the forecasting error in percentage terms could be small and still have a non-trivial effect on the utility's earnings. As a general matter, forecasters tend to overstate the accuracy of their predictions even when based on sound techniques.¹⁰³ When adding the "bias" element intrinsic to a utility's forecasts, one can easily imagine why forecasts might fail to adequately reflect the utility's cost, operating and other conditions over the test year and beyond.

For many items forecasts are not robust, in that they are highly sensitive to future scenarios of the world. Electricity sales for next year, for example, depend on economic conditions, price, weather, and customer behavior. Arguments over the numerical value for each predictor—and how it affects electricity sales—would be contentious and time consuming in a rate case. The regulator has the tricky task of selecting what it considers the most accurate single-point forecast. Basing a decision solely on a single-point or "best guess" forecast is risky. Usually in different contexts it is valid only when (1) the decision maker places a high degree of confidence in a single-point forecast, and (2) the consequences of an incorrect forecast are small.

To elaborate, forecasters typically express their predictions as a range of values within which an event (e.g., future sales) has a high probability of occurring. The uncertainty of predicting costs and sales gives theoretical support for regulators to look at a range of possible future scenarios, rather than focusing only on the most probable future state (i.e., the "best guess" forecast). Regulators should therefore not base their decisions on a single-point forecast, even if that forecast is more defensible than all the other forecasts. Yet in setting rates, whether from a future test year or an MRP, regulators have no choice but to select a single-point forecast, knowing with almost absolute certainty that it will contain a margin of error. In some instances, forecasts are no more than an educated guess, which makes them especially suspect for setting rates. The policy question ultimately reduces to: Are forecasts sufficiently accurate for use in setting rates to avoid an "extreme" rate of return, especially on the high side? If regulators have any doubt, they should seriously consider an earnings-sharing add-on to an MRP.

4. Questions with forecasts from budget data

Utilities often use budget data to forecast costs in a future test year or an MRP filing. Several questions arise as to their validity:

1. Does the utility use a "best practice" budgeting process?
2. Does the utility adequately document its budget?
3. How does budgeting link to the utility's long-range planning?
4. Does the utility provide supporting analyses?

¹⁰³ Nate Silver, *The Signal and the Noise: Why So Many Predictions Fail—But Some Don't* (New York: The Penguin Press, 2012).

5. Do budgets satisfy the “matching principle”?
6. Are budgets forecasts or, instead, goals that do not represent “best guess” cost estimates?
7. What assumptions does the utility make?
8. What are the cost drivers?

Often, a utility’s actual spending may not coincide with its budgets. Should a utility then develop separate forecasts for their future costs? Utilities will often forecast their O&M costs based on budget data. Some analysts consider budgets “wish lists” and not best-guess cost estimates for specific utility functions. Budgets may not always align with sales or other costs, violating the “matching principle” that is essential for setting rates.¹⁰⁴ For example, if a utility develops a budget for each function separately and not jointly with other budgets, inconsistency among different budget items can occur.

B. Dubious incentives for cost efficiency

Three reasons explain why a utility’s costs may inflate its costs. One reason is self-fulfilling forecasts to avoid a “ratchet effect.” What we mean here is that a utility may intentionally increase its costs to make its forecasts seem more accurate. Another possibility is the utility imputing in an MRP forecasted cost increases that are yet to be determined. A utility, for example, might have a weaker incentive to negotiate wage increases below the amount already included in rates. A third, and probably most important, reason lies with information asymmetry, in which the regulator would find it difficult to identify imprudent costs in a utility’s rate filing. As such, the threat of disallowed costs lessens, thereby removing an important regulatory tool to control a utility’s costs. Overall, an MRP might score poorly in achieving cost efficiency.

On the other hand, regulators can strengthen a utility’s incentives to control costs by allowing recovery of cost changes beyond the effective rate year based on indexes that do not track an individual utility’s actual costs.¹⁰⁵ By removing this cost-plus feature of traditional ratemaking, utilities would earn higher profits from reducing their costs.

Overall, the strength of utility incentives depends on the MRP’s structure. An MRP provides utilities with differing performance incentives, depending on whether allowed rate adjustments derive from (1) forecasted costs for a utility or (2) indexes that are exogenous to an individual utility’s actual costs. The latter approach provides a utility with stronger performance incentives. Nearly all of the real-world plans have “stay out” provisions that provide an additional utility incentive for cost efficiency, as well as reduce the frequency of rate cases.

¹⁰⁴ Two core features of a test year are (a) that the calculations of revenues, expenses, and rate base occur over the same time period and (b) the presence of consistency among the different costs and sales elements. The latter requires, for example, that the O&M forecasts are compatible with the sales forecasts and that operating costs account for new facilities added to the rate base.

¹⁰⁵ See, for example, *supra* note 5.

C. The problem of premature utility recovery of capital costs

Under traditional ratemaking, the utility would have to file a new rate case before recovering any of the costs for a new capital project completed outside the test year. Exceptions are when the utility has a special surcharge or tracker that allows it to recover costs in the absence of a general rate case.¹⁰⁶

MRPs pose a special problem for regulators in how they should address unexpected delays, cost overruns, and even cancellations of new capital projects. If the utility's forecast turns out to be overly optimistic, customers may end up paying for new projects prior to in-service status. As an example, a regulator may approve an MRP that ends in 2019 that included costs for a new electric transmission line expected to be in service by June of 2019. Assume that the line encounters delays that set a revised expected completion date of early 2020. Customers are then paying for the line without receiving any benefits from it. This prepayment might not pose a problem in states that allow, for example, CWIP in rate base, but for other states it would.

MRPs, in addition to infrastructure surcharges, can erode utility incentives for capital-cost management if the regulator less scrutinizes those costs. Such an outcome is conceivable when a utility recovers those capital costs from customers before regulators review them. MRPs, in addition to infrastructure surcharges, also have the problem of requiring customers to pay for capital projects that are not yet used and useful, which violates the beneficiary-pays principle because no benefits can flow from a facility before its construction is complete. Overall, utility shareholders seem to benefit at the hands of customers. Yet, customers may in the end benefit when a utility would only undertake investments for which customers prepay.

¹⁰⁶ A regulator may consider appropriate a so-called negative tracker or rider in the event customers are paying for a new plant that unexpectedly encountered delays in completion and thus not providing them with any benefits. The rider, which would involve the utility crediting customers, could continue until the time that the plant actually goes into service.

VII. When Can MRPs Be in the Public Interest?

A. Three steps for evaluating MRPs

A rational process for evaluating MRP involves regulators ordering and interpreting the information they have available to best advance the public interest. This approach requires that regulators: (1) define the public interest in terms of the objectives they ascribe to ratemaking, (2) understand the effect of alternative ratemaking proposals on advancing and impeding the different objectives, and (3) process all the information logically and systematically.

An idealized vision of regulation is as a social institution that makes reasoned (i.e., rational and systematic) decisions based on expert and objective assessment of all the relevant information, and is driven to advancing the public interest. This inevitably requires regulators to exercise judgment by processing the information for decision making.

What this all means is that in evaluating MRPs, regulators need to fulfill their duty to serve the public interest by being well-informed and logical in interpreting the information they have available. Even if an MRP bolsters the financial health of a utility, it may still fail to serve the public good if customers become worse off.

B. Different perceptions of the public interest

What constitutes the public interest is subjective but regulators over time have associated it with just and reasonable rates. A different perception of the public interest is the composite indicator of the public well-being that “adds up” the individual effects of an action on stakeholders and other societal interests.¹⁰⁷ A third perception relates the public interest to the stakeholders’ collective consent to a regulatory action. The idea is that the aggregate interest of society overrides the well-being of special interest groups.

While few would dispute that advancing the public interest is an admirable goal, little consensus exists on how to define and achieve it. Many state utility regulators associate the public interest with meeting minimum fairness requirements; for example, the fair treatment of utility investors and protection of core customers. Even though fairness is a subjective term, regulators must establish bounds and rules to distinguish between fair and unfair actions.

A narrow definition of “the public interest,” more in line with traditional regulation, is the long-term interests of utility customers.¹⁰⁸ After all, the original rationale for public utility

¹⁰⁷ This definition, which state utility regulators have increasingly ascribed to over the past several years, would include outcomes related to energy efficiency, clean air, and affordability.

¹⁰⁸ Economists refer to consumer welfare in terms of what they call “consumer surplus,” which measures the value customers received from a product or service minus the monetary and nonmonetary (e.g., search costs) outlays. With an MRP, for example, consumer surplus, conceivably, could increase because of (a) reduced prices, (b) the availability of additional services (e.g., value-added services), and (c) an increase in the quality of service.

Technically, consumer surplus is the area under the demand curve and above the price. When customers pay a higher utility rate, their consumer surplus decreases by the sum of (a) the loss in net

regulation was to protect customers from the monopoly power of utilities. The “long-term” aspect means that holding rates down in a pending rate case may jeopardize the ability of the utility to fund new investments benefiting customers.

Long-term customer welfare, arguably, is one of the least represented interests in the regulatory and political arena. Utilities look out for their financial interests,¹⁰⁹ and consumer advocates tend to take a short-term view. An apparent gap in adequate representation for the long-term interests of customers demands regulators to fill that void, notwithstanding the intense pressure they face to appease individual stakeholders with the most clout.

In sum, these are all guideposts for regulators to consider in evaluating an MRP. As this paper stresses, regulators should look at the totality of an MRP in what effects it will have on the different stakeholders, especially utility customers from a long-term perspective.

C. Desirable outcomes taking into account the economics and politics

It is not clear whether MRPs are in the public interest. The term “social welfare” or “the public interest” is multidimensional in nature. A regulatory review of alternative rate mechanisms such as MRPs therefore requires consideration of fairness, economic, utility, financial health, and other outcomes. All rate mechanisms have mixed outcomes from the perspective of the public interest, and MRPs are no different. Regulators must use judgment to assess their overall effect, combined with the best information available to them. Much depends on the details and implementation.

From a theoretical perspective, MRPs have especially attractive features in a dynamic world. They should have three essential features to enhance customer benefits. One is that utilities have good incentives for cost efficiency. The second is that utilities are held accountable for their performance.¹¹⁰ A third, which is more debatable, is that for political purposes an MRP should have a safety net or set boundaries for outcomes. Earnings sharing is one prime example.¹¹¹ Otherwise, opposition from stakeholders or from regulators themselves would make the duration of an MRP fragile. This political reality has the downside of diluting the potential

benefits from less consumption and (b) the additional payment for consuming at the actual level compared with what they would have paid at the same consumption level under a lower rate. When the higher rate is above the utility’s prudent costs, it results in what economists call a “deadweight loss” (i.e., aggregate economic-welfare loss).

¹⁰⁹ Utility management could have different interest than their shareholders. Management might place greater emphasis, for example, on immediate or short-term financial performance whereas shareholders might have a longer-term horizon (e.g., the average rate of return over a ten-year period).

¹¹⁰ Without accountability, a utility operates in a “moral hazard” environment in which it becomes indifferent to actions that would benefit customers. An unwillingness to expend additional effort to reduce O&M costs and to suffer no consequences from this inaction is an example.

¹¹¹ Inherent forecasting problems, which we previously discussed, is a rationale for earnings sharing. It can temper the extreme effects that could result from large forecasting errors (e.g., exorbitantly high or excessively low utility profits), jeopardizing the regulatory commitment to MRP.

total benefits (e.g., robust incentives for utility cost efficiency) that an MRP can offer.¹¹² This tradeoff is inevitable and should enter the regulator’s decision-making process for determining the desirability of an MRP. A challenge, as previously discussed, is to avoid a utility’s earnings from being extreme while also providing the utility with good incentives to be cost-efficient.¹¹³

D. Cardinal principles for cost recovery

One additional question relates to how well MRPs align with the major principles for cost recovery applied by state utility regulators over the years. Namely, cost recovery should:¹¹⁴

1. Reflect, in a reasonable way, the prudent costs of a utility, either incurred in the past or projected for the future;
2. Avoid rate shock that can especially burden low-income households who would find it difficult to afford utility services and other necessities;
3. Avoid jeopardizing a prudent utility’s financial health; a regulator may want, in special circumstances, to mitigate cash flow problems by allowing a utility quicker cost recovery; and
4. Avoid placing onerous burdens on either utility customers or shareholders; this balance may require a tradeoff between immediate cost recovery (or before-project-completion) and delay of cost recovery until after the next rate case.¹¹⁵

Where a utility has much discretion over costs, regulation should consider (1) providing the utility with either a robust incentive to control them, (2) establishing performance standards, or (b) monitoring and conducting prudence reviews.¹¹⁶ Allowing for “automatic” cost recovery

¹¹² The upside for customers is that they will reap the benefits of unexpected efficiency gains prior to the next general rate case.

¹¹³ An earnings sharing structure requires both the utility and customers to share both the risks and rewards.

¹¹⁴ How regulators frame cost recovery is critical in examining (a) what costs they should allow utilities to recover, (b) how utilities should recover them, and (c) when they should recover them. Utilities sometimes convey the misleading impression that they have a right to recover any costs they incurred, even before the regulator has assessed their reasonableness. Their position seems to be that “we expend money to satisfy mandates or serve our customers, so regulators should allow us recovery of this money in rates even with little scrutiny.” It presumes that regulators should trust that utilities will always act in the public interest. Good regulation would question the prudence and legitimacy of any costs; it owes that much to utility customers. As in other situations, regulators should not expect utility interests to coexist with the public interest, which after all is the rationale for public utility regulation.

¹¹⁵ The balancing act of regulation, long practiced by state utility regulators, requires the setting of rates to not excessively burden utility customers while allowing a prudent utility to sustain financial health.

¹¹⁶ One criticism of the prudence standard for evaluating a utility’s performance is that a utility can satisfy it without performing at an above-average level. It establishes a threshold of minimum acceptable performance; it does not distinguish acceptable performance from exceptional performance. A

or recovery with minimal scrutiny would weaken utility accountability to manage costs, thereby shifting excessive risk to utility customers. Regulators would want to avoid such a practice under an MRP or other ratemaking mechanisms.

E. The benefit of merging different ratemaking mechanisms

Consolidation of different rate mechanisms is a potential benefit of MRPs. It can simplify and make more efficient the regulatory process. We have seen a proliferation of new ratemaking methods that try to advance certain objectives (e.g., energy efficiency) and facilitate recovery of costs for utilities (e.g., cost trackers, riders and infrastructure surcharges). These are largely piecemeal approaches that focus on some narrow area of a utility's operation.

An MRP can substitute for some cost trackers. As a comprehensive ratemaking mechanism, an MRP can eliminate the need for different cost trackers.¹¹⁷ Cost trackers can diminish the positive aspects of regulatory lag and retrospective reviews.¹¹⁸ They can also create distorted incentives because of dissimilar cost-recovery methods across a utility's functional areas.¹¹⁹ With non-uniform treatment of different costs, for example, the utility might find it profitable *not* to pursue cost-minimizing objectives.¹²⁰ The rationale for cost trackers is to prevent a utility from suffering serious financial problems between rate cases. The question is whether a rate-of-return-driven mechanism such as an MRP or a formula rate plan has the potential to better achieve this objective than myriad cost trackers.

In sum, MRPs are a comprehensive approach for setting base rates that varies in major ways from traditional ratemaking.¹²¹ MRP offers a holistic approach to setting rates that can

commission in effect grades and evaluates utility performance dichotomously: The utility's behavior is either acceptable or unacceptable; there are no intermediary levels of utility-management competence.

¹¹⁷ The reader may ask whether revenue trackers such as revenue decoupling could also not be eliminated. One answer is that it may be preferred to continue with revenue decoupling to remove the disincentive that a utility may have toward energy efficiency, even with an MRP that has earnings sharing.

¹¹⁸ An important incentive for cost efficiency by regulated utilities is the threat of cost disallowance from a retrospective review. To the extent that an MRP reduces the effectiveness of these reviews, incentives for cost management further erodes. With less regulatory oversight and auditing, which often accompany rate cases, a utility might have less concern over its costs. Regulators have long recognized the importance of retrospective reviews in motivating a utility to control costs. Many regulatory experts view retrospective reviews as dissuading a utility from poor decisions with the threat of a penalty, making the utility more diligent and careful in its planning and operations, for instance.

¹¹⁹ *Supra* note 22.

¹²⁰ An MRP applying indexes for attrition adjustments also has more robust incentives for cost control than trackers that follow changes in a utility's actual or report costs.

¹²¹ We have observed over time more diversity and dissimilarity of ratemaking methods across states. One explanation may be that some states have expanded the objectives they assign to regulation while others have stuck to core objectives, which include financially healthy utilities, high service quality and reasonable rates. Another explanation is the differences in relative strengths that various stakeholders

obviate the need for many of the trackers that currently exist. One benefit is that a regulator can review different rates on more of a level playing field and mitigate the problems with one-issue ratemaking.

(e.g., utilities, consumer groups, renewable energy and energy efficiency advocates) have across the states.

VIII. Summary and Final Thoughts

The basic question posed in this paper is how MRPs rank with other ratemaking mechanisms in advancing the public interest. In some U.S. applications, MRPs are more of an adaptation to traditional ratemaking (e.g., applying the future test-year concept over more than one year) in setting base rates. The version of MRPs widely used in other countries – price cap regulation – represents more of a radical departure from traditional U.S. ratemaking, with good qualities that merit serious consideration by U.S. utility regulators. But other versions tainted by politics and dominance by a single interest group contain elements that make them suspect for serving the public interest.

This paper discusses how MRPs in theory can advance the public interest, but the proof of their social desirability hinges on real-world constraints (e.g., political, relative stakeholder dominance) and their implementation. MRPs therefore have attractive features that can benefit customers and the public interest. But, as it is true with other ratemaking paradigms, the “devils are in the details”. The real test is whether MRPs improve the performance of utilities so as to benefit their customers in the long run.

Regulators need to balance strong utility incentives to control costs and healthy finances for a prudent utility. This may require adjusting rates between general rate cases to account for changing costs and sales. Even when traditional ratemaking uses a future test year, which reduces the time lag between changes in rates and costs relative to an historical test year, it fails to update base rates for the attrition that may occur after the rate effective year. Utilities have argued that attrition reduces their ability to earn the authorized rate of return. Riders, trackers and surcharges can allow for rate adjustments between general rate cases, but they have their own special problems that MRPs can help to mitigate.

Because MRPs can have uncertain and unexpected outcomes, regulators may want to initially consider them as a pilot program. As such, post-evaluation becomes imperative, in deciding whether to continue with MRP permanently. It can also lead to tinkering with the structure of an MRP to improve future utility performance and enhance customer benefits.

Why MRPs are not more popular for U.S. energy utilities is somewhat puzzling, given their attractive features – although perhaps not. Possible explanations include inertia, perceived/real problems with MRPs (e.g., forecasts of three years or so into the future), opposition by non-utility stakeholders, utilities seeing little gains, and recent regulatory and public policy stressing environmental and energy efficiency goals.¹²² MRPs have been much more common in the telecom industry than in the energy utility industries. One explanation is that the energy utilities have had fewer opportunities to offer discretionary services.¹²³ In the

¹²² Price cap regulation, for example, encourages utilities to increase their sales in order to recover their fixed costs, which is at odds with the policy goals of energy efficiency and clean air.

¹²³ See, for example, David E.M. Sappington and Dennis L. Weisman, “The Disparate Adoption of Price Cap Regulation in the U.S. Telecommunications and Electricity Sectors,” *Journal of Regulatory Economics*, Vol. 49 (2016): 250-64. Another explanation may be the nature of costs in the telecom industry compared to the electric industry. In the electric industry, costs may be increasing, are lumpier, and more capital intensive. From the utility perspective, other available alternatives like CWIP and cost-

implicit agreement between the regulators and the telecom companies, regulators imposed little regulatory oversight of discretionary services in return for protecting customers of local telephone service via price caps. The fact that price caps are uncommon in the energy utility industry also suggests that economic efficiency has not held a high standing in those industries.¹²⁴

Utilities to date have made less-than-compelling arguments in support of MRPs.¹²⁵ Their main argument is that MRPs would improve the regulatory process and their financial condition (e.g., from less regulatory lag).¹²⁶ They seem to have fallen short in convincing regulators how their customers would benefit. Utilities have recently emphasized the need for an MRP to facilitate recovery of capital costs between general rate cases; specifically, to allow utilities to recover their capital costs more promptly and with more certainty. One circumstance justifying an MRP is when a utility is embarking on several large capital projects with the projects coming into service in successive years. An MRP could allow a utility to include in rate base projects completed in each year of the covered period, so that it could avoid filing back-to-back traditional general rate cases. Regulators guaranteeing a certain revenue stream, as some utilities have argued, is critical for efficient planning. While these desirable outcomes may well transpire, the downside is the lack of opportunity that a regulator may have to review the prudence of costs that utilities want to recover from customers.

Perhaps the biggest challenge for regulators lies with knowing whether under a proposed MRP the utility's forecasts over a three- or five-year period are reasonably accurate. Poor forecasts can lead to extreme utility earnings, either on the high side or low side; but information asymmetry would tend to favor utilities by allowing them to receive high earnings. These plans also require more time expended by a regulator's staff and other parties to evaluate them, in addition to increasing the complexity of rate cases.

In the end, regulators will need to address three broad questions in evaluating MRPs.

1. Given a regulator's objectives of ratemaking and their relative importance, how do MRPs stack up with alternative ratemaking methods, including traditional ratemaking?

recovery riders for capital projects may act as suitable substitutes for MRPs. Another possible explanation for the lack of popularity for MRPs that rely heavily on forecasts is the difficulty of showing the benefits to customers and suspicion by regulators that the forecasts are biased and difficult to review.

¹²⁴ Another reason may be that regulators feared that price caps would jeopardize service reliability because of the strong incentive to control costs.

¹²⁵ In other countries, the initiator of MRPs has been the utility regulator or other policymakers.

¹²⁶ One possible exception to this is when a utility spends on large capital projects whose commitment by the utility could cause financial difficulties with long delays in cost recovery.

2. What ratemaking mechanism or group of mechanisms would be most effective in achieving those objectives? “Effective” can mean attaining some outcome at least cost or with minimal inefficiencies.
3. Perhaps most important, what ratemaking mechanism would be both fair to the utility and most beneficial to customers? How can an MRP produce a non-zero-sum outcome, i.e., result in benefits to both the utility and its customers? The key to advancing the public interest is to make someone better off without making anyone worse off. If MRPs can accomplish that, they should become part of a utility regulator’s rate setting portfolio.

In conclusion, utility regulators may want to take the initiative in advancing MRPs oriented toward the public interest, rather than just the narrow interests of individual stakeholders. This paper suggests that their efforts can produce dividends for utility customers and society at large.

Appendix A: General Questions on MRPs

1. Should rates and revenues be determined beforehand or should a formula determine post-test year rates?
2. What are the benefits of regularized regulatory lag (i.e., known and fixed periods between general rate cases)?
3. What should be main rationales for MRPs?
4. What can go wrong with MRPs from the perspective of utility customers?
Bad forecasts and poor incentives are two examples that come to mind. A worst case scenario is when a utility earn excessive returns while performing below par; or the opposite where a high performing utility has deficient earnings.
5. Why are MRPs not more common in the U.S.?
6. How are MRPs theoretically superior to traditional rate-of-return ratemaking?
7. How can MRPs improve the performance of a utility?
8. How do the incentives under an MRP affect a utility's performance?
Ironically, while an MRP reduces regulatory lag, it can increase a utility's incentive for cost efficiency.
9. Are MRPs the most effective and efficient approach to addressing the problems underlying traditional ratemaking?
10. Which out-of-test-year costs should a utility forecast based on its costs, and which should be subject to an index or formula?
11. How do MRPs promote core and other regulatory objectives?
12. What essential features should an MRP have in promoting the public interest?
13. To what extent should actual utility earnings remain unadjusted between general rate cases?
Some analysts would argue that MRPs without earnings sharing would fail to produce an optimal outcome given asymmetric information and uncertainty over future costs.
14. How would MRPs affect energy efficiency and distributed energy resources?
15. What are the main arguments against MRPs?
16. What outcomes can we expect from MRPs?
17. How can MRPs benefit customers?
18. How can MRPs benefit a utility?
19. What are the major features that regulators should review to determine whether an MRP advances the public interest?

Appendix B: Questions for Regulators to Ask about MRPs

1. What special conditions warrant rate or revenue adjustments outside of a general rate case? In other words, what makes a general rate case unique?
2. Should a proposal for an MRP coincide with a general rate case or with major capital expenditures?
3. In addition to an MRP, what other mechanisms exist to allow a utility to adjust rates between rate cases? Examples are cost trackers, capital surcharges and revenue trackers.
4. What evidence should a utility present to show the justification for an MRP?
5. From the perspective of the public good, how should a regulator weigh the benefits of an MRP relative to its costs? Under what conditions would the benefits dominate the costs to justify an MRP?
6. How would an MRP affect the utility's incentive to improve its cost performance?
7. How can the regulator assure customers that they are paying only for prudent and efficient costs, or for costs that benefit customers? This is essential for determining whether rates are just and reasonable. Specifically, how can the cost-review process assure that the utility is unable to recover excess costs from customers?
8. How would an MRP affect the utility's non cost-related performance? Should an MRP include standards for utility performance?
9. Should costs for capital projects be recovered during an MRP even if the in-service dates are beyond the last year of the plan?
10. If the concept of an MRP is deemed appealing, how can a regulator structure it to mitigate potential problems that would cause harm to customers?
11. How long should an MRP operate (i.e., its duration) before the utility has to file a general rate case? This question relates to: What are the costs and benefits of shortening or lengthening the duration of an MRP?
12. What criteria should regulators use, if any, to determine the range of rate of return within which no rate adjustment would occur? Should regulators, for example, even adjust the utility's actual rate of return between rate cases?
13. How should regulators decide between general rate cases on the sharing of excessive or deficient rate of return between shareholders and customers?
14. What should regulators determine as the utility's post-rate adjustment rate of return (i.e., the targeted rate of return)? Options include the lower and higher bounds of a specified dead band region, the authorized rate of return established at the last general rate case, and some portion of the difference between the pre-adjusted actual rate of return and the boundary points.
15. What have been the experiences of MRPs in different jurisdictions? As an example, Xcel's Colorado multiyear rate plan was approved in a 2011 electric rate case as a result of an uncontested settlement agreement among all of the parties in that rate case. The plan ended when new legislation required the Commission to implement other ratemaking mechanisms.

The MRP contained the following components:

- (a) new, higher base revenue amounts (i.e. rate increases) are implemented in January 1 during the term of the MRP;
- (b) the overall dollar amount of the base rate increases are set for the term of the plan; there is, however, an annual reconciliation between the amounts authorized and actually recovered in base due to variations between actual and forecasted sales; additional adjustments are allowed for variations of more than two percent;
- (c) the Commission handles annual adjustments to base rates through letter (or compliance-like) filings; and,
- (d) additional increases in base rates are prohibited during the term of the plan.

As part of the rate case settlement, and for the duration of the MRP, Xcel agreed to forgo recovery of CWIP; a reduced rate of return; and no changes to the allocation and design of its base rates, a sharing mechanism in which customers share in the Company's earnings that are in excess of the Commission's authorized rate of return on equity. In 2013 and 2014, the utility refunded \$8.4 million and \$66.5 million, respectively, to customers. In discussions with the author, certain staff members of the Colorado Public Utilities Commission indicated their lack of enthusiasm for MRPs mainly because of the difficulty in verifying the forecasted costs.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
RS-1 to RS-3
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RS-1 Reference PWSA Statement No. 2, p. 22 regarding PWSA’s capital budget. Provide a schedule that shows a comparison of projected capital improvements to actual capital improvements by account number for the water and wastewater systems, separately, on an annual basis for the years ended 2018, 2019, 2020, 2021, and 2022.

Response: See attachment I&E-RS-1.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 5, 2023

	<u>FY 2018 Actual</u>	<u>FY 2019 Budget</u>	<u>FY 2019 Actual</u>	<u>FY 2020 Budget</u>	<u>FY 2020 Actual</u>	<u>FY 2021 Budget</u>	<u>FY 2021 Actual</u>	<u>FY 2022 Budget</u>	<u>FY 2022 Actual</u>
Water Treatment Plant	7,275,878	15,549,274	15,665,185	16,884,025	8,959,256	15,112,066	5,946,283	6,253,411	3,360,755
Water Pumping and Storage	11,732,850	26,421,559	9,667,165	31,065,447	7,304,722	56,863,770	5,941,184	55,208,438	20,032,802
Water Distribution	27,185,518	69,439,053	55,588,889	77,597,135	65,838,953	76,245,552	76,722,470	56,341,652	50,828,845
Wastewater System	9,225,987	11,509,835	15,152,656	35,140,573	8,767,047	35,741,675	20,632,500	41,130,789	36,917,782
Total	55,420,233	122,919,721	96,073,895	160,687,180	90,869,978	183,963,063	109,242,437	158,934,290	111,140,185

*There was no formal Capital Improvement Plan in FY 2018.

Comparison Projected Capital Improvements
to Actual 2018, 2019, 2020, 2021, and 2022

Pittsburgh Water and Sewer Authority
Docket Nos. R-2023-3039920, R-2023-3039921, and R-2023-3039919
Capital Improvement Budget versus Actual Comparison and I&E Adjustment

Line No.	FY 2019			FY 2020			FY 2021			FY 2022			4-Year Average			Percent Difference (O)
	Budget (A)	Actual (B)	Difference (C)	Budget (D)	Actual (E)	Difference (F)	Budget (G)	Actual (H)	Difference (I)	Budget (J)	Actual (K)	Difference (L)	4-Year Average Difference (M)	4-Year Average Budget (N)	Percent Difference (O)	
1	15,549,274	15,665,185	115,911	16,884,025	8,959,256	(7,924,769)	15,112,066	5,946,283	(9,165,783)	6,253,411	3,360,755	(2,892,656)	(4,966,824)	13,449,694	-37%	
2	26,421,559	9,667,165	(16,754,394)	31,065,447	7,304,722	(23,760,725)	56,863,770	5,941,184	(50,922,586)	55,208,438	20,032,802	(35,175,636)	(31,653,335)	42,389,804	-75%	
3	69,439,053	55,588,889	(13,850,164)	77,597,135	65,838,953	(11,758,182)	76,245,552	76,722,470	476,918	56,341,652	50,828,845	(5,512,807)	(7,661,059)	69,905,848	-11%	
4	11,509,835	15,132,656	3,642,821	35,140,573	8,767,047	(26,373,526)	35,741,675	20,632,500	(15,109,175)	41,130,789	36,917,782	(4,213,007)	(10,513,222)	30,880,718	-34%	
5	122,919,721	96,073,895		160,687,180	90,869,978		183,963,063	109,242,437		158,934,290	111,140,185		(54,794,440)	156,626,064	-35%	
6	16,030,211	26,885,665	10,855,454	(2,713,863.50)	8,141,591											
7	55,304,597	115,127,475	59,822,878	(29,911,439.0)	29,911,439											
8	143,302,527	125,439,446	(17,863,081)	0	(17,863,081)											
9	80,457,172	66,269,910	(14,187,262)	0	(14,187,262)											
10	11,439,316	15,500,000	4,060,684	0	4,060,684											
11	306,533,823	349,222,496	42,688,673	32,625,303	10,063,371											

*There was no formal Capital Improvement Plan in FY 2018.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set VI**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-VI-31 Does PWSA have any contracts, invoices, or other documentation to substantiate its requested revenue requirement for FY 2025 and FY 2026? If so, for each of those years, please provide the supporting documentation and indicate how it factored into the revenue requirement. If there is no documentation, explain why not.

Response:

The prices included within the contracts that are in effect during FY 2025 and FY 2026 are based on services and materials purchased rather than a flat dollar amount per year. Due to this, PWSA utilized historical actuals and a 6% inflationary factor to develop the revenue requirements in FY 2025 and FY 2026.

PWSA has hundreds of contracts for all the various services and materials that it purchases. Specific contracts can be provided upon request.

Response provided by: Edward Barca, Director of Finance

Date response provided: June 22, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
RS-1 to RS-3
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RS-3 Reference PWSA Statement No. 7, p. 5 regarding the Multi-Year Rate Plan process in Rhode Island. Are the rates set in the filing for the first year based upon a future test year or fully projected future test year?

Response:

The terminology used in Rhode Island is different from that used in Pennsylvania. In the case of a multi-year filing in Rhode Island, the rates in the first year are based on a Rate Year which is based on a historical Test Year. The Rate Year is developed by making known and measurable adjustments to the Test Year.

Response provided by: Harold J Smith, Vice President, Raftelis

Date Response provided: July 5, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”)
RS-1 to RS-3
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919**

Request: I&E-RS-2 Reference PWSA Statement No. 7, p. 6 regarding the Multi-Year Rate Plan process in Rhode Island. Is PWSA intending to file compliance filings 90 days prior to the rate increases in 2025 and 2026 consistent with the process in Rhode Island?

Response:

PWSA is not proposing to file compliance filings 90 days prior to the rate increases in 2025 and 2026. However, PWSA is open to discussing this process or other alternatives with the PUC parties.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 5, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-V-3 Please provide copies of PWSA’s unaccounted for water based on the PUC Section 500 Method for the calendar years 2021 and 2022. Include the procedure for estimating non-revenue water such as water used for blow-offs, street sweeping, flushing, firefighting, main breaks, and Highland Reservoir overflows and evaporation, etc. Explain all assumptions used in the calculations.

Response: See Attachment OCA-V-3. The “Notes” tab within the OCA-V-1 describes our methodologies and assumptions for estimating non-revenue water in a narrative format and are summarized as follows:

- Blow-offs: The PWSA elected to estimate this volume by multiplying the total water consumption with the water audits suggested default rate of 0.25%.
- Street Sweeping: The PWSA provided meters to the City of Pittsburgh to record water usage associated with street sweeping. Each meter was installed with an attached MXU unit, therefore the flow data is being transmitted remotely and billed accordingly. Based on the foregoing, water usage associated with street sweeping is categorized as Billed Metered Authorized Consumption, rather than Unbilled Unmetered Authorized Consumption.
- Flushing: The PWSA elected to estimate this volume by multiplying the total water consumption with the water audits suggested default rate of 0.25%.
- Firefighting: The PWSA elected to estimate this volume by multiplying the total water consumption with the water audits suggested default rate of 0.25%.
- Main Breaks: The PWSA estimates this volume by recording the characteristics of known breaks (area of break, size of main, pressure of main, estimated leak time, etc.) and calculating the estimated water loss. The 2021 and 2022 “SpryMobileLeakReporting_PWSA” spreadsheets are available, upon request.
- Clearwell leakage/overflows and Highland Reservoir Evaporation: These are located prior to the system delivery meters and are therefore not included in the unaccounted for water estimation.
- Reservoir Draining: In 2021, the PWSA drained the Herron Hill Reservoir (North Cell) and Lanpher Reservoir (East Cell). The work was required for inspection, operation and maintenance and/or construction purposes. The PWSA recorded the pre-drain water surface elevation and post-drain water surface elevation. In 2022 Highland No. 2 Reservoir was drained for replacement of the liner and cover. Based on historical records, we created a spreadsheet to estimate the volume of water discharged for each reservoir.
- Rising Main Inspection and Disinfection: The PWSA drained Rising Main 4 in December 2021 for the start of the 2019 Large Diameter Water Main Improvements Project. In addition, the PWSA drained, flushed and disinfected the Lanpher Rising Main between August and December 2021. In 2022 Rising Main 3 was drained, flushed, and disinfected.
- City Properties: On October 3, 2019, the PWSA and the City of Pittsburgh (City) entered into an updated cooperation agreement. The updated cooperation agreement was created under PUC oversight and includes provisions to completely transition the City accounts to be billed and metered. In 2019, the PWSA began metering the remainder of the City

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

accounts. The PWSA continues to install meters on the City accounts. As of June 6th, 2023, there are 2 City accounts without a meter, and thus, are still considered Unbilled Unmetered. Please note that the number of unmetered City accounts is a fluctuating number, as we continue to locate unknown services which require a meter.

Response Provided by: Barry King, PE, Director of Engineering
Sarah Bolenbaugh, PE, Senior Group Manager, Water Programs
The Pittsburgh Water and Sewer Authority

Dated: June 13, 2023

The Pittsburgh Water and Sewer Authority
(Company Name)

For the Year Ended December 31, 2022

500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	Water Delivered for Distribution & Sale:		-
2	Water Obtained from Company Sources	23,325,850,000	63,906,438
3	Water Obtained from Other Independent Utilities		
4	Total Water Delivered	23,325,850,000	63,906,438
5	Metered Sales:		
6	Residential	2,727,249,047	7,471,915
7	Commercial	3,322,943,845	9,103,956
8	Industrial	144,584,000	396,121
9	Public	978,869,000	2,681,833
10	Other Water Utilities	746,484,000	2,045,162
11	Private Fire Protection	6,977,000	19,115
12	Public Fire Protection		
13	Other Metered Sales <small>Flower Gardens</small>	580,000	1,589
14	Total Metered Sales	7,927,686,892	21,719,690
15	Unmetered Sales:		
16	Residential	10,174,800	27,876
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales		
21	Total Unmetered Sales	10,174,800	27,876
22	Total Sales	7,937,861,692	21,747,566
23	Non-Revenue Usage Allowances: Unbilled Metered Usage	37,891,000	103,811
24	Authorized Unmetered Usage:		
25	Main Flushing	15,277,327	41,856
26	Blow-off Use		
27	Others: <small>Reservoir & Rising Main Flushing</small>	151,570,241	415,261
28	Unauthorized Use	17,452,000	47,814
29	Unavoidable Leakage <small>1,466 gpd/mile of main</small>	516,100,000	1,413,973
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services	2,295,241,888	6,288,334
32	Others		
33	Total Allowances & Adjustments	3,033,532,455	8,311,048
34	Unaccounted-for-Water	12,354,455,852	
35	Percentage Unaccounted-for-Water	53.0%	

PWSA
(Company Name)

For the Year Ended December 31, 2021

500. WATER DELIVERED INTO SYSTEM DURING YEAR

Every estimated value shall be supported by such detailed information as will permit a ready identification, analysis, & verification of all relevant facts. The Company shall be prepared to furnish to the Commission this detailed information.

Line No.	Description (a)	(Gallons) (b)	(gpd) (c)
1	Water Delivered for Distribution & Sale:		
2	Water Obtained from Company Sources	23,140,062,141	63,397,431
3	Water Obtained from Other Independent Utilities		
4	Total Water Delivered	23,140,062,141	63,397,431
5	Metered Sales:		
6	Residential	2,751,755,065	7,539,055
7	Commercial	2,938,690,766	8,051,208
8	Industrial	208,619,000	571,559
9	Public (Health & Education)	1,061,129,000	2,907,203
10	Other Water Utilities	897,074,000	2,457,737
11	Private Fire Protection	7,975,000	21,849
12	Public Fire Protection		
13	Other Metered Sales (Flower Gardens)	1,107,000	3,033
14	Total Metered Sales	7,866,349,831	21,551,643
15	Unmetered Sales:		
16	Residential	11,487,000	31,471
17	Commercial		
18	Industrial		
19	Private Fire Protection		
20	Public Fire Protection		
21	Other Unmetered Sales Identify _____		
21	Total Unmetered Sales	11,487,000	31,471
22	Total Sales	7,877,836,831	21,583,115
23	Non-Revenue Usage Allowances:	53,360,000	146,192
24	Authorized Unmetered Usage:		
25	Main Flushing	10,565,926	28,948
26	Blow-off Use		
27	Others: Reservoir & Rising Main Flushing	13,490,730	36,961
28	Unauthorized Use	17,452,000	47,814
29	Unavoidable Leakage 1,462 gpd/mile of main	514,400,000	1,409,315
30	Adjustments:		
31	Located & Repaired Breaks in Mains & Services	4,688,628,511	12,845,558
32	Others Lanpher Leak	200,245,000	548,616
33	Total Allowances & Adjustments	5,444,782,167	14,917,211
34	Unaccounted-for-Water	9,817,443,143	
35	Percentage Unaccounted-for-Water	42.4%	

PHILADELPHIA GAS WORKS

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

	Cost of Service (1)	Residential (2)	Commercial (3)	Industrial (4)	Municipal (5)	PHA - GS (6)	PHA - R8 (7)	NGVS (8)	Interruptible (9)
Fully Allocated Customer Costs									
Customer Costs (in 1,000 \$)	258,024	\$ 219,073	\$ 31,961	\$ 2,067	\$ 2,441	\$ 1,246	\$ 963	\$ 24	\$ 248
Number of Customers	517,896	488,206	24,679	572	863	2,145	1,035	3	393
Customer Cost per bill		\$ 37.39	\$ 107.92	\$ 301.37	\$ 235.68	\$ 48.42	\$ 77.54	\$ 680.54	\$ 52.57
Direct Customer Costs (in 1000's)									
O & M Expenses:									
874 Mains And Services Expenses									
Mains									
Services	3,287	3,056	179	5	10	23	6	0	7
876 M & R Station Expenses - Industrial	152			152					
878 Meter and House Regulator Expenses	18,860	12,158	5,650	331	503	74	159	6	
879 Customer Installations Expenses	10,926	7,036	3,270	192	291	43	92	3	
892 Maintenance of Services	2,487	2,313	135	4	8	17	4	0	5
893 Maintenance of Meters & House Regulators	3,703	3,491	176	4	6	15	7	0	3
901 Supervision	2,839	2,676	135	3	5	12	6	0	2
902 Meter Reading Expenses	868	818	41	1	1	4	2	0	1
903 Customer Records & Coll Expenses	37,465	35,317	1,785	41	62	155	75	0	28
904 Uncollectible Accounts	23,220	22,091	1,090	21	12	7			
908 Customer Assistance Expenses	6,334	5,971	302	7	11	26	13	0	5
Subtotal O & M Expenses	110,161	94,927	12,764	782	909	376	363	10	52

PHILADELPHIA GAS WORKS

CALCULATION OF CUSTOMER COSTS PER BILL BY SERVICE CLASSIFICATION

Cost of Service	Residential (2)	Commercial (3)	Industrial (4)	Municipal (5)	PHA - GS (6)	PHA - R8 (7)	NGVS (8)	Interruptible (9)
Depreciation Expense								
380 Services	19,688	1,069	30	63	138	35	0	43
381 Meters	2,526	756	44	67	10	21	1	-
382 Meter Installations	2,697	807	47	72	11	23	1	-
383 House Regulators	50	3	0	0	0	0	0	0
384 House Regulator Installations	49	15	1	1	0	0	0	-
385 Industrial M & R Equipment	13	-	13	-	-	-	-	-
390 Structures and Improvements	-	-	-	-	-	-	-	-
391 Office Furniture And Equipment	-	-	-	-	-	-	-	-
Subtotal Depreciation	25,022	3,975	232	307	198	120	3	49
Rate Base								
380 Services	386,938	21,562	603	1,263	2,780	705	8	872
381 Meters	53,974	16,152	947	1,437	211	453	17	-
382 Meter Installations	54,567	16,329	958	1,453	213	458	17	-
383 House Regulators	1,484	81	2	5	10	3	0	3
384 House Regulator Installations	584	38	1	2	5	1	0	2
385 Industrial M & R Equipment	156	-	156	-	-	-	-	-
390 Structures And Improvements	33,465 *	4,837	355	380	142	148	4	19
391 Office Furniture and Equipment	37,331 *	5,398	396	424	159	165	5	21
Subtotal Rate Base	578,609	64,396	3,418	4,963	3,521	1,934	50	917
Surplus and Interest @ 12.0%	69,412	7,725	410	595	422	232	6	110
Total Direct Customer Costs	\$ 213,777	\$ 24,464	\$ 1,404	\$ 1,811	\$ 986	\$ 715	\$ 19	\$ 210
Number of Customers	517,896	24,679	572	863	2,145	1,035	3	393
Direct Costs per bill	\$ 31.43	\$ 82.61	\$ 204.64	\$ 174.90	\$ 38.69	\$ 57.56	\$ 521.63	\$ 44.59

* Customer cost portion of account.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set XIV**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-XIV-19 Reference the response to OCA-II-17. Please identify all other Pennsylvania water utilities for which the Commission has approved a readiness-to-serve component to the customer charge.

Response: I do not know of any other Pennsylvania water utilities for which the Commission has approved a readiness-to-serve component to the customer charge.

Response Provided by: Harold J. Smith, Vice President, Raftelis Financial Consultants
Consultant to The Pittsburgh Water and Sewer Authority

Dated: July 12, 2023

**I&E Statement No. 3-SR
Witness: Ethan H. Cline**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Surrebuttal Testimony

of

Ethan H. Cline

Bureau of Investigation and Enforcement

Concerning:

**Stormwater Rates
Multi-Year Rate Plan
Capital Improvement Projects
Unaccounted-for Water
Class Cost of Service Study
Water and Wastewater Rate Structure
Fire Protection Rates
Scale Back of Rates**

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1 **INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Ethan H. Cline, and my business address is Pennsylvania Public
4 Utility Commission, Commonwealth Keystone Building, 400 North Street,
5 Harrisburg, PA 17120.

6

7 **Q. ARE YOU THE SAME ETHAN H. CLINE THAT SUBMITTED DIRECT**
8 **TESTIMONY ON AUGUST 9, 2023?**

9 A. Yes. I submitted I&E Statement No. 3 and I&E Exhibit No. 3 on August 9, 2023.

10

11 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

12 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony
13 submitted by witnesses on behalf of Pittsburgh Water and Sewer Authority
14 (“PWSA”) by William J. Pickering (PWSA St. No. 1-R), Edward Barca (PWSA
15 St. No. 2-R), William J. McFaddin (PWSA St. No. 3-R), Barry King, P.E. (PWSA
16 St. No. 4-R), and Harold J. Smith (PWSA St. No. 7-R) regarding issues related to
17 stormwater rates, the Multi-Year Rate Plan (“MYRP”), capital improvement
18 budgets, unaccounted-for water, rate design, and scale back of rates.

19

20 **Q. DOES YOUR SURREBUTTAL TESTIMONY INCLUDE AN EXHIBIT?**

21 A. No. However, I will reference I&E Exhibit No. 3, which is attached to my direct
22 testimony I&E Statement No. 3.

1 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

2 A. My recommendations are summarized on pages 35-36 of I&E Statement No. 3 and
3 as follows:

- 4 • The Pennsylvania Public Utility Commission (“Commission” or “PUC”)
5 should deny in full the proposed revenue increases for FY 2025 and FY
6 2026.
- 7 • The Water Treatment Plant FPFTY capital improvement FPFTY increase
8 should be reduced by \$2,713,863, or 25%, from \$10,885,454 to \$8,141,591.
- 9 • The Water Pumping and Storage FPFTY capital improvement PFTY
10 increase should be reduced by \$29,911,439, or 50%, from \$59,822,878 to
11 \$29,911,439.
- 12 • Put PWSA on notice that an adjustment to certain expenses, such as
13 purchased power and chemicals, will be likely in the next base rate case if
14 progress is not shown in reducing the unaccounted-for water levels.
- 15 • The Readiness-to-Serve adjustment should be removed from the calculation
16 of the base charge.
- 17 • The fire protection usage rate should remain \$39.05 per kgal and the fire
18 protection minimum charge should be reduced in the FPFTY.
- 19 • Should the Commission grant less than the full increase requested by
20 PWSA in the FPFTY, rates should be scaled back based on the CCOSS
21 approved by the Commission.

- 1 • Once the revenue level and rates are determined for the FPFTY, then the
2 revenue neutral transition to the base charge and usage rates can be
3 determined for FY 2025.

4
5 **STORMWATER RATES**

6 **Q. DID YOU MAKE ANY RECOMMENDATIONS REGARDING PWSA’S**
7 **STORMWATER RATES?**

8 A. No. I did not make any specific recommendations regarding PWSA’s stormwater
9 rates. However, I did address a recent ruling of the Pennsylvania Commonwealth
10 Court that may affect PWSA’s stormwater rates in the future and put the parties on
11 notice that this issue would need to be addressed at that time (I&E St. No. 3, pp. 3-
12 4).

13
14 **Q. DID ANY PARTIES RESPOND TO YOUR TESTIMONY REGARDING**
15 **STORMWATER RATES AND THE PENNSYLVANIA**
16 **COMMONWEALTH COURT RULING?**

17 A. Yes. Similar to I&E’s position, PWSA witness Pickering indicated on page 16 of
18 PWSA Statement No. 1-R that this is a legal issue that will be addressed in briefs,
19 if necessary.

1 **MULTI-YEAR RATE PLAN**

2 **Q. WHAT DID YOU RECOMMEND REGARDING THE PROPOSED**
3 **MULTI-YEAR RATE PLAN?**

4 A. I recommended the Commission deny in full the proposed revenue increases for
5 FY 2025 and FY 2026. As I discussed on pages 5-6 of I&E Statement No. 3, and
6 including the arguments set forth by I&E witnesses Spadaccio in I&E Statement
7 No. 1 and Okum in I&E Statement No. 2, I determined that the Commission
8 cannot reliably determine that PWSA’s proposed rates in FY 2025 and FY 2026
9 would be just and reasonable.

10

11 **Q. DID PWSA DISAGREE WITH YOUR RECOMMENDATION?**

12 A. Yes. PWSA witnesses Pickering, Barca, and Smith each disagreed with my
13 recommendation.

14

15 **Q. WHY DID MR. PICKERING DISAGREE WITH YOUR**
16 **RECOMMENDATION?**

17 A. Mr. Pickering claimed my testimony was “misleading” and “misses the point”
18 because customers would have the benefit of knowing what their rates will be over
19 a three-year period, well in advance of those rates being implemented where
20 customers traditionally have nine months of notice under traditional ratemaking.
21 He added that the MYRP grants PWSA the ability to avoid filing additional base
22 rate cases to obtain the needed level of revenue. He points to Section 1330 of the

1 Public Utility Code’s mention of a MYRP as a ratemaking alternative to support
2 his claim that it is the legislature and not the parties in a base rate case that
3 establish the Commonwealth’s policies. Mr. Pickering also claimed that I give lip
4 service to Section 1330 and suggested that the article I referenced on page 6 of
5 I&E Statement No. 3, National Regulatory Research Institute (“NRRI”)
6 “Multiyear Rate Plans and the Public Interest” by Ken Costello, Report No. 16-08,
7 October 2016 (“Costello Report”), is a better determinant of the policies that
8 should be in place for Pennsylvania. He claims that Parties can only review
9 alternative ratemaking proposals based on the criteria outlines in the
10 Commission’s Policy Statement at 52 Pa. Code §§ 69.3301-3302 (“Policy
11 Statement”). Finally, Mr. Pickering referenced the custom of PWSA’s Board to
12 approve three-year rates prior to coming under the Commission’s jurisdiction as
13 support for the MYRP because customers are accustomed to an MYRP. (PWSA
14 St. No. 1-R, pp. 7-11).

15
16 **Q. DO YOU AGREE WITH MR. PICKERING’S STATEMENT ON PAGE 7**
17 **OF PWSA STATEMENT NO. 1-R THAT “THROUGH THE PROPOSED**
18 **MYRP, PWSA’S CUSTOMERS WOULD HAVE THE BENEFIT OF**
19 **KNOWING WHAT THEIR RATES WILL BE OVER A THREE-YEAR**
20 **PERIOD, WELL IN ADVANCE OF THOSE RATES BEING**
21 **IMPLEMENTED.”?**

22 **A.** No. Though I do agree with Mr. Pickering that an MYRP would allow customers

1 additional time to know when rate increases will go into effect, I do not agree that
2 this would provide additional transparency, which was the original topic to which
3 Mr. Pickering's testimony was responding. I do not believe that additional lead
4 time makes rates more transparent. Additionally, as I stated on page 15 of I&E
5 Statement No. 3, transparency does not assure any level of justness and
6 reasonableness.

7
8 **Q. DO YOU AGREE THAT THE ABILITY TO AVOID FILING**
9 **ADDITIONAL BASE RATE CASES FOR RATE RELIEF IS A BENEFIT**
10 **THAT CAN BE AFFORDED BY THE MYRP?**

11 A. In some instances, yes. However, this benefit can only be realized when the rates
12 are determined to be just and reasonable. For the reasons described by I&E
13 witnesses Spadaccio, Okum, and myself in I&E Statements No. 1, 2, and 3, as well
14 as in this testimony, it is not possible to determine that the rates proposed by
15 PWSA in its MYRP will be just and reasonable.

16
17 **Q. PLEASE RESPOND TO MR. PICKERING'S CLAIM THAT SECTION**
18 **1330 OF THE PENNSYLVANIA PUBLIC UTILITY CODE REQUIRES**
19 **THAT PWSA BE PERMITTED TO ENACT A MYRP.**

20 A. It appears that Mr. Pickering's position is that Section 1330 of the Pennsylvania
21 Public Utility Code ("Code") requires that PWSA be permitted to enact an MYRP
22 regardless of the justness or reasonableness of those rates. Mr. Pickering's

1 interpretation of Section 1330 of the Public Utility Code is entirely incorrect. As I
2 described on page 4 of I&E Statement No. 3, Section 1330 of the Code allows
3 utilities to seek approval of alternative rate making mechanisms, such as an
4 MYRP. The Code does not guarantee approval of those mechanisms and they will
5 still be subjected to the requisite scrutiny.

6
7 **Q. DOES MR. PICKERING APPEAR TO MISUNDERSTAND THE ROLE OF**
8 **THE PARTIES IN A BASE RATE CASE?**

9 A. Yes. Mr. Pickering, on page 9 of PWSA Statement No. 1-R, claimed that I&E and
10 the Office of Consumer Advocate are attempting to establish the Commonwealth's
11 policies because they opposed the proposed MYRP. What Mr. Pickering
12 apparently fails to understand is that the role of the Parties is not to "set policy," as
13 he erroneously claims, but instead to analyze and scrutinize a utility's base rate
14 filing and make recommendations to the Commission so that it can set rates that
15 are just, reasonable, and in the public interest. It is I&E's recommendation to the
16 Commission that the proposed MYRP does not meet the criteria of being just,
17 reasonable, and in the public interest.

1 Q. DOES MR. PICKERING APPEAR TO HAVE A MISUNDERSTANDING
2 OF THE CODE WITH RESPECT TO THE CRITERIA SET FORTH IN
3 THE COMMISSION’S POLICY STATEMENT AT 52 PA. CODE §§
4 69.3301-3302?

5 A. Yes. Mr. Pickering stated on page 9 of PWSA Statement No. 1-R that I add
6 “factors not identified by the PUC as being germane of a review of a particular
7 alternative ratemaking mechanism proposed by a public utility.” He then points to
8 my assessment of PWSA’s history of failure when applied to its forecasted capital
9 costs compared to actual expenditures. Based on this testimony, Mr. Pickering
10 seems to believe that Parties can only assess an alternative ratemaking mechanism,
11 such as the MYRP, based on the criteria set forth in the Commission’s Policy
12 Statement. However, this belief is entirely contrary to the text of the Policy
13 Statement itself which states “[i]n determining just and reasonable alternative
14 distribution ratemaking mechanisms and rate designs that promote the purpose and
15 scope of this statement of policy and the objectives of 66 Pa. C.S. § 1330 (relating
16 to alternative ratemaking for utilities), the Commission may consider *among other*
17 *relevant factors*, the following:” (*emphasis added*). It is clear that the Policy
18 Statement does not limit the criteria or factors that the Commission can use to
19 consider whether a proposed MYRP is in the public interest. PWSA’s history of
20 inaccurate capital budget projections, despite Mr. Pickering’s attempt to claim
21 otherwise, is extremely relevant in the assessment of PWSA’s proposed MYRP.

1 **Q. IS MR. PICKERING CORRECT THAT YOU SUGGESTED THAT THE**
2 **COSTELLO REPORT IS A BETTER DETERMINANT OF THE**
3 **POLICIES THAT SHOULD BE IN PLACE FOR PENNSYLVANIA?**

4 A. No. Mr. Pickering is misrepresenting my testimony. On pages 6-7 of I&E
5 Statement No. 3, I stated that the Costello Report, which has a stated objective of
6 attempting to educate state utility commissions on multiyear rate plans, provides a
7 discussion of the pros and cons that the regulators should consider when assessing
8 whether an MYRP is in the public interest. I recognized that the benefits of
9 MYRPs championed by PWSA witnesses align with the pros listed in the Costello
10 Report and stated that my analysis consisted of which cons presented in the report
11 apply to PWSA's proposal and whether those cons outweigh the pros regarding
12 the public interest. I also noted that the Costello Report represented arguments for
13 and against MYRPs from an unbiased perspective and that it did not attempt to
14 sway regulators one way or the other. I also clearly stated that the ability to
15 propose an MYRP is in the Code, and it is not subject to dispute. Therefore, Mr.
16 Pickering's claim is without merit.

17
18 **Q. IS PWSA'S HISTORY OF MULTIYEAR RATE INCREASES PRIOR TO**
19 **COMING UNDER COMMISSION JURISDICTION A REASON TO**
20 **APPROVE AN MYRP?**

21 A. No. It is a well-established fact that, prior to coming under Commission
22 jurisdiction, PWSA's water and wastewater systems were extremely mismanaged.

1 PWSA reverting back to policies that it held prior to Commission jurisdiction is
2 not likely to engender positive feelings for its customer base and has no bearing on
3 any Commission decision.
4

5 **Q. DO MULTIPLE PWSA WITNESSES REFER TO PWSA EXPENDING**
6 **EXTRA FUNDS IN A WAY THAT THEY CLAIM WILL BENEFIT**
7 **CUSTOMERS?**

8 A. Yes. Mr. Pickering, on page 9 of PWSA Statement No. 1-R, and Mr. Barca, on
9 page 25 of PWSA Statement No. 2-R, each claim that, as a cash flow utility with
10 no shareholders, PWSA will expend, or attempt to expend, any dollars it failed to
11 spend in a particular year in a way that benefits ratepayers.
12

13 **Q. DID THE PWSA WITNESSES PROVIDE ANY SPECIFIC EVIDENCE**
14 **FOR HOW EXCESS DOLLARS WILL BE SPENT TO BENEFIT**
15 **RATEPAYERS?**

16 A. No. Each witness only makes vague references to redirected funds benefiting
17 ratepayers. They have provided no evidence or detail as to where extra dollars
18 will be spent that would benefit ratepayers. Additionally, as I explain in additional
19 detail below, PWSA's history of not meeting its annual capital budget
20 expenditures calls into question just how these ratepayer funded dollars are spent.
21 Further, rather than supporting PWSA's base rate filing, this testimony raises red
22 flags.

1 **Q. WHY DID MR. BARCA DISAGREE WITH YOUR RECOMMENDATION?**

2 A. Mr. Barca disagreed with my recommendation for several reasons. First, he
3 disagreed with my analysis of PWSA's actual performance compared to its capital
4 budget. Second, he provided his opinion on what the Parties should be permitted
5 to review when considering an MYRP. Third, he claimed I am demanding a level
6 of precision of PWSA's projections that has not been required by the Commission.
7 Fourth, Mr. Barca stated that he fails to see why a multi-year process would
8 require more extensive consumer protections. Finally, Mr. Barca attempted to
9 provide further clarification in response to my testimony regarding PWSA's
10 uncertainty in its revenues until rates are finalized. (PWSA St. No. 2-R, pp. 24-
11 27).

12
13 **Q. IS MR. BARCA CORRECT THAT TWO OF THE YEARS INCLUDED IN**
14 **YOUR ANALYSIS OF THE ACCURACY OF PWSA'S PROJECTIONS**
15 **INCLUDED YEARS AFFECTED BY THE COVID-19 PANDEMIC?**

16 A. Yes. I do not deny that PWSA's capital expenditures and operations have been
17 significantly affected by the COVID-19 pandemic in 2020 and the resulting
18 problems and issues that followed in 2021 nor do I deny that PWSA is still being
19 affected by those issues as claimed by Mr. Barca on page 25 of PWSA Statement
20 No. 2-R. However, what Mr. Barca does not explain is why an MYRP is
21 appropriate when PWSA's ability to accurately predict its capital improvement
22 costs is still being affected by the COVID-19 pandemic let alone any other event

1 that may occur between now and 2027 that has not factored into the current base
2 rate case.

3
4 **Q. WHAT DOES MR. BARCA CLAIM SHOULD BE EXAMINED IN**
5 **DETERMINING AN MYRP?**

6 A. Mr. Barca claims that, rather than determining whether past budgets project actual
7 experience “exactly,” the issue that should be examined in determining an MYRP
8 is whether the utility has a “rigorous and well developed” process for making
9 projections of all the elements that make up a cash flow utility’s revenue
10 requirement (PWSA St. No. 2-R, p. 25).

11
12 **Q. DO YOU AGREE WITH MR. BARCA’S CLAIM?**

13 A. Not at all. First, Mr. Barca purposefully misstates my position in his claim that I
14 am requiring PWSA’s actual capital improvement results match their budgets
15 “exactly.” My position is that PWSA’s history shows that its track record of
16 meeting its capital budget projects is poor to the point that the average four-year
17 difference between budget and actual improvements is nearly \$55 million, or 35%
18 (I&E Ex. No. 3, Sch. 3). Second, Mr. Barca does not provide any detail into what
19 he considers a “rigorous and well developed process.” Third, Mr. Barca’s claim
20 on page 26 of PWSA Statement No. 2-R that “I would note that the demands the
21 consumers not have to pay a rate that contains allegedly inaccurate estimates of
22 revenue requirement is not an element of a conventional ‘single year’ rate

1 increase” is entirely incorrect. Utilities in Pennsylvania are regulated based on the
2 projection of actual data and trends projected into future years. The ability to be
3 confident in the accuracy of those projections is what allows the Commission to
4 determine whether rates can be considered just and reasonable. Finally, contrary
5 to Mr. Barca’s claim, it does not matter how rigorous or well-developed a process
6 is if it consistently provides results that are not accurate. It is disturbing that Mr.
7 Barca is advocating that the accuracy of PWSA’s projections should be discounted
8 in favor of its process despite PWSA being a regulated utility since 2018.

9
10 **Q. DO YOU AGREE WITH MR. BARCA THAT THERE IS NO**
11 **REGULATION OR DIRECTION FROM THE PUC AS TO HOW THE**
12 **REVENUE REQUIREMENT IN THE FUTURE YEARS OF A MYRP**
13 **SHOULD BE CALCULATED (PWSA ST. NO. 2-R, P. 26)?**

14 A. Yes. The PUC has provided no regulation or direction as to how the revenue
15 requirement in the future years of a MYRP should be calculated beyond the need
16 for rates to be just, reasonable, and in the public interest. As I discuss further
17 below, it is not reasonable for the Commission to approve an MYRP prior to
18 setting forth any regulation, direction, or customer protections.

1 **Q. IS MR. BARCA CORRECT THAT YOU ARE DEMANDING A LEVEL OF**
2 **PRECISION OF PWSA'S PROJECTIONS THAT HAS NOT BEEN**
3 **REQUIRED (PWSA ST. NO. 2-R, P. 26)?**

4 A. No. I am recommending that the Commission require the same level of precision
5 as it does for the FPPTY. Simply applying a 6% inflationary factor to projections
6 that have questionable accuracy is not a reasonable method for determining just
7 and reasonable rates, especially when the projections are more speculation than
8 reasonable projections.

9
10 **Q. ON PAGE 26 OF PWSA STATEMENT NO. 2-R, MR. BARCA STATED**
11 **THAT HE FAILS TO SEE WHY A MULTI-YEAR PROCESS WOULD**
12 **REQUIRE MORE EXTENSIVE CONSUMER PROTECTIONS. PLEASE**
13 **RESPOND.**

14 A. Based on Mr. Barca's previous testimony, it is not surprising that he does not see
15 why an MYRP would require more extensive consumer protections since he does
16 not think that PWSA's projections need to be accurate. It is a fact that as
17 projections move farther away from the actual, historic data they are based upon,
18 the less reliable those projections are. In fact, they become more speculation than
19 projections. Therefore, it is reasonable to provide a greater level of consumer
20 protections to protect consumers from paying rates that no longer reflect the
21 circumstances they were originally based upon. On pages 26 and 27 of PWSA
22 Statement No. 2-R, Mr. Barca referenced the testimony of PWSA witness Smith

1 regarding additional consumer protections that could be put in place before the
2 subsequent year rate increases could be implemented. I will discuss this proposal
3 below.

4
5 **Q. DID MR. BARCA ATTEMPT TO PROVIDE FURTHER CLARIFICATION**
6 **IN RESPONSE TO YOUR TESTIMONY ON PAGES 13-14 OF I&E**
7 **STATEMENT NO. 3 THAT IT IS UNCLEAR WHY PWSA WOULD NOT**
8 **KNOW WHAT ITS REVENUE LEVELS SHOULD BE ON A YEARLY**
9 **BASIS?**

10 A. Yes. Mr. Barca explained that PWSA creates a budget each year for the following
11 fiscal year and that it will not budget a certain amount of expenditures unless it has
12 reasonable assurance that it will have sufficient revenue to cover those
13 expenditures. He further explained that PWSA is not able to project what its level
14 of revenues will be for future periods because it must go through an intensive,
15 nine-month process where the results cannot be predicted and are only in place for
16 the initial year after the rate decision. An MYRP would significantly reduce the
17 uncertainty for the additional years included in the rate proposal.

18
19 **Q. DO YOU AGREE WITH MR. BARCA'S EXPLANATION?**

20 A. Partially. I agree that PWSA would have uncertainty in the year prior to when the
21 rate increase goes into effect as the results of the base rate process is not known
22 until the Commission's Order is filed. However, as I stated on page 13 of I&E

1 Statement No. 3, the only reason why PWSA would not know what its revenue
2 levels should be on a yearly basis would be if its projections of usage and numbers
3 of customers were wrong. This is because, outside of changes to adjustable riders
4 and changes due to base rate cases, PWSA's base rates remain the same.

5 Therefore, if PWSA has a reliable projection of its usage levels and number of
6 customers, it should be able to make an accurate projection of the annual revenue
7 levels for the following year. An MYRP does not change that ability to predict its
8 revenue levels; it only provides higher rates and additional revenues.

9
10 **Q. WHY DID MR. SMITH DISAGREE WITH YOUR RECOMMENDATION**
11 **REGARDING THE MYRP?**

12 A. Mr. Smith disagreed with my recommendation regarding the MYRP for several
13 reasons. First, Mr. Smith believes that I discount the potential benefits offered by
14 MYRPs presented in the Costello Report and place too much emphasis on the
15 potential drawbacks. Second, he notes that the Costello Report is largely focused
16 on whether MYRPs provide utilities with inappropriate opportunities to earn a rate
17 of return that is in excess of what the Commission has determined is appropriate
18 and claimed that much of the discussion in the report is irrelevant to PWSA due to
19 it being a cash flow utility. Third, he again references his history with the Rhode
20 Island Public Utility Commission ("RIPUC") and its implementation of MYRPs in
21 its jurisdiction. Finally, Mr. Smith recommends that all parties to this rate case
22 work together to develop specific requirements of a compliance filing such that all

1 parties are confident that they have sufficient evidence to support the proposed
2 rate increases. (PWSA St. No. 7-R, pp. 9-13).

3
4 **Q. DO YOU AGREE YOU DISCOUNT THE BENEFITS OF THE MYRP SET**
5 **FORTH IN THE COSTELLO REPORT?**

6 A. No. As I stated on page 7 of I&E Statement No. 3, the Costello Report listed some
7 of the same benefits discussed by PWSA's witnesses and my analysis included
8 whether the cons outweighed the pros regarding the public interest. I did not
9 discount any of the positives offered by an MYRP. My analysis determined that
10 the cons outweighed those pros and, therefore, the proposed MYRP should be
11 rejected.

12
13 **Q. DO YOU AGREE THAT THE COSTELLO REPORT IS LARGELY**
14 **FOCUSED ON TRADITIONAL RATE OF RETURN RATEMAKING**
15 **WHEN DISCUSSING MYRPS?**

16 A. Yes. The Costello Report does focus on traditional rate of return ratemaking.
17 Despite this, the Costello Report provides insight into topics that can be
18 universally applied regardless of traditional ratemaking versus cash flow
19 ratemaking. As an example, the quote I provided on page 8 of I&E Statement No.
20 3 regarding checking the accuracy of past forecasts is true for both traditional rate
21 of return ratemaking as well as PWSA's cash flow methodology. Those universal

1 insights are helpful in assessing whether an MYRP is in the public interest and
2 should not be ignored.

3
4 **Q. WHY DID MR. SMITH REFERENCE HIS HISTORY WITH MYRPS IN**
5 **THE RIPUC?**

6 A. Mr. Smith stated that he believes that if the Commission were to implement
7 processes similar to those employed by the RIPUC, utility customers in
8 Pennsylvania could reap the benefits of MYRPs as they have done in Rhode Island
9 (PWSA St. No. 7-R, p. 9).

10
11 **Q. WHAT DID MR. SMITH RECOMMEND REGARDING THE MYRP IN**
12 **THE PRESENT PROCEEDING?**

13 A. Mr. Smith recommended that the Commission adopt PWSA's MYRP and order a
14 workshop be scheduled, in which any interested party could participate, which
15 would attempt to arrive at the procedure and substance of the compliance filings
16 that would be made prior to the implementation of the 2025 and 2026 rates
17 (PWSA St. No. 7-R, p. 13).

18
19 **Q. DO YOU AGREE WITH MR. SMITH'S RECOMMENDATION?**

20 A. Partially. I agree that introducing a compliance plan would be a positive addition
21 to any potential MYRP and adds a level of consumer protection that would be
22 beneficial for all Parties involved. I also agree that starting with the RIPUC

1 process would be a good place to start as it appears to be a proven process that
2 works for the utilities and customers in Rhode Island.

3 I do not agree, however, that introducing this process in the rebuttal phase
4 of the current proceeding is the appropriate timing to introduce such a workshop.
5 Any rules that would come from this discussion would likely affect every
6 jurisdictional utility in Pennsylvania that proposes an MYRP in the future.
7 Therefore, those utilities and any other parties that may not be involved in the
8 present proceeding should have an opportunity to be heard. Additionally, tacking
9 this proposal on during the rebuttal phase and expecting the Commission to
10 organize, discuss, decide, and implement the rules surrounding a compliance plan
11 is not reasonable. Finally, it is not reasonable to ask the Commission to approve
12 MYRP rates before the compliance plan procedure has even been discussed. This
13 would be an extreme case of putting the cart before the horse and should be
14 rejected.

15
16 **Q. WHAT DO YOU RECOMMEND REGARDING THE MYRP?**

17 A. I continue to recommend that the MYRP be rejected. However, I would also
18 recommend that if the Commission wants to consider MYRP's, the Commission
19 should organize a collaborative in order to promulgate rules and regulations
20 surrounding a compliance filing that would go with any MYRP proposed in
21 Pennsylvania.

1 **CAPITAL IMPROVEMENT PROJECTS**

2 **Q. WHAT DID YOU RECOMMEND REGARDING PWSA'S CAPITAL**
3 **IMPROVEMENT PROJECTIONS IN THE FPFTY?**

4 A. I recommended that PWSA's proposed increase to its capital budget in the FPFTY
5 be reduced by \$32,625,303 from \$42,688,673 to \$10,063,371 (I&E Statement No.
6 3, p. 20).

7
8 **Q. DO YOU HAVE ANY CORRECTIONS TO YOUR RECOMMENDATION?**

9 A. No. However, while I do not have any corrections to my recommended
10 adjustment to the increase in PWSA's capital budget in the FPFTY, I&E witness
11 Spadaccio, in I&E Statement No. 1-SR, provides a correction to the revenue
12 requirement treatment of my recommendation.

13
14 **Q. DID PWSA RESPOND TO YOUR RECOMMENDATION?**

15 A. Yes. PWSA disagreed with my recommendation to reduce its capital budget in the
16 FPFTY.

17
18 **Q. WHY DID PWSA DISAGREE WITH YOUR RECOMMENDATION TO**
19 **REDUCE ITS CAPITAL BUDGET IN THE FPFTY?**

20 A. PWSA witnesses Barca and King responded to my recommendation to reduce the
21 capital budget in the FPFTY. Mr. Barca claimed that PWSA ratepayers were not
22 overcharged when budgeted projects were not finished, had to reduce its planned

1 capital expenditures to match the allowed revenue requirement from its previous
2 settled base rate cases, and stated that he does not understand how I&E can
3 recommend an adjustment that would force PWSA to cancel or delay needed
4 capital projects (PWSA St. No. 2-R, pp. 16-21).

5 Mr. King responded on pages 4-10 of PWSA Statement No. 4-R by
6 claiming that “four years can hardly be viewed as a ‘historic’ tendency on the part
7 of PWSA,” blamed the deficiency on factors outside of PWSA’s control and could
8 not have anticipated, pointed to the lengthy bidding process established by the
9 Municipal Authorities Act (“MAA”), and claimed that the larger divergences
10 between budgeted and expended amounts that occurred in FY 2020 and FY 2021
11 support his expectation of a greater trend toward accuracy going forward. Mr.
12 King also claimed that my proposed reductions are arbitrary and fail to consider
13 the impact on PWSA’s ability to complete projects that have been identified as
14 being necessary for regulatory compliance, safety, quality of service and operating
15 efficiency. (PWSA St. No. 4-R, pp. 4-7).

16
17 **Q. WHY DOES MR. BARCA CLAIM THAT CUSTOMERS WERE NOT**
18 **OVERCHARGED WHEN BUDGETED PROJECTS WERE NOT**
19 **FINISHED?**

20 A. Mr. Barca listed two reasons for his claim that customers were not overcharged
21 when their budgeted projects were not finished. First, he claimed that PWSA’s
22 budgets were all based on an assumption that PWSA’s full rate request was

1 granted, which has never happened since PWSA has been under the jurisdiction of
2 the Commission. Second, Mr. Barca claimed that, even if the reduced capital
3 budget was not met in a year, the project was moved to the next year and any
4 dollars not utilized were not used in that next year (or years). (PWSA St. No. 2-R,
5 pp. 19-20).

6
7 **Q. PLEASE RESPOND TO MR. BARCA’S CLAIM THAT PWSA HAD TO**
8 **REDUCE ITS PLANNED EXPENDITURES TO MATCH THE ALLOWED**
9 **REVENUE REQUIREMENT AS A RESULT OF BASE RATE CASES?**

10 A. Mr. Barca’s claim that the reason that PWSA did not complete all of its budgeted
11 projects is due to the Commission not providing its fully requested revenue
12 requirement is inconsistent with the testimony of both himself and Mr. King.

13
14 **Q. WHY IS MR. BARCA’S CLAIM ABOUT THE RESULTS OF PREVIOUS**
15 **BASE RATE CASES INCONSISTENT WITH OTHER PWSA**
16 **TESTIMONY?**

17 A. Both Mr. Barca and Mr. King claim that PWSA’s deficiency in meeting its
18 projected capital budgets are due to project delays from factors that PWSA cannot
19 control such as residual effects of the COVID-19 Pandemic, permitting delays,
20 historical review delays, employee and contractor shortages, and supply chain
21 issues (PWSA St. No. 2-R, pp. 16-17 and PWSA St. No. 4-R, pp. 4-6). Mr. Barca
22 also stated that “neither I&E nor any other Party has actually challenged any of

1 PWSA’s projected projects as imprudent or unnecessary” (PWSA St. No. 4-R, p.
2 20). Therefore, because I&E and the other Parties did not challenge any of
3 PWSA’s previous projects, the approved revenue requirements in the previous
4 cases included full funding for those projects and it was either project delays or
5 PWSA’s own decision making that led to the failure to complete the budgeted
6 projects. Furthermore, while I recognize that the factors listed by PWSA that
7 caused delays in the past are valid, PWSA has not indicated that those issues will
8 be less problematic in the future, nor has it shown that it has attempted to adjust its
9 capital budget to deal with those issues. This could result in an increased risk that
10 customers will be funding projects that have a higher likelihood of being delayed.

11
12 **Q. IS MR. BARCA’S STATEMENT THAT PROJECTS THAT ARE NOT**
13 **FINISHED IN ONE YEAR ARE SIMPLY PUSHED TO THE NEXT YEAR**
14 **CONSISTENT WITH THE ACTUAL PROJECT COMPLETION DATA?**

15 A. No. As shown on I&E Exhibit No. 3, Schedule 3, there were only three instances
16 since 2019 of PWSA completing more projects than were projected in its capital
17 budget for that year: Water Treatment Plant and Wastewater System in 2019 and
18 Water Distribution in 2021. In every other year and category, the actual capital
19 improvements are below the budgeted capital improvements. Therefore, by Mr.
20 Barca’s reasoning, each year projects are pushed into the following year, then
21 PWSA continues to fail to complete its budgeted projects and push other projects
22 into future years creating a domino effect of project delays.

1 **Q. IS IT YOUR POSITION THAT PWSA’S PROPOSED PROJECTS ARE**
2 **NOT NEEDED OR REQUIRED?**

3 A. Not at all. I am merely advocating that PWSA not set capital improvement
4 budgets that it appears it is not capable of achieving. As Mr. Barca has noted,
5 PWSA is attempting to remedy decades of deferred maintenance, which is
6 necessary, but the speed at which PWSA is proposing to remedy may be too
7 aggressive and costly.

8
9 **Q. HAVE PWSA’S RATEPAYERS NOTICED PWSA’S AGGRESSIVE**
10 **APPROACH TO ADDRESS THE DEFERRED MAINTENANCE?**

11 A. Yes. Several PWSA ratepayers spoke out acknowledging the need for capital
12 investment, but also noted the deleterious effect it has on rates. Pennsylvania
13 State House Representative La’Tasha Mayes stated, “It is evident to me that
14 Pittsburgh Water and Sewer Authority investment in our water and sewer
15 infrastructure are long overdue, but not on the backs of hardworking ratepayers
16 who can barely afford to pay their water bills already.”¹ Dan Gladis, on behalf of
17 Pennsylvania State Representative Jessica Benham similarly testified, “And while
18 we understand that there are important infrastructural modernization programs that
19 PWSA is undergoing and they are critical to the continued delivery of a vital civic
20 service, a rate increase of this magnitude at this time has the potential to hurt far

¹ Hrg. Tr., p. 69 (July 25, 2023).

1 too many vulnerable Pittsburgh's much more than it helps.”² Ms. Becky Boyle,
2 on behalf of State Senator Lindsey Williams, testified that, “PWSA has taken full
3 advantage of public funding available to them as they work to ensure that every
4 resident has access to clean, safe water and that the waterways of Western
5 Pennsylvania are protected. I applaud their efforts at securing this funding and
6 their continual work to improve the quality of their services. However, asking our
7 families and small businesses to face double digit rate increases five times in
8 under ten years is entirely too much.”³

9
10 **Q. DO YOU AGREE WITH MR. KING THAT FOUR YEARS CAN**
11 **“HARDLY BE VIEWED AS A HISTORIC TENDENCY” ON THE PART**
12 **OF PWSA?**

13 A. Not at all. Four years accounts for nearly the entire history of PWSA as a
14 regulated utility. Prior to Commission regulation, it is a proven fact that PWSA
15 was severely mismanaged and in disrepair. As such, budgeting data from before
16 PWSA became a Pennsylvania regulated utility is not available and would likely
17 not reflect well on the accuracy of PWSA's budgeting process. By claiming that
18 PWSA should not be assessed based on the existing four years of data, Mr. King is
19 essentially claiming that PWSA's capital budgeting process should be exempt
20 from regulation or review. Such a stance is not in the public interest and should be
21 disregarded.

² Hrg. Tr., p. 74 (July 25, 2023).

³ Hrg. Tr., pp. 183-184 (July, 27, 2023).

1 **Q. ARE DELAYS CAUSED BY FACTORS OUTSIDE OF PWSA’S CONTROL**
2 **A REASON TO NOT MODERATE THE AGGRESSIVENESS OF PWSA’S**
3 **CAPITAL BUDGET?**

4 A. No. PWSA has not provided any evidence that the delaying effects of the
5 COVID-19 pandemic have fully abated. Nor has any witness provided evidence
6 supporting that PWSA is in a better position going forward to avoid construction
7 delays due to supply chain issues, and a limited contracting pool with a decreasing
8 number of bidders (PWSA St. No. 4-R, p. 4). Instead, PWSA has set a more
9 aggressive capital improvement schedule that is more costly to ratepayers despite
10 its history of not being able to come close to its capital budgets.

11
12 **Q. WHAT OTHER REASONS DID MR. KING PROVIDE FOR PWSA NOT**
13 **MEETING ITS CAPITAL IMPROVEMENT BUDGET?**

14 A. Mr. King referred to the long bidding process imposed by the MAA, delays in the
15 permitting process of the Pennsylvania Department of Environmental Protection
16 (“DEP”), the length of technical review conducted by the Pennsylvania
17 Department of Transportation (“PennDOT”), and construction delays associated
18 with requirements imposed by the Pennsylvania State Historic Preservation Office
19 (“SHPO”) as reasons for PWSA not meeting its capital budgets. However, Mr.
20 King did state that he “would expect a trend toward greater accuracy to continue
21 going forward as PWSA has gathered important knowledge” regarding the delays
22 caused by DEP, PennDOT, and SHPO’s processes and claimed that PWSA will

1 incorporate those delays into future projections. (PWSA St. No. 4-R, pp. 4-6).

2
3 **Q. DID MR. KING PROVIDE EVIDENCE THAT PWSA INCORPORATED**
4 **THE DELAYS CAUSED BY THE MAA, DEP, PENNDOT, AND SHPO**
5 **INTO THE CAPITAL BUDGETS IT PRESENTED IN THIS**
6 **PROCEEDING?**

7 A. No. Mr. King merely stated that those delays will be incorporated into future
8 projections. Therefore, it is possible that the proposed capital budget will also
9 experience delays due to those factors.

10
11 **Q. WHAT DID MR. KING STATE REGARDING PWSA'S CAPITAL**
12 **BUDGET COMPLETION RATE IN FY 2019 AND FY 2022?**

13 A. Mr. King stated that PWSA completed nearly 80% of its budgeted amount for
14 capital improvements in FY 2019 and approximately 70% of its capital
15 improvement budget in FY 2022.

16
17 **Q. WHAT WERE THE COMPLETION RATES IN 2019 AND 2022 FOR THE**
18 **CATEGORIES FOR WHICH YOU ARE RECOMMENDING**
19 **ADJUSTMENTS?**

20 A. Based on the data shown on I&E Exhibit No. 3, Schedule 3, in FY 2019, PWSA
21 completed 101% (\$15,665,185 / \$15,549,274) of its Water Treatment Plant budget
22 and 37% (\$9,667,165 / \$26,421,559) of its Water Pumping and Storage budget. In

1 FY 2022 PWSA completed 54% (\$3,360,755 / \$6,253,411) of its Water Treatment
2 Plant budget and just 36% (\$20,032,802 / \$55,208,438) of its Water Pumping and
3 Storage budget. Additionally, as was established by Mr. Barca and discussed
4 above, no Parties have opposed any of PWSA's proposed projects. This means
5 that, in FY 2019 and FY 2022, which Mr. King touts PWSA's completion percent,
6 PWSA left \$26,845,826 and \$47,794,105, respectively, in budgeted dollars which
7 were approved by the Commission remained unspent. These amounts support my
8 position that PWSA is proposing an overly aggressive capital budget and my
9 recommendation to reduce PWSA's proposed capital budget.

10
11 **Q. PLEASE RESPOND TO MR. KING'S CLAIM THAT YOUR PROPOSED**
12 **REDUCTIONS ARE ARBITRARY AND FAIL TO CONSIDER THE**
13 **IMPACT ON PWSA'S ABILITY TO COMPLETE PROJECTS THAT**
14 **HAVE BEEN IDENTIFIED AS BEING NECESSARY FOR REGULATORY**
15 **COMPLIANCE, SAFETY, QUALITY OF SERVICE AND OPERATING**
16 **EFFICIENCY.**

17 A. Mr. King's claim that my proposed reductions are arbitrary is without basis. As I
18 described on page 21 of I&E Statement No. 3, my recommended reductions were
19 targeted specifically at the capital budget groups that PWSA has had a historic
20 problem with completing. Additionally, my recommendation to adjust the overall
21 budget rather than specific projects allows PWSA the freedom to assess and

1 prioritize which projects are necessary for regulatory compliance, safety, quality
2 of service and operating efficiency.

3
4 **Q. DO YOU WISH TO CHANGE YOUR RECOMMENDATION?**

5 A. No. Based on my discussion above, PWSA has not provided any reason or
6 support that would cause me to change my recommendation to reduce the
7 proposed capital budget increase by \$32,625,303 from \$42,688,673 to
8 \$10,063,371.

9
10 **Q. WHAT DID YOU RECOMMEND REGARDING DEPRECIATION
11 EXPENSE?**

12 A. I recommended that there should be a commensurate reduction in depreciation
13 expense as a result of my adjustment to the proposed capital improvement
14 projects. (I&E St. No. 3, p. 22).

15
16 **Q. HOW DID PWSA RESPOND TO YOUR RECOMMENDATION?**

17 A. Mr. Barca stated that depreciation expense is not a relevant expense because
18 PWSA does not file its rate tariff on a rate of return basis and that it is not an
19 element in the Commission's Cash Flow Ratemaking Policy Statement (PWSA St.
20 No. 2-R, p. 21).

1 **Q. DO YOU AGREE WITH MR. BARCA’S STATEMENT?**

2 A. No. Mr. Barca’s statement contradicts his own direct testimony on page 6 of
3 PWSA Statement No. 2 citing to a 2010 Commission Policy Statement at 52 Pa.
4 Code § 69.2702 that reads:

5 *(b) ... Included in that requirement [of establishing just and*
6 *reasonable rates is the subsidiary obligation to provide*
7 *revenue allowances from rates adequate to cover [the utility’s]*
8 *reasonable and prudent operating expenses, **depreciation***
9 ***allowances** and debt service, as well as sufficient margins to*
10 *meet bond coverage requirements and other internally*
11 *generated funds over and above its bond coverage*
12 *requirements, as the Commission deems appropriate and in the*
13 *public interest for purposes such as capital improvements,*
14 *retirement of debt, and working capital. (emphasis added).*

15 Also, despite Mr. Barca’s statement, PWSA clearly maintains some record and
16 accounting of depreciation expense as a depreciation expense claim is shown on
17 Filing Requirement (“FR”) XI.1 under Other Expenses and a calculation of
18 historic Depreciation by PWSA Department and Code as of December 31, 2022 is
19 shown on FR § 53.52(c)(4).

20

21 **Q. DO YOU WISH TO CHANGE YOUR RECOMMENDATION?**

22 A. No. However, I would like to clarify that, barring any other calculation, PWSA
23 should reduce its calculation of depreciation expense in the FPFTY by 9.34%
24 (\$32,625,303 / \$349,222,496) which is the same percentage of my recommended
25 reduction in capital improvement increase divided by the total proposed capital
26 improvement budget in the FPFTY as shown on I&E Exhibit No. 3, Schedule 3.

1 **UNACCOUNTED FOR WATER**

2 **Q. DID YOU RECOMMEND AN ADJUSTMENT AS A RESULT OF PWSA'S**
3 **DISTURBING UNACCOUNTED-FOR WATER LEVELS?**

4 A. Not at this time. However, on pp. 23-24 of I&E Statement No. 3, I put PWSA on
5 notice that an adjustment to certain expenses, such as purchased power and
6 chemicals, will be likely in the next base rate case if progress is not shown in
7 reducing the unaccounted-for water levels.

8

9 **Q. DID PWSA RESPOND TO YOUR TESTIMONY REGARDING**
10 **UNACCOUNTED-FOR WATER?**

11 A. Yes. PWSA witness McFaddin stated that PWSA expects to see a reduction in
12 unaccounted-for water levels through various measures that are underway (PWSA
13 St. No. 3-R, p. 2).

14

15 **Q. PLEASE RESPOND TO MR. MCFADDIN'S STATEMENT.**

16 A. I&E will continue to monitor PWSA's unaccounted-for water and looks forward
17 to the expected improvement.

18

19 **WATER AND WASTEWATER RATE STRUCTURE**

20 **Q. WHAT DID YOU RECOMMEND REGARDING PWSA'S PROPOSED**
21 **BASE CHARGE?**

22 A. On page 30 of I&E Statement No. 3, I recommended that the Commission remove

1 the Readiness-to-Serve (“RTS”) adjustment from the calculation of the water base
 2 charge as shown in the table below:

3

Meter Size	Present Rate Minimum Charge	Proposed Rate Minimum Charge	PWSA Proposed Base Charge	I&E Recommended Base Charge
5/8”	\$26.52	\$32.43	\$16.82	\$14.41
3/4”	\$46.47	\$54.74	\$23.96	\$20.35
1”	\$102.08	\$113.88	\$38.25	\$32.22
1 1/2”	\$201.85	\$225.41	\$73.97	\$61.92
2”	\$337.28	\$373.78	\$116.84	\$97.56
3”	\$766.42	\$832.40	\$231.14	\$192.58
4”	\$1,313.93	\$1,408.27	\$359.74	\$299.49
6”	\$3,174.80	\$3,332.70	\$716.95	\$596.44
8”	\$5,784.48	\$5,968.71	\$1,145.60	\$952.79
10” & Above	\$9,582.36	\$9,753.09	\$1,645.69	\$1,368.53

4 I also recommended on page 31 of I&E Statement No. 3 that the Commission
 5 remove the RTS adjustment from the calculation of the wastewater base charge as
 6 shown in the table below:

7

Meter Size	Present Rate Minimum Charge	Proposed Rate Minimum Charge	PWSA Proposed Base Charge	I&E Recommended Base Charge
5/8”	\$7.32	\$7.42	\$3.98	\$3.19
3/4”	\$11.70	\$11.43	\$4.69	\$3.61
1”	\$24.27	\$22.50	\$6.12	\$4.45
1 1/2”	\$46.19	\$42.56	\$9.69	\$6.55
2”	\$76.29	\$69.68	\$13.98	\$9.08
3”	\$173.03	\$155.24	\$25.41	\$15.81
4”	\$297.52	\$264.10	\$38.26	\$23.38
6”	\$725.62	\$632.71	\$73.97	\$44.42
8”	\$1,330.48	\$1,148.40	\$116.83	\$69.66
10” & Above	\$2,218.44	\$1,896.72	\$166.82	\$99.11

1 **Q. DID YOU HAVE ANY OTHER RECOMMENDATIONS REGARDING**
2 **THE CALCULATION OF PWSA’S PROPOSED BASE CHARGE?**

3 A. Yes. I recommend that PWSA, in its next base rate case, perform and provide a
4 customer cost analysis as part of its cost of service study so that an accurate
5 customer charge can be determined. (I&E St. No. 3, p. 31).

6

7 **Q. DID YOU AGREE WITH PWSA’S PROPOSAL TO CHANGE FROM**
8 **BILLING CUSTOMERS USING A MINIMUM CHARGE TO A BASE**
9 **CHARGE IN FY 2025?**

10 A. Yes. Despite I&E’s recommendation to deny the MYRP, I believe that the change
11 from minimum charge to base charge should occur on the first day of FY 2025 on
12 a revenue neutral basis (subject to my recommendations). This means that, despite
13 the rate change, customers would be generating the same level of revenue in FY
14 2025 as is approved for the FPFTY ending December 31, 2024, but under a
15 different rate structure. (I&E St. No. 3, p. 32).

16

17 **Q. HOW DID PWSA RESPOND TO YOUR RECOMMENDATIONS?**

18 A. PWSA witness Smith disagreed with my recommendation to remove the RTS
19 component from the calculation of the base charge (PWSA St. No. 7-R, p. 6).

1 **Q. WHY DOES MR. SMITH NOT AGREE WITH YOUR**
2 **RECOMMENDATION TO REMOVE THE RTS COMPONENT FROM**
3 **THE CALCULATION OF PWSA’S BASE CHARGE?**

4 A. Mr. Smith provided several reasons why he disagreed with my recommendations.
5 Specifically, he claimed that inclusion of the RTS component is an industry-
6 accepted ratemaking practice, that a RTS component better aligns revenue
7 recovery with the nature of utility costs and helps to maintain fixed revenue at a
8 level deemed desirable by bond rating agencies, and claims that 10% of debt
9 service is a reasonable level to calculate the RTS component. (PWSA St. No. 7-R,
10 pp. 7-8).

11
12 **Q. WHAT EVIDENCE DOES MR. SMITH PROVIDE TO SUPPORT HIS**
13 **CLAIM THAT THE RTS COMPONENT IS AN “INDUSTRY-ACCEPTED”**
14 **RATEMAKING PRACTICE?**

15 A. The only evidence provided by Mr. Smith to claim that the RTS is an “industry-
16 accepted” ratemaking practice is a short quote from the American Waterworks
17 Association (“AWWA”) M-1 Manual.

18
19 **Q. IS THE QUOTE FROM THE AWWA M-1 MANUAL SUFFICIENT**
20 **EVIDENCE TO CLAIM THAT THE RTS IS AN INDUSTRY-ACCEPTED**
21 **RATEMAKING PRACTICE?**

22 A. No. On page 30 of I&E Statement No. 3, I quoted Mr. Smith in a response to

1 discovery where he stated that he is unaware of any other Pennsylvania utility that
2 includes an RTS component in their customer charge. Therefore, it is clear that
3 including an RTS is not an “industry-accepted” ratemaking practice where
4 Pennsylvania PUC regulated utilities are concerned. Additionally, the AWWA M-
5 1 Manual also acknowledges the balance between the fixed charge and variable
6 charge when it states, “there is a tradeoff between revenue stability from a high
7 customer charge, and affordability and conservation from a low customer charge
8 and higher usage rates.”⁴ This quote favors a more moderate approach to
9 determining a customer charge, which the Commission has historically adopted.

10
11 **Q. DO YOU AGREE THAT AN RTS COMPONENT BETTER ALIGNS**
12 **REVENUE RECOVERY WITH THE NATURE OF UTILITY COSTS AND**
13 **HELPS TO MAINTAIN FIXED REVENUE AT A LEVEL DEEMED**
14 **DESIRABLE BY BOND RATING AGENCIES?**

15 A. No. As I stated on page 29 of I&E Statement No. 3, Philadelphia Gas Works
16 (“PGW”), which is also a cash flow utility, regularly uses a customer cost analysis
17 to assist in determining its proposed customer charge. As far as I am aware, PGW
18 not including an RTS in its customer charge calculation does not have any effect
19 on its bond ratings.

⁴ AWWA Manual of Water Supply Practices M1 Principles of Water Rates, Fees, Charges, Seventh Edition. pp. 154-155.

1 **Q. DO YOU AGREE THAT 10% OF DEBT SERVICE IS A REASONABLE**
2 **METHOD TO CALCULATE AN RTS?**

3 A. No. As I stated on page 29 of I&E Statement No. 3, this method would include
4 the cost of mains, pumping, filtration, storage, and other upstream costs that
5 should not be included in a fixed monthly charge.

6

7 **Q. DO YOU WISH TO CHANGE YOUR RECOMMENDATION?**

8 A. No. Pennsylvania has traditionally relied upon a customer cost analysis to assist in
9 determining the appropriate level of customer charge for its utilities. Mr. Smith
10 has provided no evidence that would support suddenly reversing that practice.
11 Therefore, I continue to recommend the RTS component be removed from the
12 base charge calculation and that PWSA perform a customer cost analysis to
13 determine the appropriate customer charge level in its next base rate case.

14

15 **FIRE PROTECTION RATES**

16 **Q. DID YOU AGREE WITH THE COMPANY'S PROPOSAL REGARDING**
17 **THE FIRE PROTECTION RATES IN THE FPPTY?**

18 A. No. It is not reasonable to increase the minimum charge by over 100% while
19 providing a rate decrease to the usage rate. This is particularly true when
20 considering the Company's proposal to increase the fire protection usage rate by
21 57.4% in FY 2025 as shown on PWSA Exhibit HJS-23W. (I&E St. No. 3, p. 33).

1 **Q. WHAT DID YOU RECOMMEND REGARDING THE FIRE**
2 **PROTECTION RATES IN THE FPPTY?**

3 A. I recommended that the fire protection usage rate remain at the present rate level
4 of \$39.05 per kgal and reduce the fire protection minimum charges in order to
5 maintain the same level of revenue as originally proposed in the FPPTY. I also
6 noted that, based on the information provided by PWSA I was unable to use the
7 existing COSS to adjust the minimum charges at this time. PWSA since provided
8 a response to additional discovery that allowed me to determine the resulting
9 minimum charge as follows:

10

Meter Size	PWSA FPPTY Proposed Rate	I&E FPPTY Proposed Rate	Difference
1" or Less	\$31.38	\$28.41	\$2.91
1 1/2" – 3"	\$97.59	\$88.35	\$9.24
4"	\$314.86	\$285.05	\$29.81
6" or greater	\$654.53	\$592.56	\$61.97

11
12 **Q. DID YOU HAVE ANY RECOMMENDATIONS REGARDING THE FIRE**
13 **PROTECTION BASE CHARGE IN FY 2025?**

14 A. Yes. On page 34 of I&E Statement No. 3, I recommended that the fire protection
15 base charge in FY 2025 be calculated without an RTS adjustment. The resulting
16 rates, prior to the application of any scale back, are shown in the following table:

1

Meter Size	PWSA FPPTY Rate	PWSA FY 2025 Proposed Rate	I&E FY 2025 Proposed Rate
1" or Less	\$31.38	\$29.82	\$23.79
1 1/2" – 3"	\$97.59	\$92.07	\$72.79
4"	\$314.86	\$299.49	\$239.24
6" or Greater	\$654.53	\$628.51	\$508.01

2

3 **Q. DID PWSA RESPOND TO YOUR RECOMMENDATIONS REGARDING**
4 **THE FIRE PROTECTION RATES?**

5 A. Beyond Mr. Smith’s opposition to my recommendation regarding the RTS
6 adjustment, addressed above, PWSA did not address my recommendation
7 regarding the fire protection charge.

8

9 **Q. DO YOU WISH TO CHANGE YOUR RECOMMENDATION**
10 **REGARDING THE FIRE PROTECTION CHARGE?**

11 A. No. As discussed above, PWSA has not provided evidence to support changing
12 my recommendations.

13

14 **SCALE BACK OF RATES**

15 **Q. WHAT SCALE BACK DID YOU RECOMMEND IF THE COMMISSION**
16 **GRANTS LESS THAN THE FULL INCREASE?**

17 A. Should the Commission grant an increase less than the full increase requested by
18 PWSA in the FPPTY, I recommended that rates be scaled back based on the
19 CCOSS approved by the Commission. Once the revenue level and rates are

1 determined for the FPFTY, then the revenue neutral transition to the base charge
2 and usage rates can be determined for FY 2025. (I&E St. No. 3, pp. 34-35).

3

4 **Q. DID ANY PARTIES RESPOND TO YOUR SCALE BACK**
5 **RECOMMENDATION?**

6 A. No. Therefore, I continue to recommend the scale back methodology described
7 above.

8

9 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

10 A. Yes.

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket No. R-2023-3039919
	:	R-2023-3039920
v.	:	R-2023-3039921
	:	
The Pittsburgh Water & Sewer Authority	:	
1308(d) Base Rates	:	

**WITNESS VERIFICATION
THE BUREAU OF INVESTIGATION AND ENFORCEMENT**

I, Anthony Spadaccio, on behalf of the Bureau of Investigation and Enforcement, hereby verify that the documents preliminarily identified as:

- I&E Statement No. 1; I&E Exhibit No. 1; and
- I&E Statement No. 1-SR; I&E Exhibit No. 1-SR.

were prepared by me or under my direct supervision and control. Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same at an Evidentiary Hearing in this matter. This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

/s/ Anthony Spadaccio _____
Anthony Spadaccio
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

Dated: October 4, 2023

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket No. R-2023-3039919
	:	R-2023-3039920
v.	:	R-2023-3039921
	:	
The Pittsburgh Water & Sewer Authority	:	
1308(d) Base Rates	:	

**WITNESS VERIFICATION
THE BUREAU OF INVESTIGATION AND ENFORCEMENT**

I, Vanessa Okum, on behalf of the Bureau of Investigation and Enforcement, hereby verify that the documents preliminarily identified as:

- I&E Statement No. 2; I&E Exhibit No. 2, and
- I&E Statement No. 2-SR.

were prepared by me or under my direct supervision and control. Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same at an Evidentiary Hearing in this matter. This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

/s/*Vanessa Okum*
Vanessa Okum
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

Dated: October 4, 2023

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	Docket No. R-2023-3039919
	:	R-2023-3039920
v.	:	R-2023-3039921
	:	
The Pittsburgh Water & Sewer Authority	:	
1308(d) Base Rates	:	

**WITNESS VERIFICATION
THE BUREAU OF INVESTIGATION AND ENFORCEMENT**

I, Ethan H. Cline, on behalf of the Bureau of Investigation and Enforcement, hereby verify that the documents preliminarily identified as:

- I&E Statement No. 3; I&E Exhibit No. 3,
- Errata to I&E Statement No. 3, and
- I&E Statement No. 3-SR.

were prepared by me or under my direct supervision and control. Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same at an Evidentiary Hearing in this matter. This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

/s/ Ethan H. Cline
Ethan H. Cline
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

Dated: 10/4/2023

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:		
	:		
v.	:	Docket Nos.	R-2023-3039920
	:		R-2023-3039921
Pittsburgh Water and Sewer Authority	:		R-2023-3039919
	:		
	:		

**DIRECT TESTIMONY OF HARRY S. GELLER, ESQ.
ON BEHALF OF
PITTSBURGH UNITED'S OUR WATER TABLE**

Dated: August 9, 2023

Topics Addressed:

Rate Affordability
Rate Design
Low Income Programs

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Exhibit 1, Projected Water / Wastewater Burdens, 2024

Exhibit 2, Projected Water / Wastewater Burdens, 2025

Exhibit 3, Projected Water / Wastewater Burdens, 2026

Appendix A: Resume of Harry S. Geller

Appendix B: Cited Discovery Responses

1 **PREPARED DIRECT TESTIMONY OF HARRY S. GELLER, ESQ.**

2 **I. WITNESS BACKGROUND**

3 **Q: Please state your name, occupation, and business address.**

4 A: My name is Harry Geller. I am an attorney. I am the former Director of the Pennsylvania
5 Utility Law Project. I am currently retired, but serve as Senior Counsel to the Pennsylvania Utility
6 Law Project (PULP) and as a consultant to legal aid programs and their clients. I maintain an office
7 at 118 Locust St., Harrisburg, PA 17101.

8 **Q: Briefly outline your education and professional background.**

9 A: I received my B.A. Degree from Harpur College, State University of New York at
10 Binghamton in 1966, and a J.D. degree from Washington College of Law, American University in
11 1969. Upon graduation from law school, I entered the Volunteers in Service to America (VISTA)
12 program, where I was assigned to the New York University Law School. I took courses in the Law
13 School's Urban Affairs and Poverty Law program and worked with the Community In Action
14 Program on the West Side of Manhattan in New York City from 1969-1971. In 1971, I started as
15 a Staff Attorney for the New York City Legal Aid Society, Criminal Court and Supreme Court
16 Branches in New York County. In 1974, I moved to Pennsylvania and began working for Legal
17 Services, Incorporated (LSI). LSI was a civil legal aid program serving Adams, Cumberland,
18 Franklin and Fulton Counties. I worked at LSI from 1974-1987 first as a Staff Attorney, then as
19 Managing Attorney, and ultimately became Executive Director. Through a restructuring with other
20 legal services programs, LSI became part of what is now known as MidPenn Legal Services and
21 Franklin County Legal Services.

22 In 1988, I was hired to be the Executive Director of PULP, a statewide project dedicated
23 to the rights of low income utility customers. At PULP, I represented low income individuals with

1 utility and energy concerns, and supported organizations advocating for low income households
2 in utility and energy matters. As the Executive Director of PULP, I consulted and co-counseled on
3 a wide variety of individual utility consumer cases, and I participated in task forces, work groups
4 and advisory panels, including the Low Income Home Energy Assistance Program (LIHEAP)
5 Advisory Committee. I frequently trained community organizations, legal aid staff and advocacy
6 groups across Pennsylvania about the various utility and energy matters affecting Pennsylvania's
7 low income population. I retired from PULP on June 30, 2015. Although no longer employed by
8 PULP, I now serve as a Senior Counsel to PULP and as a consultant to legal aid programs and
9 their clients. In sum, I have over 50 years' experience with households in poverty, including over
10 30 years focusing specifically on utility and energy issues affecting low income consumers. My
11 resume is attached as Appendix A.

12 **Q: For whom are you testifying in this proceeding?**

13 A: I am testifying on behalf of Pittsburgh United's Our Water Table (hereinafter, Pittsburgh
14 United).

15 **Q: Please describe the focus of your work over the past fifty years.**

16 A: I have represented low income individuals and organizations serving low income
17 clients in a wide variety of legal matters, including family law, public benefits, unemployment
18 compensation, utility shut-offs, debtor/creditor, and housing related disputes. Over the past 32
19 years, both at PULP and in retirement, my focus has been ensuring that low income households
20 can connect to, afford, and maintain utility and energy services.

21 In all of these legal matters, I worked almost exclusively on behalf of low income
22 individuals and households. Through this work, I have become intimately familiar with the daily
23 lives of countless of our poorest citizens. I have spent thousands of hours assisting clients in

1 combing through their budgets to attempt to assist them to make ends meet. Over the years, I have
2 consistently had to address the issues which have arisen for the significant number of low income
3 families who have an inability to pay for the most basic monthly necessities on the incomes they
4 have. Almost every month, my clients faced the stark necessity of choosing which bills they could
5 forego with the least drastic consequences.

6 In addition to decades of experience working to address the daily monetary struggles facing
7 poor families, I have an extensive knowledge of the array of programs designed to allow low
8 income individuals to afford utility service. While at PULP, I was involved in hundreds of
9 proceedings evaluating the effectiveness of low income assistance program to assist low income
10 families. I have spent thousands of hours identifying issues in Universal Services and making
11 recommendations for changes to Universal Service programming to better serve low income
12 consumers. This advocacy has strongly informed my awareness of the necessity of these programs
13 as well as the recognition that successfully integrated programs for low income consumers were
14 essential to their effectiveness. I have also spent hundreds, if not thousands, of hours identifying
15 other barriers to low income consumers establishing and staying connected to affordable utility
16 services, including in the context of rate proceedings.

17 As director of PULP, I played an instrumental role in the development, oversight, and
18 monitoring of the initial pilots and then the statutorily required low income universal service
19 programs for natural gas and electric utilities, each of which is structured to provide a different
20 and complementary form of assistance to low income customers, such that those customers have
21 the ability to afford and maintain basic utility service. This includes the Customer Assistance
22 Program (CAP), the Low Income Usage Reduction Program (LIURP), and the Customer
23 Assistance, Referral, and Education Services (CARES) Program. These programs were developed

1 to address and remediate increasing unaffordability and are designed work in tandem to ensure
2 that low income households can maintain affordable utility services and safe living environments
3 while reducing utility collection costs, thereby benefitting other ratepayers.

4 Further, over the years I have advocated with utility providers and regulators to improve
5 policies and practices that create barriers for low income customers' ability to access and afford
6 utility service. This includes advocacy to improve how utilities administer universal service
7 programs, as well as advocacy to improve the ways that utilities interface with and respond to the
8 needs of all of their low income customers, including those who are not enrolled in a utility
9 Universal Service Program.

10 **Q: Have you testified in any proceeding before the Pennsylvania PUC?**

11 A: Yes. I have presented testimony in many proceedings before the PUC. A complete list is
12 included in my resume, which is attached as Appendix A.

13 **Q: What information did you rely on in preparing your testimony for this proceeding?**

14 A: In addition to publicly available information, compiled by the PUC and other sources, I
15 relied on information contained in the rate case filing of Pittsburgh Water and Sewer Authority
16 (PWSA or the Authority), other PUC proceedings involving PWSA, and information provided by
17 PWSA in response to discovery requests from Pittsburgh United and the other parties in this
18 proceeding.

19 **Q: What is the purpose of your testimony?**

20 A: Pittsburgh United intervened in this proceeding to ensure that the proposed rate increase
21 and rate design will not adversely affect PWSA's low income customers' ability to connect to,
22 maintain, and afford water, wastewater, and stormwater services, all of which are essential to life,
23 including drinking water, personal hygiene, sanitation, cooking, and even flushing a toilet.

1 **Q: How is your testimony organized?**

2 A: My testimony is divided into seven substantive sections and one section summarizing my
3 proposals and recommendations.

4 In Section I, above, I have described my background and the purpose of my testimony.

5 In Section II, I will summarize PWSA's rate request proposal and my overall position
6 related to PWSA's proposed rate increases.

7 In Section III, I will discuss the impacts of PWSA's proposed rate increases on residential
8 and, in particular, low income customers.

9 In Section IV, I will discuss PWSA's proposed changes to their rate design and structures,
10 and my recommendations related to these proposed revisions.

11 In Section V, I will discuss PWSA's low income assistance programs in detail -- including
12 PWSA's proposals to revise its BDP, AFP, and Hardship Fund Program, and my position related
13 to PWSA's proposed changes to its low income assistance programs. In this Section, I will also
14 detail several recommendations to help improve payment affordability, arrears reduction, and
15 access for PWSA's low income customers.

16 In Section VI, I will discuss PWSA's stormwater fee. In this Section, I will discuss
17 concerns related to whether low income customers can access green mitigation measures, and
18 provide recommendations to improve low income customers access to mitigation measures.

19 In Section VII, I will discuss PWSA's proposal to eliminate its current convenience fee
20 pass through for residential customers, and my concerns and recommendations related to
21 elimination of the pass through.

22 Finally, in Section VIII, I will summarize my recommendations and conclude my direct
23 testimony.

1 **II. RATE INCREASE**

2 **Q: Please summarize PWSA’s proposed residential rate increase.**

3 A: On May 9, 2023, Pittsburgh Water and Sewer Authority (PWSA) submitted a rate filing,
4 Tariff Water- PA. P.U.C. No.1, Supp. No. 12; Tariff Wastewater- PA. P.U.C. No.1, Supp. No. 11;
5 and Tariff Stormwater - PA. P.U.C. No. 3. PWSA is requesting an overall revenue increase of
6 \$146.1 million, which PWSA proposes to phase in over a three-year period. This includes a \$46.8
7 million or 22.5% increase in the FPFTY (FY 2024), \$45.4 million or 17.8% in FY 2025, and \$53.9
8 million or 17.9% in FY 2026.¹ For a residential customer using 3,000 gallons per month, the
9 customer's total bill would increase from \$86.43 to \$103.41 per month (19.6%) in 2024, from
10 \$103.41 to \$123.55 per month (19.5%) in 2025, and from \$123.55 to \$146.12 per month (18.3%)
11 in 2026.² For residential customers enrolled in the Bill Discount Program (BDP) using 3,000
12 gallons per month, a customer’s total bill would increase from \$44.15 to \$51.85 per month (17.4%)
13 in 2024, from \$51.85 to \$60.83 per month (17.3%) in 2024, and from \$60.83 to \$72.17 per month
14 (18.7%) in 2026.³ PWSA is also proposing in the context of its rate request proposal to eliminate
15 its minimum (fixed) customer charge by 2025. PWSA’s minimum (fixed) charge currently
16 includes the first 1,000 gallons of usage.⁴ I will discuss PWSA’s proposal to eliminate its minimum
17 (fixed) charge in detail below.

18 As I will discuss later in my testimony, PWSA’s proposal will substantially increase the
19 price of essential services, and will negatively impact the ability of PWSA’s customers to maintain

¹ Volume I, Statement of Reasons.

² Volume I, Notice of Proposed Rate Changes. These increases assume that the residential customer has a 5/8-inch meter and generates stormwater from one ERU.

³ Id. These increases assume a 5/8-inch meter and a reduced stormwater fee.

⁴ PWSA St. 6 at 25: 10-14.

1 service to their homes. This impact will fall disproportionately on PWSA’s low income customers,
2 who already struggle to afford basic utility services.

3 **Q: Do you support PWSA’s proposed rate increase?**

4 A: No, I do not support PWSA’s proposed rate increase, as it is neither just nor reasonable,
5 and is not in the public interest. PWSA’s current rates are already unaffordable for many PWSA
6 customers, making critical water and wastewater services inaccessible for hundreds of families in
7 PWSA’s service territory each year – in turn creating a cascade of consequences for the household
8 and the surrounding community. Further increasing rates will only exacerbate this existing
9 problem.

10 This is especially true as Pennsylvania’s consumers have struggled profoundly in recent
11 years with the impacts of the COVID-19 pandemic, and more recent economic harms as a result
12 of steep increases in inflation.⁵ Continued access to affordable water and wastewater service is
13 vital to consumers in PWSA’s service territory to staying in their homes and helping to make ends
14 meet. This is made more critical in light of the current economic pressures that have fallen hard
15 on vulnerable consumers – especially low income consumers and communities of color who face
16 disproportionate water and wastewater burden levels and associated rates of payment trouble and
17 termination.

18 As a foundational principle, I do not believe that rates are just and reasonable if they are
19 not reasonably affordable to those seeking service, such that all Pennsylvanians – regardless of
20 income – can maintain safe and affordable water and wastewater to their homes. As I will discuss,

⁵ Paul Davidson, [Inflation is battering lower-income households most as food, housing costs soar. Fed study says](https://www.usatoday.com/story/money/2023/01/18/inflation-hurts-lower-income-households-food-housing-costs-rise/11074945002/), USA Today (Jan. 18, 2023), available at: <https://www.usatoday.com/story/money/2023/01/18/inflation-hurts-lower-income-households-food-housing-costs-rise/11074945002/>. Rachel Siegel and Andrew Van Dam, ‘[Survival mode](https://www.washingtonpost.com/business/2022/02/13/low-income-high-inflation-inequality/)’: [Inflation falls hardest on low-income Americans](https://www.washingtonpost.com/business/2022/02/13/low-income-high-inflation-inequality/) (Feb. 13, 2022), available at: <https://www.washingtonpost.com/business/2022/02/13/low-income-high-inflation-inequality/>.

1 the data shows quite clearly that low income families are unable to afford to maintain service to
2 their home at current rates, and any further rate increase will serve to exacerbate levels of existing
3 rate unaffordability. While PWSA's Bill Discount Program (BDP) provides critical assistance to
4 the poorest households, additional improvements are necessary to ensure that PWSA's low income
5 customers are able to maintain affordable services in light of the substantial, multi-year rate
6 increase proposed by PWSA. I believe it would be both unjust and unreasonable to approve any
7 rate increase at this time, absent additional mitigation measures to address existing rate
8 unaffordability and to fully remediate compounded unaffordability created by PWSA's proposal
9 to substantially increase rates.

10 Throughout my testimony, I provide a number of recommendations for how PWSA can
11 structure its services so that low income customers in its service territory are better able to maintain
12 access to water, wastewater, and stormwater services to their homes. These recommendations are
13 critical to address rate affordability and service access issues regardless of whether rates increase,
14 but it is even more vital to mitigate additional financial harm for economically vulnerable
15 consumers if the Commission allows PWSA to increase its rates.

16 **III. RATE IMPACT ON LOW INCOME HOUSEHOLDS**

17 **Q: How many customers in PWSA's service territory are considered low income?**

18 A: That is a difficult question to answer with specificity, especially in light of the last several
19 years in which the pandemic and financial pressures fell disproportionately on low income
20 families. However, there are a number of metrics to assess poverty levels in PWSA's service
21 territory.

1 Pennsylvania’s large public utilities track and classify their low income customer
2 populations in two ways – estimated low income customers and confirmed low income.⁶ As
3 discussed in greater detail below, a household must have income at or below 150% of the federal
4 poverty level (FPL) to be considered low income. For context, a family of four with household
5 income at or below 150% FPL has a maximum gross annual income of \$56,250 – or \$4,687.50 per
6 month – while a family of four with income at or below 50% FPL has a maximum gross annual
7 income of just \$18,750.⁷

8 When asked through discovery to identify its “estimated low income customer count,”
9 PWSA indicated that it continues to operate under the assumption that approximately 20,000
10 customers are eligible for assistance programs, consistent with its 2019 Household Affordability
11 Analysis.⁸ However, as noted, a series of unprecedented economic pressures have occurred in the
12 intervening years since the Household Affordability Analysis was conducted. These increased
13 economic pressures likely mean additional need within PWSA’s service territory, and additional
14 households who are likely eligible for PWSA’s assistance programs. Further, this estimated low
15 income count is lower than that provided in PWSA’s last rate proceeding, in which PWSA
16 estimated that more than 27% -- 26,681 out of 97,619 – of its residential customers were low
17 income.⁹

⁶ See Pa. PUC, BCS, 2019 Report on Universal Service Programs & Collections Performance, at 2,4 (Sep. 2020) (herein 2019 Universal Service Report).

⁷ See US Dept. of Health & Human Services, HHS Poverty Guidelines for 2023, available at: <https://aspe.hhs.gov/sites/default/files/documents/1c92a9207f3ed5915ca020d58fe77696/detailed-guidelines-2023.pdf>.

⁸ United I-7.

⁹ Pa. PUC v. PWSA, Pittsburgh United Statement 1, Docket Nos. R-2021-3024773, R-2021-3024774, R-2021-30247792021, at 11 (Pittsburgh United St. 1 dated July 8, 2021). (hereinafter, 2021 PWSA Rate Case).

1 PWSA also tracks “confirmed low income customers.” PWSA only began tracking
2 confirmed low income customers when its PGH2O Cares Team was formed in March 2021.¹⁰
3 PWSA indicates that it defines “confirmed low income customers” as any customer identified as
4 having income at or below 150% FPL.¹¹ PWSA identifies confirmed low income customers when
5 the customer (1) enrolls in the BDP; (2) establishes a 60-month payment arrangement; (3) qualifies
6 for any customer assistance program or grant, and/or (4) is experiencing any other circumstances
7 which make it “reasonably likely that the customer is low income.”¹² Further, in response to
8 discovery asking for the number of PWSA’s confirmed low income customers, PWSA referred to
9 its count for BDP enrolled customers.¹³ Based on PWSA referred data – which contradicts
10 PWSA’s own indication of the types of customers included in their confirmed low income
11 customer count – PWSA confirmed low income customers equal 4,751 as of June 2023.¹⁴ These
12 figures are extremely limited and do not provide an accurate assessment of PWSA’s low income
13 population – even outside of BDP participation.

14 For the purpose of evaluating the affordability of PWSA’s rates, the affordability of its low
15 income program participation, and the effectiveness of its outreach, it is more accurate to utilize
16 the estimated low income customer counts. Regardless of the measure, there are a substantial
17 number of low income customers in PWSA’s service territory who need to be considered in any
18 decision regarding just, reasonable, and affordable rates.

¹⁰ Id.

¹¹ United I-5.

¹² Id.

¹³ United I-3.

¹⁴ United I-9, Attachment.

1 **Q: How much income must a household earn each month to be considered low income?**

2 A: Generally, the Commission considers “low income” customers to be any customers whose
3 income is at or below 150% of the federal poverty level (FPL) assistance.

4 The FPL is the measure of poverty based exclusively on the size of the household, but not
5 on the composition of the household (i.e. whether the household consists of adults or children) or
6 household’s geography. Table 1 shows household income, by FPL and household size:

7 **Table 1: Percentages of Federal Poverty Levels by Household Size and Income¹⁵**

Household Size	25%	50%	75%	100%	125%	150%	200%	250%	300%
1	\$4,553	\$9,105	\$13,658	\$18,210	\$22,763	\$27,315	\$36,420	\$45,525	\$54,630
2	\$6,160	\$12,320	\$18,480	\$24,640	\$30,800	\$36,960	\$49,280	\$61,600	\$73,920
3	\$7,768	\$15,535	\$23,303	\$31,070	\$38,838	\$46,605	\$62,140	\$77,675	\$93,210
4	\$9,375	\$18,750	\$28,125	\$37,500	\$46,875	\$56,250	\$75,000	\$93,750	\$112,500

8
9 For comparison, a full time (40 hours/ week) worker making a minimum wage (\$7.25 per
10 hour) has a gross annual income of \$15,080, assuming no time off. This is substantially less than
11 a household needs to meet their basic expenses in any of the counties that the Authority serves.¹⁶

12 A benchmark often used to assess how much income a household needs to live without
13 assistance in Pennsylvania is called the Self-Sufficiency Standard. This is a tool that measures the
14 income that a family must earn to meet their basic needs and consists of the combined cost of six
15 (6) basic needs – housing, child care, food, health care, transportation, and taxes – without the help
16 of public subsidies.¹⁷ Unlike the federal poverty level, which does not change based on geographic
17 location or family composition, the Self Sufficiency Standard accounts for the varied costs of the

¹⁵ Id.

¹⁶ Self Sufficiency Standard, available at: <http://www.selfsufficiencystandard.org/Pennsylvania>.

¹⁷ See PathWays PA, Overlooked and Undercounted 2019 Brief: Struggling to Make Ends Meet in Pennsylvania, available at: <http://www.selfsufficiencystandard.org/Pennsylvania>.

1 six basic needs in different geographic areas and for differently aged household members.¹⁸ For
2 reference, the average Self Sufficiency Standard in Allegheny County for a family of four with
3 two adults and two school aged children is approximately \$80,484 a year, approximately \$40,734
4 more than a 4-person household with income at 150% FPL makes in a given year.¹⁹

5 **Q: How would PWSA’s proposed rate increase impact low income households?**

6 A: Low income households are struggling to stabilize following profound economic hardship
7 associated with high inflation following the pandemic, especially in low income communities of
8 color.²⁰ Even in relatively good economic times, low income families struggle to make ends meet
9 each month and are often forced to make untenable choices between affording utility services and
10 other basic necessities – such as food, medicine, and housing. Any increases to the cost of essential
11 services, like water and wastewater, will severely impact low income households’ ability to afford
12 and, in turn, maintain these critical life necessities.

13 PWSA’s proposal represents a substantial increase in basic living expenses for low income
14 households -- especially as PWSA’s proposed increase is just one in a series of recent rate increases
15 borne by PWSA’s customers since 2016, the most recent of which was just recently approved by
16 the Commission in late 2021. As shown by the Table below PWSA’s residential customers will
17 see steep increases in their monthly bills between 2023 and 2026 under PWSA’s proposal:

¹⁸ See PathWays PA, Overlooked and Undercounted, How the Great Recession Impacted Household Self-Sufficiency in Pennsylvania, available at: <http://www.selfsufficiencystandard.org/sites/default/files/selfsuff/docs/PA2012.pdf>.

¹⁹ See PathWays PA, 2021 Self Sufficiency Standard Table, by County, available at: <http://www.selfsufficiencystandard.org/pennsylvania>.

²⁰ Nancy Marshall-Genzer, For Black and Latino families, inflation can hit even harder, MarketPlace (Jan. 18, 2023), available at: <https://www.marketplace.org/2023/01/18/for-black-and-latino-families-inflation-can-hit-even-harder/>. Harvard T.H. Chan School of Public Health, Poll: High U.S. inflation rates are having a more serious impact on Black Americans than white Americans, available at: <https://www.hsph.harvard.edu/news/press-releases/poll-high-u-s-inflation-rates-are-having-a-more-serious-impact-on-black-americans-than-white-americans/>.

1 **Table 2: Rate Impact – Residential Customers (Reproduced from PWSA St. 6 at 24)**

Customer Type	Monthly Bill	2023	2024	2025	2026
Residential	5/8” Meter;	\$86.43	\$103.41	\$123.55	\$146.11
Impact (%)	3 Kgal;		19.6%	19.5%	18.3%
Impact (\$)	1 ERU		\$16.98	\$20.14	\$22.56

2 As the Table above describes, from 2023 to 2026, PWSA residential customers using 3,000
 3 gallons/month will see an increase from approximately \$86.43 in 2023 to \$146.11 by 2026 – or a
 4 total percent increase of more than 69%.

5 Low income customers will be especially burdened by PWSA’s proposed rate increase. A
 6 water and wastewater “burden” is defined as the percentage of income a household pays towards
 7 its water costs.²¹ While there is no statutory or regulatory standard for water and wastewater
 8 affordability in Pennsylvania, currently evolving consensus is that – to be considered affordable –
 9 the combined cost for water and wastewater service should not exceed 2.5-4% of household
 10 income.²²

11 Pittsburgh United Exhibits 1, Exhibit 2, and Exhibit 3, attached to my testimony, show the
 12 relative water and wastewater burden – inclusive of the stormwater fee – for 2, 3, and 4-person
 13 households at 50%, 100%, 150%, and 200% FPL.²³ As these Exhibits show, both current and

²¹ Nina Lakhani and Juweek Adolphe, Key findings: the Guardian's water poverty investigation in 12 US cities, the Guardian (June 26, 2020), available at: <https://www.theguardian.com/us-news/2020/jun/26/running-drinking-water-poverty-us-cities>; Roger Colton, The Affordability of Water and Wastewater Service in Twelve US Cities, The Guardian (May 2020), available at: <https://www.theguardian.com/environment/2020/jun/23/full-report-read-in-depth-water-poverty-investigation>.

²² See, e.g., US Water Alliance, The Invisible Crisis: Water Affordability in the United States, at 33 (May 2016), available at: [Invisible Crisis - Water Affordability in the US.pdf \(uswateralliance.org\)](https://www.uswateralliance.org/wp-content/uploads/2016/05/Invisible-Crisis-Water-Affordability-in-the-US.pdf); NAACP Legal Defense and Educational Fund, Inc., Water/Color: A Study of Race & The Water Affordability Crisis in America’s Cities (2019), available at: https://www.naacpldf.org/wp-content/uploads/Water_Report_FULL_5_31_19_FINAL_OPT.pdf; Roger Colton, The Affordability of Water and Wastewater Service in Twelve US Cities, The Guardian (May 2020), available at: <https://www.theguardian.com/environment/2020/jun/23/full-report-read-in-depth-water-poverty-investigation>.

²³ See Pittsburgh United Exhibits 1, 2, and 3.

1 proposed rates exceed accepted levels of affordability for many low income households. , most
 2 especially for the lowest income households. In particular, low income customers who are not
 3 enrolled in the BDP will see combined burden levels as high as 22% (assuming a Tier 3 stormwater
 4 rate, at 5,000 gallons/month, and at 50% FPL). As I will discuss below, while enrollment in
 5 PWSA’s BDP substantially improves affordability for many low income households, many
 6 customers have not been able to enroll in the BDP – and thus must face the full force of any rate
 7 increases that is approved.

8 **Q: You mentioned that PWSA’s rates have increased substantially in recent years. How**
 9 **much have PWSA’s rates already increased?**

10 A: Over the last five years, since 2016, PWSA’s rates have increased exponentially – ranging
 11 from 93% to 102% for residential households using between 2,000 and 5,000 gallons of water a
 12 month, respectively.

13 **Table 3: Residential Rates, 2016 vs. Current²⁴**

Residential Water/WW Service	2016	Current	% Increase Since 2016 (Current)	Proposed (2026)	% Increase Since 2016 (Proposed - 2026)
Total Bill (2,000 G)	\$30.25	\$58.27	93%	\$65.42	116%
Total Bill (3,000 G)	\$39.90	\$78.72	97%	\$96.60	142%
Total Bill (4,000 G)	\$49.55	\$99.17	100%	\$127.77	127%
Total Bill (5,000 G)	\$59.20	\$119.62	102%	\$158.95	168%

14
 15 The increases described in this Table represent fast-paced and aggressive increases in basic
 16 costs of water/wastewater services over a short period of years.

²⁴ See PWSA Notice of Rate Change (2016), available at: http://apps.pittsburghpa.gov/pwsa/Rate_Brochure-2016.pdf.

1 **Q: Is there other evidence that PWSA’s low income customers already struggle to afford**
2 **water and wastewater services – even before any rate increase is approved?**

3 A: Yes. There are strong indicators that service is already unaffordable for a significant
4 number of PWSA’s residential customer base.

5 As of May 2023, residential customers were carrying, on average, approximately \$1,041
6 in arrears.²⁵ Low income customers carry a disproportionate level of arrears by comparison. As
7 of June 2023, PWSA had 4,751 customers enrolled in the BDP.²⁶ These customers carry
8 approximately \$1,322.27 in arrears – far higher than the average arrears carried by residential
9 customers as a whole.²⁷

10 Despite Program enrollment, BDP participants also represent a significant portion of
11 residential customers in payment plans. For example, between August 2022 and June 2023, PWSA
12 reported the number of payment plans for BDP customers as 2,548 – representing approximately
13 45% of all residential payment plans over that period (or 2,548 out of 5,657 residential payment
14 plans).²⁸ These numbers underscore that, despite enrollment in the BDP, low income customers
15 continue to struggle to keep up with their monthly bills at present rates. Further, customers being
16 enrolled in the BDP while also having to maintain a payment plan undercuts any affordability
17 provided by BDP discounts, and increases the overall water/wastewater burden borne by low
18 income PWSA customers.

²⁵ United I-25, Attachment.

²⁶ United I-9, Attachment.

²⁷ United I-25, Attachment.

²⁸ United I-34, Attachment.

1 **Q: How would PWSA’s proposed rate increase impact vulnerable households?**

2 A: The substantial rate increase proposed by PWSA is likely to cause increased terminations
3 of economically vulnerable consumers or, in the alternative, will cause economically vulnerable
4 households to go without other critical life necessities such as food, medicine, childcare, and other
5 essential services to afford water, wastewater, and stormwater services.

6 Water terminations pose a serious threat to public health and human dignity. Without
7 access to running water, families are unable to cook, bathe, clean, or flush the toilet.²⁹ Access to
8 water service is tied directly to the health and well-being of the household, and the habitability of
9 the home.³⁰ Water terminations are akin to eviction from a home, as the home may be deemed
10 uninhabitable or even condemned following termination of water service, forcing families to
11 vacate with little to no notice.³¹ Termination of service to the home can also jeopardize a parent’s
12 custody of their children, can result in the loss of housing assistance, and is often cited as a catalyst
13 for homelessness.³² Even before COVID-19 and recent historically high levels of inflation,
14 approximately one-third of households experienced income volatility.³³ Analysis of material
15 hardship for low and moderate income consumers experiencing income volatility found much

²⁹ Water/Color Report at 28.

³⁰ Id.

³¹ Coty Montag, Water/Color: A Study of Race and the Water Affordability Crisis in America’s Cities, NAACP Legal Defense and Educational Fund, Inc, May 2019, at p. 28, (hereinafter “Water/Color Report”) available at: https://www.naacpldf.org/wp-content/uploads/Water_Report_FULL_5_31_19_FINAL_OPT.pdf

³² See Joint State Government Commission, General Assembly of the Commonwealth of Pennsylvania, Homelessness in Pennsylvania: Causes, Impacts, and Solutions: A Task Force and Advisory Committee Report (2016), available at: <http://jsg.legis.state.pa.us/resources/documents/ftp/documents/HR550%201%20page%20summary%204-6-2016.pdf>.

³³ Daniel Schneider and Kristen Harknett, Income Volatility in the Service Sector: Contours, Causes and Consequences (July 2017) at p.3, available at: <http://www.aspenepic.org/epic-issues/income-volatility/issue-briefs-what-we-know/issue-brief-income-volatility-service-sector/>; Board of Governors of the Federal Reserve, Report on the Economic Well-Being of U.S. Households in 2018 (May 2019) at p.2, (hereinafter “Income Volatility in the Service Sector”), available at: <https://www.federalreserve.gov/consumerscommunities/files/2018-report-economic-well-being-us-households-201905.pdf>.

1 higher rates of inability to afford bills, medical care, housing payments and food,³⁴ and a higher
2 likelihood to resort to expensive payday loans to pay for basic living expenses.³⁵ At PWSA's
3 current rates, many families already must make difficult choices of paying for utility services and
4 other basic necessities – raising rates for such consumers will make their ability to afford such
5 necessities more difficult.

6 **Q: Are low income customers enrolled in the BDP protected from the financial impact**
7 **of the proposed rate increase?**

8 A: To an extent, yes. PWSA's BDP will reduce (though not eliminate) the financial impact
9 of PWSA's rate increase proposal for BDP participants. As discussed below, the effectiveness of
10 PWSA's BDP at offsetting the impact of an approved rate increase is dependent on approval of
11 PWSA's proposed reforms to the structure of its BDP and, in turn, on the ability of low income
12 households to enroll. As it stands, PWSA's BDP enrollment remains very low. Low income
13 customers that are not enrolled in the BDP will shoulder severe financial burdens as a result of
14 PWSA's proposed rate increases.

³⁴ Stephen Roll, David S. Mitchell, Krista Holub et al., Responses to and Repercussions from Income Volatility in Low- and Moderate-Income Households: Results from a National Survey, Aspen Institute EPIC, Center for Social Development, Intuit Tax & Financial Center (Dec. 2-17) at pp 6-7, available at: <https://www.aspeninstitute.org/publications/responses-repercussions-income-volatility-low-moderate-income-households-results-national-survey/>.

³⁵ Income Volatility in the Service Sector at p. 9 (almost a quarter of consumers reporting week-to-week volatility report using payday lenders).

1 **IV. RATE DESIGN**

2 **Q: Please describe PWSA’s current rate structure for residential customers.**

3 A: PWSA’s current rate structure for water and wastewater services consists of a monthly
4 minimum (fixed) charge that varies by meter size and a volumetric charge that varies by customer
5 class.³⁶ PWSA’s minimum (fixed) charge includes the first 1,000 gallons of usage.³⁷ The minimum
6 (fixed) charge has been part of PWSA’s rate structure since coming under the jurisdiction of the
7 Pennsylvania Utility Commission (Commission).³⁸

8 PWSA introduced a stormwater fee that was approved by the Commission pursuant to
9 PWSA’s 2021 rate proceeding. PWSA’s stormwater fee is based on the amount of impervious area
10 on a property.³⁹ For residential customers, the stormwater fee is designed as a three-tiered rate
11 structure.⁴⁰ PWSA Expert Witness Keith Reading describes the fee structure as follows:

12 Of the tiering structures considered, PWSA decided on a structure in which the
13 middle tier contains 70% of all the SFR properties, making it by far the largest
14 group. Properties with less than 1,015 square feet of impervious area are considered
15 the low tier and are billed for the median amount of impervious area found on
16 parcels in that tier, which is about 830 square feet of impervious area, or 0.5 ERUs.
17 Properties in the middle tier are billed for 1 ERU. Those properties with 2,710
18 square feet or more of impervious area fall into the high tier and are billed for the
19 median amount of impervious area found on parcels in that tier, which is about
20 3,355 square feet of impervious area, or 2 ERUs.⁴¹

³⁶ PWSA St. 6 at 25: 10-14.

³⁷ Id.

³⁸ Id.

³⁹ PWSA St. 8 at 10: 16-22.

⁴⁰ Id.

⁴¹ PWSA St. 8 at 11.

1 A property is not charged a stormwater fee if the impervious area on the property is less
2 than 400 square feet.⁴² PWSA is not proposing any changes to the current rate structure for its
3 stormwater fees within the context of this proceeding.⁴³

4 **Q: Does PWSA propose to make any changes to its rate structure in its rate filing?**

5 A: Yes. PWSA is proposing in this proceeding to transition away from use of a minimum
6 (fixed) charge. In PWSA’s most recent rate case settlement, PWSA agreed to “provide a plan to
7 transition away from use of minimum usage allowance” within this filing.⁴⁴

8 PWSA is proposing to make this transition in 2025 – year two of its proposed multiyear
9 rate increase.⁴⁵ PWSA Expert Witness Julie Mechling indicates that transitioning within year two
10 will give PWSA sufficient time to prepare for the impacts of eliminating the minimum (fixed)
11 charge on customer billing and various other aspects of PWSA’s operations and developmental
12 work.⁴⁶

13 PWSA is also proposing to implement two new reconcilable surcharges: (1) an
14 Infrastructure Improvement Charge (IIC); and (2) a Customer Assistance Charge (CAC).⁴⁷ As
15 reasoning for the IIC, Witness Mechling explains that PWSA has significant infrastructure projects
16 which take advantage of favorable government-based funding and loan programs.⁴⁸ PWSA is
17 proposing the IIC to recover principal and interest obligations for loans received from PENNVEST

⁴² PWSA St. 8 at 15: 1-7.

⁴³ Id. at 10: 16-22.

⁴⁴ PWSA St. 6 at 25-26, citing Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority, Docket Nos. R-2021-3024773 (water), R-2021-3024774 (wastewater), and R-2021-3024779 (stormwater), Final Order entered November 18, 2021. (adopting Settlement Section B.3.a).

⁴⁵ PWSA St. 6 at 26: 7-22.

⁴⁶ Id.

⁴⁷ Id. at 27: 1-12.

⁴⁸ PWSA St. 6 at 27: 15-22.

1 and the Water Infrastructure Finance and Innovation Act (WIFIA).⁴⁹ As reasoning for the CAC,
2 Witness Mechling explains that PWSA has worked towards expanding eligibility and enrollment
3 in its low income assistance programs, and asserts that its likely cost projections for these programs
4 will be different than actual costs as result of these efforts.⁵⁰

5 PWSA proposes to apply the CAC to all customer classes and adjust bills to reflect actual
6 program costs. Recovery within the CAC would include discounts under the BDP, operating costs
7 of the PGH20 Cares Team, the costs of Hardship Grant funding, and arrearage forgiveness.⁵¹
8 Witness Mechling argues that implementation of the CAC to reconcile these charges will allow
9 PWSA customers to only pay for actual incurred costs, prevent PWSA from having to rely on cost
10 projections, and lessen the need to implement rate filings in order to recover covered costs.⁵²
11 Witness Mechling further argues that implementation of a CAC will ensure that funding is
12 available for PWSA’s proposed Line Repair and Conversation Program – particularly as PWSA
13 agreed to not seek future base rate recovery related to costs of the LRC pilot.⁵³ PWSA is not
14 proposing to include the CAC and IIC as delineated charges on customer bills, but will instead
15 provide the “all-in” rate.⁵⁴

⁴⁹ Id.

⁵⁰ PWSA St. 6 at 27-28.

⁵¹ Id. at 28: 1-17.

⁵² Id. at 30: 5-16.

⁵³ Id. at 31. Petition of The Pittsburgh Water and Sewer Authority for Pilot Private Service Line Leak Repair and Expanded Conservation Program for Eligible Low Income Customers and Authorization to Track Costs As a Regulatory Asset for Future Base Rate Recovery, Docket No. P-2022-3030253, Final Order adopting Recommended Decision entered March 2, 2023. (Approving Line Repair Settlement at 9, B.2.)

⁵⁴ PWSA St. 6 at 31-32.

1 **Q: Do you support PWSA's proposed rate design?**

2 A: Yes and no. In PWSA's last rate proceeding, I recommended that PWSA remove its
3 minimum usage from the fixed residential customer charge but cautioned that it would have a
4 negative impact on the structure of PWSA's current BDP.⁵⁵ I continue to support elimination of
5 the minimum usage charge from PWSA's fixed customer charge, as it can help improve bill clarity,
6 increase transparency, and promote conservation. However, as noted, elimination of the minimum
7 usage charge from PWSA's fixed customer charge will adversely and severely impact the
8 discounts that low income customers receive through PWSA's BDP, as the program is currently
9 designed. If PWSA eliminates its minimum usage charge without overhauling its BDP,
10 participants with income between 51-150% FPL would not receive any rate discount, and BDP
11 enrollees at or below 50% FPL would only receive a 50% discount on volumetric usage. This
12 would eviscerate the purpose of the BDP to provide affordable monthly bills or low income
13 customers, and jeopardize BDP enrollees ability to afford and stay connected to life-sustaining
14 services. Thus, any support of PWSA's proposal to eliminate its minimum usage charge from its
15 fixed customer charge is contingent on PWSA restructuring its BDP in a manner to provide
16 meaningful discounted rates to low-income participants.

⁵⁵ 2021 PWSA Rate Case, Pittsburgh United St. 1 at 23.

1 **V. LOW INCOME ASSISTANCE PROGRAMS**

2 **Q: Please describe PWSA’s low income assistance programs.**

3 A: PWSA operates the following low income programs:⁵⁶

- 4 • *The Bill Discount Program (BDP).* BDP provides a 100% discount on the
5 water/wastewater minimum charge for customers with household income at or below 150%
6 FPL. Customers with income at or below 50% FPL also receive a 50% discount on the
7 volumetric charge.⁵⁷ The BDP also provides an 85% reduction on stormwater charges.
8
- 9 • *The Arrearage Forgiveness Program (AFP).* AFP is available only to BDP customers and
10 provides a \$30 credit towards BDP customers’ arrears for every on-time, in full payment
11 while enrolled in the program.⁵⁸ In order to qualify for AFP credits, customers must also
12 be on an active payment plan.⁵⁹ AFP was approved as part of the Joint Settlement in
13 PWSA’s last rate case, though some of the details of the program were subsequently
14 developed by PWSA without additional Commission review or approval.⁶⁰
15
- 16 • *The Hardship Fund Program.* The Hardship Fund Program provides emergency grant
17 assistance of up to \$300 for households with income at or below 150% FPL who are facing
18 a hardship. Grants are now also available for PWSA’s sewage-only customers for past due
19 wastewater charges. No sincere effort payment is required to receive a grant.⁶¹
20
- 21 • *Winter Shut Off Moratorium.* The Winter Shut Off Moratorium protects low income and
22 moderate income households at or below 300% FPL from termination in the winter months

⁵⁶ PWSA St. 6 at 34-35.

⁵⁷ Id.

⁵⁸ Id.

⁵⁹ Id.

⁶⁰ Joint Petition for Settlement at 11.

⁶¹ PWSA St. 6 at 34-35.

1 from December 1 through March 31. Between December 31, 2022 and April 1, 2023, 6,531
2 PWSA customers were protected from termination by its Winter Moratorium Program.⁶²
3

- 4 • *Lead Service Line Replacement (LSLR) Reimbursement Program.* In this income-based
5 reimbursement program, eligible low income customers can obtain assistance to hire a
6 private contractor to replace their private side lead service line. The program became
7 available in January 2019.⁶³ PWSA notes that it provides several lead remediation services
8 for low income customers, including providing point-of-use filtering pitchers and filters.⁶⁴
9 While I am generally supportive of PWSA's LSLR programs, I will not specifically address
10 these programs further in my testimony. Nevertheless, I will address overall concerns and
11 recommendations related to PWSA's low income assistance programs, which should be
12 read as inclusive of the LSLR Program; and I reserve the right to provide further comment
13 on this program and/or make recommendations in response to other parties' testimony.

14 **Q: Do you have any overall concerns about PWSA's low income programs?**

15 A: Yes. I am concerned that PWSA's low income assistance programs remain woefully
16 undersubscribed - reaching just a fraction of PWSA's 20,000 estimated low income customers.⁶⁵
17 By comparison, only 4,751 customers were enrolled in the BDP as of June 2023⁶⁶ - just 24% of
18 PWSA's estimated low income population. Further, PWSA reports that, in 2022, 340 customers
19 received a Hardship Fund grant, and between January and June 2023, 295 customers received a
20 Hardship Fund grant.⁶⁷ By comparison, PWSA reported 2,548 BDP customers in payment plans
21 between August 2022 and June 2023.⁶⁸

⁶² United II-19.

⁶³ *Id.* at 23: 20-25.

⁶⁴ United IV-10.

⁶⁵ United I-7.

⁶⁶ United I-9, Attachment.

⁶⁷ United II-3, Attachment.

⁶⁸ United I-34, Attachment.

1 PWSA indicates that, in 2022, it conducted a customer survey of 430 customers. This
2 survey was aimed at gauging overall customer satisfaction and perception of PWSA, measure
3 awareness of programs/services, and understand customers' preferred methods of
4 communication.⁶⁹ Of survey respondents, nearly half (44%) said that they were not at all familiar
5 with PWSA's Customer Assistance Programs, and one-quarter (25.8%) indicated that they were
6 only somewhat familiar.⁷⁰ In other words, nearly 70% of survey respondents were either not
7 familiar or only somewhat familiar with PWSA's programs, underscoring the need for further
8 systematic outreach to enroll customers in low income assistance programs. I note that we do not
9 know what percentage of survey respondents who indicate they were unaware of assistance
10 programs are low income customers, as PWSA did not collect income information from survey
11 respondents.⁷¹

12 In her testimony, Witness Mechling explains how PWSA expanded certain outreach efforts
13 in 2022.⁷² Specifically, Witness Mechling describes how the PGH2O Cares Team reached their
14 goal of targeting 6,000 enrollees to increase enrollment in low income assistance programs by 20%
15 in 2022.⁷³ She further describes how PWSA expanded its Cares Team and made 4,201 more calls
16 in 2022 compared to 2021 to educate and enroll customers in assistance programs.⁷⁴ PWSA
17 indicates that it promotes its low income assistance programs in a variety of ways, including
18 through its website, outreach events, printed materials including flyers, press releases and bill

⁶⁹ PWSA St. 6 at 20: 9-21.

⁷⁰ Id. at 21-22.

⁷¹ United III-6.

⁷² PWSA St. 6 at 36.

⁷³ Id.

⁷⁴ Id.

1 graphics.⁷⁵ The PGH2O Cares Team has also canvassed several census tract areas based on its
2 2019 Household Affordability Analysis, and left doorhangers when contact is not achieved.⁷⁶

3 I commend the PGH2O's concerted efforts to increase education about and enrollment in
4 PWSA's low income assistance program. However, despite these notable efforts, I am concerned
5 that PWSA's low income assistance programs nevertheless remain undersubscribed. The test of
6 success must not rest just on effort but on measurable results. PWSA and its PGH2O Cares Team
7 must continue and expand outreach and education efforts to ensure that low income customers in
8 need of assistance both at present and proposed rates are able to enroll in low income assistance
9 programs.

10 **Q: Do you have any overall recommendations to improve PWSA's low income assistance**
11 **programs?**

12 A: Yes. As discussed, the PGH2O Cares Team has made important efforts to conduct
13 outreach and education related to PWSA's low income assistance programs. However, to address
14 the low enrollment rates of PWSA's assistance programs, I believe that more systematic
15 approaches are needed to augment the efforts of the PGH2O Cares Team so increased numbers of
16 customers can enroll in needed assistance.

17 As an overarching matter, I recommend that the Commission require PWSA to develop
18 and submit a comprehensive Universal Service Plan for periodic Commission review and approval.
19 Currently, as a water/wastewater utility, PWSA is not required to submit periodic plans related to
20 their low income assistance programming for Commission review and approval. This leaves a
21 substantial gap for consumers and utility advocates, who must rely on PWSA's tariffs and the

⁷⁵ United II-11, 12.

⁷⁶ United II-17.

1 information that can be pieced together from PWSA’s website to determine important program
2 rules, polices, and procedures for PWSA’s low income assistance programs. This engenders
3 consumer confusion and hampers consumers ability to learn about and ultimately enroll in
4 assistance. I therefore recommend that PWSA be required to file a Universal Service Plan and an
5 accompanying Petition for Commission review and approval within one year of the final Order in
6 this case, and every five years thereafter, in line with the requirements of regulated EDCs and
7 NGDCs in the Commonwealth.

8 I similarly recommend that PWSA be directed to develop a detailed consumer education
9 and outreach plan for inclusion in the Universal Service Plan I recommend above. The continued
10 undersubscription of PWSA’s low income assistance programs, as described, evidences a need for
11 an even more coordinated and comprehensive approach to consumer outreach and education
12 related to PWSA’s low income assistance programs. PWSA’s comprehensive consumer education
13 and outreach plan should be developed with input from parties and stakeholders through PWSA’s
14 LIAAC and should set forth how PWSA will specifically promote and coordinate each of its low
15 income programs. This Plan should be tailored to the demographics of PWSA’s service territory;
16 should include how PWSA will perform targeted outreach to specific at-need consumers and
17 communities – including consumers who have historically faced pervasive unaffordability and
18 barriers to accessing and maintaining utility services, including customers with Limited English
19 Proficiency; and should specifically identify efforts to educate and enroll customers at or below
20 50% FPL in assistance programming.

21 It is also important that PWSA have an accurate and timely count of its low income
22 customers. As discussed, PWSA’s current estimated low income customer count is based on a
23 Household Affordability Analysis conducted in 2019. Additionally, PWSA has not conducted any

1 formal or informal needs assessment of its low income assistance programs since January 2020.⁷⁷
2 This is insufficient, as it fails to account for the additional economic pressures that low income
3 consumers have faced since 2019. These recent economic pressures likely mean that increased
4 number of customers may be classified as low income and are in need of assistance. I therefore
5 recommend that PWSA be required to update its estimated low income customer count and, in
6 turn, its formal needs assessment within one year of the final order in this proceeding.

7 I also recommend that PWSA begin screening all new and moving customers for income
8 level and eligibility for assistance at the time their service is established. When a customer
9 indicates that they are struggling financially or entering into a payment arrangement, PWSA
10 indicates that its Customer Service Representatives (CSRs) briefly describe PWSA's customer
11 assistance programs and ask the customer if they would like to be transferred to the PGH2O Cares
12 Team.⁷⁸ While I am encouraged that customers who affirmatively disclose their financial
13 circumstances are referred for assistance, more systematic approaches must be taken so that
14 customers who may be eligible for these programs can be identified. Thus, I recommend that
15 PWSA implement regular screening for low income status of all new or moving customers, so that
16 low income customers are more routinely identified so that they may enroll in available assistance
17 programming.

18 For existing customers, PWSA should routinely screen for income on any non-emergency
19 calls, and/or should inquire whether there has been updates to any income information already
20 noted on accounts. Customers should be able to opt out of disclosing their income if they so choose,
21 but should first be informed that they may eligible for a lower rate, debt forgiveness, or energy

⁷⁷ United II-1.

⁷⁸ United III-2, Attachment.

1 efficiency measures. When establishing an account, all applicants for new service should be
2 informed of the availability of low income assistance programming and requested to voluntarily
3 self-disclose any changes to income information. All customers identified as low income through
4 this process should be referred for enrollment in PWSA’s low income assistance programs.

5 I similarly recommend that PWSA develop call scripting and checklists for its Customer
6 Service Representatives (CSRs) to assist in screening customers for eligibility in its low income
7 assistance programs, in line with my above recommendation. In response to previous settlement
8 commitments, PWSA recently undertook certain additional training for its CSRs related to
9 “common customer concerns” including issues when assisting customers with higher than usual
10 bills due to high consumption.⁷⁹ While PWSA developed call scripts and checklists related to how
11 customers assess and respond to high usage issues, there is no indication whether PWSA has
12 developed similar call scripts and checklists for its CSRs to prompt customers to enroll in
13 assistance programs.⁸⁰ Developing call scripting and checklists that require CSRs to routinely
14 screen for eligibility in low income assistance programming will help to systematize PWSA’s
15 enrollment efforts for these programs.

16 In conjunction with the additional avenues for identifying low income customers that I
17 have recommended above, I recommend that PWSA update its confirmed low income count. As
18 discussed, despite PWSA indicating that this count includes any customer identified as having
19 income at or below 150% FPL, through (1) BDP enrollment; (2) establishing a 60-month payment
20 arrangement; (3) qualifying for another customer assistance program or grant; and/or (4) any other
21 circumstance that would make it reasonably likely that a customer is low income,⁸¹ PWSA’s

⁷⁹ PWSA St. 6 at 39-40.

⁸⁰ Id.

⁸¹ United I-5.

1 provided low income count refers solely to its BDP customer count.⁸² PWSA should be required
2 to update its confirmed low income count to accurately reflect the various ways in which low
3 income customers are identified. PWSA should be able to track and report its confirmed low
4 income customer count on a monthly basis, by service type – and be able to disaggregate important
5 customer data (such as termination rates and arrearage levels) by confirmed low income customer
6 status.

7 Finally, in addition to enhanced screening and improved low income customer data
8 tracking and reporting, I further recommend that PWSA begin to track cross-program referrals and
9 enrollments. Currently, PWSA does not track cross-program referrals or enrollments.⁸³ Without
10 regular tracking of these metrics, it is difficult to determine whether cross-enrollment efforts
11 undertaken by PWSA are resulting in meaningful increases to enrollment in its low income
12 assistance programs and resultant benefits derived by a coordinated approach, or whether
13 additional reforms are necessary to improve cross-program enrollment processes. I therefore
14 recommend that the Commission require PWSA to track cross-program referrals and enrollments
15 by month and identify what programs collaborated in these efforts. I recommend that PWSA share
16 this data with the LIAAC on, at least, a semi-annual basis so that LIAAC members can provide
17 important feedback about how to improve or augment current cross-program enrollment efforts.

⁸² United I-3.

⁸³ United II-13.

1 **1. Bill Discount Program**

2 **Q: In its current rate filing, does PWSA propose any changes to its BDP?**

3 A: Yes. As currently structured, the discounts provided by PWSA’s BDP are heavily tied to
 4 the minimum (fixed) charge. Elimination of the minimum usage from the fixed customer charge
 5 without restructuring of the structure and discount levels of the BDP would severely undercut BDP
 6 discounts. PWSA is proposing a rehaul of the BDP so that BDP enrollees are provided with a fixed
 7 bill credit, in the following amounts:

8 **Table 4: PWSA Proposed Revisions to BDP Discount and Structure⁸⁴**

	2025	2026
CAP Customers above 50% - 200% FPL	\$17.00 per bill for water charges	\$20.00 per bill for water charges
	\$5.00 per bill for wastewater conveyance charges	\$6.00 per bill for wastewater conveyance charges
CAP Customers at or below 50% FPL	\$10.00 per bill for water charges	\$12.00 per bill for water charges
	\$3.00 per bill for wastewater conveyance charges	\$4.00 per bill for wastewater conveyance charges

9
 10 As noted in the above Table, PWSA’s proposal would increase eligibility for the BDP from
 11 150% FPL to 200% FPL. PWSA is proposing to implement these proposed changes to the BDP in
 12 2025 to coincide with implementation of its proposal to eliminate its minimum usage charge.⁸⁵

⁸⁴ PWSA St. 6 at 37.

⁸⁵ Id. at 37: 15-19.

1 In addition, PWSA proposes to offer a 50% reduction in the IIC and a 100% reduction in
2 the CAC to BDP customers.⁸⁶ These discounts will be in addition to the BDP discounts set forth
3 by Witness Mechling and described above.⁸⁷

4 **Q: Are PWSA's proposed changes to its BDP adequate to offset the financial impact of**
5 **the proposed rate increase?**

6 A: Yes and no. PWSA's proposal will help improve affordability for PWSA's low income
7 customers, and will help to offset the financial impact of the rate increase for many low income
8 households. Currently, there is strong indication that BDP participants are still struggling to
9 afford PWSA services, despite enrollment in the BDP. For example, as of May 2023, the average
10 arrearage level of BDP participants was \$1,322.27.⁸⁸ By contrast, in that same timeframe, the
11 average arrearage of residential customers was only \$1,041.03.⁸⁹ These numbers underscore the
12 need for improved affordability for BDP participants, even at current rates.

13 In the context of previous rate cases filed by PWSA, I have recommended that PWSA
14 transition its BDP to a percentage of income program (PIP), which targets affordability based on
15 individual households' income levels.⁹⁰ Ultimately transitioning PWSA's BDP to a PIP-structure
16 would ensure that those at the lowest levels of the FPL and/or with larger families are not paying
17 a disproportionate level of their incomes for critical water and wastewater services and would
18 improve the ability of low income families to stay connected to water and wastewater services in
19 their homes.

⁸⁶ Id. at 37: 6-12. United III-12.

⁸⁷ United III-12.

⁸⁸ United I-25, Attachment.

⁸⁹ Id.

⁹⁰ 2021 PWSA Rate Case, Pittsburgh United St. 1 at 37-38.

1 Rates for water and wastewater services are likely to continue to rise in the coming years,
2 and it is important that PWSA have a program structure in place capable of delivering accessible,
3 consistent, and equitable levels of affordability to economically vulnerable households. While I
4 continue to support the BDP ultimately being revised to a PIP-structure as the preferred method of
5 targeting and achieving affordability for low income customers, after review of PWSA's proposed
6 revisions to the structure and discounts of the BDP, it appears that PWSA's proposed BDP
7 revisions are an improvement on the current structure in that it will provide reasonably affordable
8 bills to the majority of its program participants.

9 Based on my analysis of PWSA's proposed revisions to the BDP contained at Exhibits 1,
10 2, and 3 of my Direct Testimony, it appears that the majority of customers with households
11 incomes between 50% and 200% FPL will have a combined burden level at or below 4%, inclusive
12 of proposed DSIC charges. As exemplified by these Exhibits, PWSA's BDP proposal will help to
13 lower the burdens for many of PWSA's low income customers. Further, expanding eligibility for
14 the BDP from 150% FPL to 200% FPL will allow more financially-vulnerable customers access
15 the BDP who currently are not eligible for bill discounts through the Program. Thus, in the context
16 of the current rate request, I am generally supportive of PWSA's proposed revisions to the structure
17 and discounts under the BDP.

18 I recognize that PWSA's proposed revisions to the BDP may ultimately require additional
19 improvements in structure and discount levels in order to ensure that low income customers –
20 regardless of family size and usage level, are able to achieve affordable water, wastewater, and
21 stormwater burden levels as water and sewer costs continue to rise. Indeed, based on my analysis,
22 it appears that customers with higher usage levels with incomes at or below 100% FPL may
23 experience combined burden levels of approximately 5-6%, inclusive of DSIC charges and

1 dependent on stormwater Tier. However, in the context of the present rate increase proposal, I
2 believe that PWSA's proposed revisions to the BDP's structure and discount levels will help many
3 BDP participants to achieve reasonably affordable monthly bills. As such, I believe PWSA's
4 proposed revisions to the BDP merit approval.

5 **Q: Do you have any other concerns about the BDP that you would like to raise in the**
6 **context of this proceeding?**

7 A: Yes. While I am supportive of PWSA's proposed revisions to the BDP, I am highly
8 concerned that many of PWSA's low income customers have not been able to learn about and
9 enroll in the BDP. As of June 2023, 4,751 customers were enrolled in the BDP.⁹¹ This remains far
10 behind estimated need – even based on PWSA's outdated Household Affordability Analysis which
11 estimated approximately 20,000 low income customers. If low income customers cannot
12 successfully enroll in the BDP, any affordability that the BDP may theoretically provide will not
13 assist these customers to actually better afford and maintain services. Overall, critical
14 improvements to the BDP are necessary to ensure customers are able to enroll in the Program to
15 meet the needs in PWSA's service territory for bill assistance and increased affordability both at
16 present and proposed rates.

17 **Q: Do you have any recommendations to improve the BDP?**

18 A: Yes. As discussed, the PGH2O Cares Team has done a commendable job improving
19 PWSA's outreach related to its low income assistance programs. However, I believe that additional
20 systematic solutions are needed so that low income customers are routinely informed of about and
21 ultimately enroll in available programs. I have already recommended several systematic

⁹¹ United I-9, Attachment.

1 improvements to expand screening and outreach related to PWSA's low income assistance
2 programs as a whole.

3 In conjunction with these recommendations, I also recommend that PWSA set additional
4 target enrollment benchmarks for the BDP. First, PWSA should be required to establish individual
5 target enrollment levels for the BDP. I recommend enrollment targets be set at 20% per year of
6 PWSA's estimated low income customer count until PWSA reaches at least 75% enrollment for
7 this group. Second, PWSA should be required to establish quantitative goals related to affirmative
8 customer contacts with the purpose of enrolling low income customers in the BDP. These
9 affirmative contacts should include not only telephone contacts and mailing, but also electronic
10 communication and virtual events for both local providers and consumers. PWSA should be
11 required to track and report its progress to its LIAAC, including the number of successful
12 enrollments as a result of its efforts, and should continue to refine its outreach efforts based on
13 community and LIAAC feedback.

14 **2. Arrearage Forgiveness Program**

15 **Q: Does PWSA propose any changes to the Arrearage Forgiveness Program in its**
16 **proposed rate filing?**

17 A: No, PWSA does not propose any changes to its Arrearage Forgiveness Program (AFP) in
18 the present filing.⁹² PWSA is proposing to allocate \$720,000 for the AFP in the context of this
19 proceeding.⁹³ Currently, in order to qualify for the AFP, a PWSA customer must be (1) enrolled
20 in the BDP; (2) on an active payment plan; and (3) make on-time monthly payments of their current
21 charges plus the payment plan amount.⁹⁴

⁹² PWSA St. 6 at 46: 8-18.

⁹³ PWSA St. 2 at 15: 16-18.

⁹⁴ United II-23.

1 **Q: Do you have any concerns about PWSA’s Pilot Arrearage Forgiveness Program?**

2 A: Yes. I am supportive of PWSA’s proposal to continue its AFP. However, I am concerned
3 that the AFP, as currently implemented, does not adequately address the high levels of arrears
4 faced by many low income customers. The level of enrollment in the AFP is also relatively low.
5 As of July 2022, the most recent date reported by PWSA for AFP participants, PWSA reports a
6 total of 261 customers enrolled in the AFP.⁹⁵ By comparison, PWSA reports that 17.95% of its
7 residential customers— or approximately 18,100 of its total 100,838 residential customers – were
8 in arrears as of July 2023.⁹⁶ This high rate of residential customers in active arrears underscores
9 the high number of PWSA customers who may be in need of AFP assistance.

10 I am also concerned that the AFP does not offer adequately structured relief to ensure
11 participants are able to catch up on arrears accrued prior to entry into the BDP and not fall even
12 further behind during participation in BDP. Low income customers carry a substantial level of
13 arrears.⁹⁷ PWSA indicates that, as of May 2023, for BDP customers at or below 50% FPL, carried
14 a total of \$68,986 in preexisting arrears, or \$1,095 per BDP customer.⁹⁸ PWSA indicates that BDP
15 customers above 50% FPL to 150% FPL carry a total of \$136,600 in pre-existing arrears, or \$983
16 per customer, as of May 2023.⁹⁹ As noted, the average arrearage for BDP customers as a whole as
17 of June 2023 had not decreased from preprogram arrears levels, but increased to \$1,322. At this
18 arrearage level, with the current \$30 AFP credit, it would take an average AFP participant
19 approximately 45 months to fully retire their arrears. Many BDP applicants will have arrearage

⁹⁵ United II-20, Attachment. OCA III-1.b, Attachment.

⁹⁶ United I-1, Attachment, OCA III-66 (e,f), Attachment.

⁹⁷ United I-25, Attachment.

⁹⁸ OCA III-15, Attachment.

⁹⁹ OCA III-15, Attachment.

1 amounts exceeding these averages, and thus face even longer periods before they can earn full
2 forgiveness.

3 Further, it appears that other available data further supports the concern that the arrearage
4 levels of low income customers have increased on average since BDP enrollment. For example, in
5 January of 2023 the average arrearage level of new BDP enrollees was reported as \$690.50,
6 compared to the average arrearage level of all BDP enrollees that same month of \$912.15.¹⁰⁰
7 Similarly, in May 2023, the average arrearage of new BDP enrollees was \$792.69, while the
8 average arrearage of all BDP customers was \$1,041.03.¹⁰¹ The increasing arrears of low income
9 customers, even with BDP enrollment, shows the need for robust arrearage forgiveness to address
10 preprogram arrearages accrued by low income customers as a result of underlying rate
11 unaffordability as well as the additional in-program arrears growth as a result of structural flaws
12 in the AFP.

13 As currently structured, the AFP does not provide participants a reasonable way of
14 meaningfully addressing their arrears and earning full forgiveness, as it requires payment over and
15 above the BDP rate – resulting in categorical unaffordability. It is essential that low income
16 consumers are given a reasonable means to catch up on past due bills upon entry into the BDP.
17 Otherwise, the collections benefits associated with universal service programs – in terms of
18 reduced collections expenses and uncollectible expenses – will not be realized.

19 The effectiveness of the AFP is further hampered by the requirement that customers must
20 enter into payment plans related to their past-due arrears in order to enroll in the AFP.¹⁰² In
21 response to discovery, Witness Mechling explains that PWSA customers automatically receive

¹⁰⁰ OCA III-47, Attachment; United I-25, Attachment.

¹⁰¹ Id.

¹⁰² United II-23.

1 AFP credits when they are (1) enrolled in the BDP; (2) are on an active payment plan; and (3)
2 make an on-time payment of their current charges plus the payment plan amount.¹⁰³ In other words,
3 BDP customers must pay *both* the BDP rate in addition to a payment plan installment to earn
4 forgiveness on arrears. Requiring AFP participants to enter into payment plans as a condition of
5 earning AFP credits further increases AFP participants' monthly bills beyond an affordable rate.
6 This undercuts the purpose of the AFP and BDP to provide customers a mechanism of sufficiently
7 addressing accumulated arrearages while providing increased affordability through BDP rates.
8 Improvements are necessary to the AFP to ensure that low income customers can access the
9 Program and have a meaningful opportunity to catch up on arrears accumulated as a result of
10 unaffordability at both present and proposed rates.

11 **Q: Do you have any recommendations to improve the Arrearage Forgiveness Program?**

12 A: Yes. Upon entry into the BDP – and thus the arrearage forgiveness program – BDP
13 customers' pre-program arrears should be frozen. BDP customers should no longer be required to
14 make payments on these arrears while they remain in the program, and the pre-program arrears
15 should be frozen and no longer incur late fees or other associated charges. Customers should not
16 have to enter into a payment plan in order to earn forgiveness on these past due arrears. Rather,
17 consistent with other Customer Assistance Programs across the state, BDP participants should earn
18 arrearage forgiveness by making in-full payments on their discounted monthly bill – without the
19 addition of a payment plan.

20 I also recommend that PWSA revise the discount structure under the AFP to equitably
21 retire pre-program arrears for BDP participants within a reasonable timeframe. I initially note that,
22 pursuant to a settlement requirement from PWSA's 2021 rate proceeding, PWSA was required to

¹⁰³ United II-23.

1 conduct a cost-benefit analysis of the AFP to a percent forgiveness structure based on the following
2 parameters: (1) reduction of participants account balance by 1/36th for each full and timely
3 payment while enrolled in the AFP; (2) at the time of enrollment, separating/freezing customer's
4 total arrears from current and future bills; (3) retroactive arrearage forgiveness for customers who
5 miss monthly bill payment but make a catch-up amount.¹⁰⁴ Based on this analysis, PWSA
6 estimated a loss of \$900,000 and concluded that it was not feasible to restructure the AFP at this
7 time based on these parameters.¹⁰⁵

8 While I appreciate that PWSA undertook this analysis of AFP revisions, I do not believe
9 that these calculations adequately account for certain financial benefits that may result from
10 meaningfully restructuring the AFP. In response to discovery, PWSA indicated that its analysis
11 did not consider a number of factors which may mitigate the projected cost increases, including
12 reduced uncollectible expenses and reduced termination costs.¹⁰⁶ While PWSA Witness Edward
13 Barca argues in response to discovery that there is no guarantee that these costs would be
14 reduced,¹⁰⁷ I believe that it is incorrect to overlook the important benefits resulting from assisting
15 customers to meaningfully address arrearages and stay connected to services. Reduced termination
16 rates and uncollectible expenses financially benefit all ratepayers. Without accounting for these
17 factors, PWSA's analysis is – at best – an incomplete snapshot consisting only of projected costs
18 from restructuring the AFP. Further, while PWSA has not undertaken any mass write-off to date
19 of debt, it is planning to conduct this process during their annual bad debt review in Q1 2024.¹⁰⁸

¹⁰⁴ PWSA St. 2 at 51: 7-16.

¹⁰⁵ Id. at 51: 7-23.

¹⁰⁶ United III-17.

¹⁰⁷ United III-17.

¹⁰⁸ United II-2, Attachment.

1 Based on this analysis, I continue to recommend that PWSA implement a percent
2 forgiveness structure, rather than a flat forgiveness amount. Specifically, I recommend that, for
3 each in-full payment that a customer makes while enrolled in the BDP, 1/36th of a customer's pre-
4 program arrears are forgiven.

5 Similar to other programs, PWSA should allow BDP participants to earn forgiveness on
6 catch-up payments. Failing to provide forgiveness credits for full payments made because they are
7 not within a narrowly prescribed time period fails to incentivize positive payment behaviors and
8 punishes customers who cannot manage to make payments within a strict timeframe due to
9 fluctuations in their monthly incomes, reliance on fixed incomes, or financial emergencies and
10 unforeseen expenses. A properly designed AFP should incentivize full payment – regardless of
11 timeliness – in recognition of the financial realities of low income families. The AFP is an
12 alternative collections program, designed to incentivize low income households with insufficient
13 resources to prioritize their water and wastewater payments. These households – by definition –
14 operate in a state of scarcity, as they have categorically insufficient monthly income to pay for
15 food, rent/mortgage, electricity, heat, childcare, and transportation. Thus, I recommend that
16 PWSA is required to provide arrearage forgiveness credits to AFP participants for catch-up
17 payments.

1 **3. Hardship Fund Program**

2 **Q: Does PWSA propose to make any changes to its Hardship Fund pursuant to the**
3 **present rate filing?**

4 A: Yes. PWSA proposes to allocate two separate \$300 annual grants – one to be distributed
5 to eligible water customers and one to be distributed to eligible wastewater customers.¹⁰⁹ As
6 discussed, PWSA is proposing to fund its Hardship Fund through rates collected through the CAC
7 starting in FY 2025.¹¹⁰ PWSA is also proposing to allocate in rates \$432,640 for its Hardship Fund
8 Program.¹¹¹

9 **Q: Please describe how PWSA’s Hardship Fund is currently funded.**

10 A: The Hardship Fund Program was originally funded with \$500,000.00 received as a result
11 of a Settlement with Veolia.¹¹² Pursuant to the last rate case in this matter, PWSA began efforts
12 related to outreach and fundraising for its Hardship Fund.¹¹³

13 **Q: Do you support PWSA’s proposed changes to its Hardship Fund Program?**

14 A: Yes and no. We are supportive of PWSA’s continued fundraising efforts for its Hardship
15 Fund, as well as PWSA utilizing other potential avenues for Hardship Funding – including
16 settlement funds and state and federal funding opportunities. However, to ensure continued
17 adequate funding is available to meet the needs of low income customers, I am in favor of rate
18 supported funding for PWSA’s Hardship Fund.

¹⁰⁹ PWSA St. 6 at 37: 22-25.

¹¹⁰ Id.

¹¹¹ PWSA St. 2 at 4: 29-31.

¹¹² See Pa. PUC v. PWSA (2018 PWSA Rate Case), Joint Petition for Settlement, Docket Nos. R-2018-3002645, R-2018-3002647 (Joint Petition filed November 29, 2018).

¹¹³ PWSA St. 6 at 25.

1 I am also encouraged that PWSA is seeking to expand availability of its Hardship Fund so
 2 that customers with both water and wastewater services can access \$300 in grant funding twice
 3 during a program year. However, I am concerned that – for customers who are not dual water/
 4 wastewater customers or may have high arrearages accumulated in water *or* wastewater – only
 5 offering a \$300 grant for water and a \$300 grant for wastewater during the year is insufficient to
 6 meet the needs for grant assistance amongst PWSA’s low income customers. The Table below
 7 shows the average arrearage levels of PWSA’s BDP, from 2019 to 2023:

8 **Table 5: Arrearage Levels by Year (BDP Customers), 2019-2023**

Month/Year	BDP Customer Average Arrearage Level
Jan. 2019	\$467.16
Jan. 2020	\$538.81
Jan. 2021	\$582.37
Jan. 2022	\$852.79
Jan. 2023	\$912.15
June 2023	\$1,041.03

9 As shown in the Table above, the average arrearage levels of PWSA’s BDP customers have
 10 increased significantly from an average of \$467.16 in January 2019 to an average of \$1,041.03 –
 11 or by 122%. These are profound increases in average arrearage levels of low income customers,
 12 even with the assistance of the BDP. While PWSA’s proposal would expand eligibility for
 13 combined customers to one water grant and one wastewater grant per year, customers who do not
 14 have combined service will be limited to one \$300 Hardship Fund grant per year.

15 As discussed, I am also concerned about the consistently low numbers of customers who
 16 have been awarded Hardship Grants by PWSA, compared to the high level of arrears carried by
 17 PWSA’s low income customers. The following Table shows the number of customers who
 18 received Hardship Grants awarded by PWSA from 2019 to 2023, disaggregated by year:

1 **Table 6: Customers Receiving Hardship Grants From 2019 to 2023, By Year**¹¹⁴

Year	Number of Customers Receiving a Hardship Grant
2019	177
2020	25
2021	303
2022	340
2023 (through June 2023)	295

2

3 As previously discussed, despite these low numbers, the need for Hardship Fund assistance
 4 remains high – with BDP participants carrying an average of more than \$1,300 in arrears.¹¹⁵
 5 Despite this need, PWSA does not report any months in which Hardship Funding was depleted.¹¹⁶
 6 This data underscores the need to improve access to grants through the Hardship Fund so that low
 7 income customers facing acute financial hardship can obtain needed grant assistance and stay
 8 connected to services.

9 **Q: Do you have any other concerns related to PWSA’s Hardship Fund that you would**
 10 **like to raise in the context of this proceeding?**

11 A: Yes. Through discovery, PWSA was asked to provide details of any and all eligibility
 12 requirements for qualifying for its Hardship Fund, including but not limited to what documentation
 13 and information a customer must provide to qualify for a Hardship Fund grant.¹¹⁷ In response,
 14 PWSA provide an informational flyer for Dollar Energy Fund (DEF) related to its Hardship
 15 Fund.¹¹⁸ This informational flyer provides only basic information regarding the eligibility criteria,
 16 noting generally that information related to gross monthly income must be provided to qualify for

¹¹⁴ United II-3, Attachment

¹¹⁵ United I-25, Attachment.

¹¹⁶ United II-7.

¹¹⁷ United III-14, Attachment.

¹¹⁸ Id.

1 a Hardship Fund grant.¹¹⁹ PWSA also provided its Letter of Agreement with DEF.¹²⁰ In this Letter
2 of Agreement, it appears that DEF has established a number of guidelines related to PWSA's
3 Hardship Fund. These guidelines are purported to be provided in Exhibit A of this Letter of
4 Agreement, which was not attached to provided discovery.¹²¹ However, it appears that DEF has
5 the ability to modify program requirements under certain circumstances.¹²² Without a complete
6 Letter of Agreement, I do not have the benefit of reviewing DEF's steps to modify PWSA's
7 program requirements. However, I am highly concerned that DEF has the ability to unilaterally
8 modify program requirements without review and approval by PWSA or the Commission.

9 **Q: Do you have any recommendations related to PWSA's Hardship Fund?**

10 A: Yes. I have already discussed several recommendations about how PWSA should expand
11 outreach and enrollment related to its low income programs as a whole. These recommendations
12 are inclusive of PWSA's Hardship Fund. I additionally recommend that PWSA increase the
13 maximum grant from \$300 to \$500, and allow households to apply for grant assistance twice a
14 year— regardless of whether a customer elects to apply either or both of these grant amounts to
15 water or wastewater charges. These adjustments will help address customers actual need for grant
16 assistance throughout the program year, regardless of whether they are combined
17 water/wastewater customers. Additionally, increasing the maximum grant amount to \$500 will
18 more closely approximate the average level of arrearages amongst PWSA's low income
19 customers.¹²³

¹¹⁹ Id.

¹²⁰ Id.

¹²¹ United II-14, Attachment, p. 4.

¹²² Id.

¹²³ United I-25, Attachment.

1 As discussed, I am also concerned about PWSA’s oversight of DEF. As indicated by the
2 language of PWSA and DEF’s Letter of Agreement, DEF has established Hardship Fund
3 guidelines – some of which may be unilaterally modified by DEF through the course of their
4 administration.¹²⁴ While I did not have the benefit of seeing the full Letter of Agreement in
5 preparing my direct testimony, including Exhibit A which appears to provide these guidelines, I
6 believe that a thorough review of DEF’s administration of PWSA’s Hardship Fund is required in
7 order to ensure that PWSA is able to exercise appropriate oversight of DEF’s administration of the
8 Hardship Fund, and that DEF is not improperly altering program requirements that require review
9 and approval of PWSA and/or the Commission. As such, I recommend that, within one year of the
10 final Order in this matter, PWSA is required to submit a report to the Commission related to DEF’s
11 administration of PWSA’s Hardship Fund. This report should also be provided to the parties for
12 review and should include specific details about any and all policies, procedures, and training
13 materials that DEF utilizes in its administration of PWSA’s Hardship Fund – including under what
14 circumstances DEF is permitted to alter program requirements.

15 I reserve the right to amend my analysis and recommendations if and when PWSA provides
16 a copy of Exhibit A to its Letter of Agreement with DEF.

¹²⁴ United II-14, Attachment, p. 4.

1 **VI. STORMWATER FEE**

2 **Q: Is PWSA proposing any changes to its stormwater fee?**

3 A: Yes. PWSA is proposing to update its credit program to permit qualifying, lightly-
4 developed non-residential properties access to 45% and 60% credits through passive management
5 of stormwater through the property’s green space.¹²⁵ PWSA is also proposing to provide a one-
6 time \$40 credit for installed rain barrels.¹²⁶

7 **Q: Do you support PWSA’s proposal related to its stormwater fee, as described?**

8 A: No. I am concerned, despite its proposal to significantly raise stormwater rates, PWSA fails
9 to provide additional ways for low income customers to adopt green stormwater mitigation. While
10 I understand and appreciate that PWSA provides a substantial stormwater discount for low income
11 customers, receiving a discounted stormwater rate is not the same as having the ability to adopt
12 green mitigation strategies and receive other critical benefits as a result of those strategies. For
13 example, while PWSA is proposing to provide a one-time \$40 credit for installed rain barrels, low
14 income customers do not have the discretionary income required to install rain barrels to receive
15 these credits. PWSA’s low income customers should be given a reasonable opportunity to
16 participate in green mitigation that would benefit their households and their communities.

17 I am also concerned that PWSA does not appear to have a process for how it intends to
18 train its customer-facing staff to solicit whether customers have installed rain barrels so that they
19 can receive promised credits. Without sufficient outreach, customers who may already practice
20 green mitigation, including installation of rain barrels, may never learn about or be able to access
21 available credits.

¹²⁵ PWSA St. 6 at 32: 8-15.

¹²⁶ Id.

1 **Q: Do you have any recommendations related to PWSA’s stormwater fee?**

2 A: Yes. While PWSA indicates that they provide discounts on stormwater bills to BDP
3 customers,¹²⁷ it does not appear that there is any assistance specific to low income customers who
4 would like to engage in green mitigation, but do not have the financial resources to do so. I
5 recommend that the Commission require PWSA to allocate \$100,000 annually – funded through
6 rates – so that low income customers can access green mitigation measures, including rain barrels
7 at no cost to these customers. Low income customers who agree to engage in green mitigation to
8 their residences should be provided with any credits or benefits available to other customers –
9 including the \$40 credit for installation of rain barrels.

10 I also recommend that the Commission require PWSA, in consultation with its LIAAC, to
11 develop an outreach and education plan related to available assistance and mitigation measures
12 connected to its stormwater fee. This outreach and education plan should include training and call
13 scripting for PWSA’s CSRs so that CSRs (1) prompt stormwater customers about whether they
14 have adopted or have an interest in adopting green stormwater mitigation; (2) discuss the benefits
15 of practicing green stormwater mitigation, including the \$40 credit; and (3) discuss whether the
16 customers are enrolled in, and eligible for, the BDP to take advantage of available stormwater
17 discounts. Additionally, enhanced outreach and education related to stormwater should include a
18 plan for community engagement, crafted in conjunction with the LIAAC and utilizing feedback
19 from previous stormwater strategic plan outreach.¹²⁸

¹²⁷ United III-8.

¹²⁸ United III-9.

1 **VII. ELIMINATION OF CONVENIENCE FEE PASS THROUGH FEE**

2 **Q: Please summarize PWSA’s proposed elimination of their current convenience fee pass**
3 **through.**

4 A: PWSA is proposing to require customers who pay their bills through certain options that
5 include convenience fees to directly pay the costs of any assessed third-party fees.¹²⁹ Pursuant to
6 the 2020 rate case settlement, PWSA agreed to eliminate merchant fees for residential customers
7 who make Interactive Voice Response (IVR) and online payments.¹³⁰ PWSA notes that, by
8 returning the payment responsibility solely to customers paying through certain options, PWSA
9 mitigates costs impacts to all ratepayers and cites to the relaxing of restrictions related to the
10 COVID-19 pandemic.¹³¹

11 **Q: Do you support PWSA’s proposal to eliminate pass through of convenience fees for**
12 **residential customers?**

13 A: No. As described extensively above, PWSA’s residential customers – particularly their low
14 income customers – continue to experience profound difficulties affording their bills and
15 remaining connected to services. I am concerned that eliminating pass-through treatment of
16 convenience fees will increase the overall amount that customers must devote to their monthly
17 PWSA bills. For many residential customers, PWSA’s bills are unaffordable even at present rates.
18 PWSA is proposing an aggressive increase in the rates that residential customers pay for services.
19 To add additional fees on top of these rate increases further exacerbates unaffordability of PWSA
20 rates. Those residential customers who cannot afford these additional fees will be effectively

¹²⁹ PWSA St. 6 at 33.

¹³⁰ Id.

¹³¹ Id. See also United III-10. United III-11.

1 precluded from utilizing IVR and online payment options – thus making it more difficult for these
2 customers to make timely bill payments. This is particularly concerning for certain vulnerable
3 populations who may not have access to transportation or other resources needed to access other
4 payment options.

5 I also note that PWSA currently still charges a \$1.49 fee for making a cash payment at a
6 third party location, such as a 7-11, CVS, Dollar General, Walgreens, or a Walmart Super
7 Center.¹³² Low income customers are more likely to be unbanked or under-banked¹³³ – and, in
8 turn, are more likely to rely on the ability to make cash payments at a local store. This is not a
9 matter of “convenience”, but of necessity.

10 **Q: Do you have any recommendations related to pass through convenience fees?**

11 A: Yes. I recommend that PWSA pass through all third-party bill payment fees for residential
12 customers – including fees for cash payments at a third party location. As discussed, PWSA’s
13 residential customers, and particularly their low income customers, face profound challenges to
14 affordability. Continuing pass-through treatment of convenience fees will save customers who are
15 struggling from having to shoulder additional fees on top of any rate increase that is ultimately
16 approved.

¹³² United III-11.

¹³³ A 2019 Federal Reserve Report found that 6% of US adults are unbanked – and 6% are underbanked. A far greater percentage of low income and minority households fall within these categories – exacerbating financial instability for these households. See Board of Governors of the Federal Reserve System, Report on Economic Well-Being of US Households (May 2019), <https://www.federalreserve.gov/publications/2019-economic-well-being-of-us-households-in-2018-banking-and-credit.htm>.

1 **VIII. SUMMARY OF RECOMMENDATIONS**

2 A: In my direct testimony, I have made several recommendations to address unaffordability
3 of PWSA's rates for water/wastewater services at both present and proposed rates for low income
4 customers. I recommend that the Commission order PWSA to:

- 5 • Submit a Universal Service Plan for Commission review and approval.
- 6 • Develop and file with the Commission a detailed consumer education and outreach plan.
- 7 • Update its estimated low income customer count and, in turn, its formal needs assessment
8 within one year of the final order in this proceeding.
- 9 • Begin screening all new and moving customers for income level and eligibility for
10 assistance at the time their service is established.
- 11 • For existing customers, routinely screen for income on any non-emergency calls, and/or
12 should inquire whether there has been updates to any income information already noted
13 on accounts.
- 14 • Develop call scripting and checklists for its CSRs to assist in screening customers for
15 eligibility in its low income assistance programs.
- 16 • Update its confirmed low income count and improve identification and tracking, as
17 detailed above.
- 18 • Be able to track and report its confirmed low income customer count on a monthly basis,
19 by service type – and be able to disaggregate important customer data (such as termination
20 rates and arrearage levels) by confirmed low income customer status.
- 21 • Track cross-program referrals and enrollments, as detailed above, and share this data be
22 shared with the LIAAC on, at least, a semi-annual basis.
- 23 • With regard to PWSA's AFP:
 - 24 ○ Freeze BDP customers' pre-program arrears upon entry into the program.
 - 25 ○ Eliminate the requirement that BDP participants enter into a payment plan to be
26 eligible for forgiveness.
 - 27 ○ Allow BDP participants to earn forgiveness on their frozen pre-program arrears
28 by making in-full payments on their discounted monthly bill – without the
29 addition of a payment plan.

- 1 ○ Implement a percent forgiveness structure, rather than a flat forgiveness amount. I
2 recommend that, for each in-full payment that a customer makes while enrolled in
3 the BDP, 1/36th of a customer’s pre-program arrears are forgiven.

- 4 ○ Provide arrearage forgiveness credits to AFP participants for catch-up payments.

- 5 ● Increase the maximum Hardship Grant from \$300 to \$500, and allow households to apply
6 for grant assistance twice a year– regardless of whether a customer elects to apply either
7 or both of these grant amounts to water or wastewater charges.

- 8 ● within one year of the final Order in this matter, require PWSA to submit a report to the
9 Commission related to DEF’s administration of PWSA’s Hardship Fund.

- 10 ● Allocate \$100,000 annually to support the provision of green stormwater mitigation
11 measures for low income customers, including rain barrels, at no cost.

- 12 ● In consultation with its LIAAC, develop an outreach and education plan related to
13 available assistance and mitigation measures connected to its stormwater fee.

- 14 ● Pass through all third-party bill payment fees for residential customers, including fees for
15 cash payments at third party locations.

16
17 **Q: Does this conclude your Direct Testimony?**

18 A: Yes; however, I reserve the right to submit rebuttal and surrebuttal testimony in response
19 to testimony submitted by other parties in this proceeding and/or to revise my analysis and
20 recommendations as additional data and information becomes available.

Pittsburgh United Statement 1
Exhibit 1, Exhibit 2, and Exhibit 3

Pittsburgh UNITED Exhibit 1 - a

Water/Wastewater/Stormwater Burden Tables - Current Full Tariff, 2024 Proposed Full Tariff, and 2024 Proposed BDP

Proposed Rates Include Tier 1 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 9,860	\$ 58.27	\$ 699.24	7%	\$ 73.51	\$ 882.12	9%	\$ 13.41	\$ 160.92	2%
100% FPL	\$ 19,720	\$ 58.27	\$ 699.24	4%	\$ 73.51	\$ 882.12	4%	\$ 25.98	\$ 311.76	2%
150% FPL	\$ 29,580	\$ 58.27	\$ 699.24	2%	\$ 73.51	\$ 882.12	3%	\$ 25.98	\$ 311.76	1%
200% FPL	\$ 39,440	\$ 58.27	\$ 699.24	2%	\$ 73.51	\$ 882.12	2%	\$ 30.67	\$ 368.04	1%
3000 Gal										
50% FPL	\$ 9,860	\$ 78.72	\$ 944.64	10%	\$ 98.66	\$ 1,183.92	12%	\$ 25.98	\$ 311.76	3%
100% FPL	\$ 19,720	\$ 78.72	\$ 944.64	5%	\$ 98.66	\$ 1,183.92	6%	\$ 44.39	\$ 532.68	3%
150% FPL	\$ 29,580	\$ 78.72	\$ 944.64	3%	\$ 98.66	\$ 1,183.92	4%	\$ 44.39	\$ 532.68	2%
200% FPL	\$ 39,440	\$ 78.72	\$ 906.72	2%	\$ 98.66	\$ 1,183.92	3%	\$ 49.07	\$ 588.84	1%
4000 Gal										
50% FPL	\$ 9,860	\$ 99.17	\$ 1,190.04	12%	\$ 123.82	\$ 1,485.84	15%	\$ 37.73	\$ 452.76	5%
100% FPL	\$ 19,720	\$ 99.17	\$ 1,190.04	6%	\$ 123.82	\$ 1,485.84	8%	\$ 75.47	\$ 905.64	5%
150% FPL	\$ 29,580	\$ 99.17	\$ 1,190.04	4%	\$ 123.82	\$ 1,485.84	5%	\$ 75.47	\$ 905.64	3%
200% FPL	\$ 39,440	\$ 99.17	\$ 1,145.40	3%	\$ 123.82	\$ 1,485.84	4%	\$ 80.98	\$ 971.76	2%
5000 Gal										
50% FPL	\$ 9,860	\$ 119.62	\$ 1,435.44	15%	\$ 148.97	\$ 1,787.64	18%	\$ 50.31	\$ 603.72	6%
100% FPL	\$ 19,720	\$ 119.62	\$ 1,435.44	7%	\$ 148.97	\$ 1,787.64	9%	\$ 100.62	\$ 1,207.44	6%
150% FPL	\$ 29,580	\$ 119.62	\$ 1,435.44	5%	\$ 148.97	\$ 1,787.64	6%	\$ 100.62	\$ 1,207.44	4%
200% FPL	\$ 39,440	\$ 119.62	\$ 1,384.08	4%	\$ 148.97	\$ 1,787.64	5%	\$ 105.31	\$ 1,263.72	3%

3 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 12,340	\$ 58.27	\$ 699.24	6%	\$ 73.51	\$ 882.12	7%	\$ 13.41	\$ 160.92	1%
100% FPL	\$ 24,860	\$ 58.27	\$ 699.24	3%	\$ 73.51	\$ 882.12	4%	\$ 25.98	\$ 311.76	1%
150% FPL	\$ 37,290	\$ 58.27	\$ 699.24	2%	\$ 73.51	\$ 882.12	2%	\$ 25.98	\$ 311.76	1%
200% FPL	\$ 49,720	\$ 58.27	\$ 699.24	1%	\$ 73.51	\$ 882.12	2%	\$ 30.67	\$ 368.04	1%
3000 Gal										
50% FPL	\$ 12,340	\$ 78.72	\$ 944.64	8%	\$ 98.66	\$ 1,183.92	10%	\$ 25.98	\$ 311.76	3%
100% FPL	\$ 24,860	\$ 78.72	\$ 944.64	4%	\$ 98.66	\$ 1,183.92	5%	\$ 44.39	\$ 532.68	2%
150% FPL	\$ 37,290	\$ 78.72	\$ 944.64	3%	\$ 98.66	\$ 1,183.92	3%	\$ 44.39	\$ 532.68	1%
200% FPL	\$ 49,720	\$ 78.72	\$ 944.64	2%	\$ 98.66	\$ 1,183.92	2%	\$ 49.07	\$ 588.84	1%
4000 Gal										
50% FPL	\$ 12,340	\$ 99.17	\$ 1,190.04	10%	\$ 123.82	\$ 1,485.84	12%	\$ 37.73	\$ 452.76	4%
100% FPL	\$ 24,860	\$ 99.17	\$ 1,190.04	5%	\$ 123.82	\$ 1,485.84	6%	\$ 75.47	\$ 905.64	4%
150% FPL	\$ 37,290	\$ 99.17	\$ 1,190.04	3%	\$ 123.82	\$ 1,485.84	4%	\$ 75.47	\$ 905.64	2%
200% FPL	\$ 49,720	\$ 99.17	\$ 1,190.04	2%	\$ 123.82	\$ 1,485.84	3%	\$ 80.98	\$ 971.76	2%
5000 Gal										
50% FPL	\$ 12,340	\$ 119.62	\$ 1,435.44	12%	\$ 148.97	\$ 1,787.64	14%	\$ 50.31	\$ 603.72	5%
100% FPL	\$ 24,860	\$ 119.62	\$ 1,435.44	6%	\$ 148.97	\$ 1,787.64	7%	\$ 100.62	\$ 1,207.44	5%
150% FPL	\$ 37,290	\$ 119.62	\$ 1,435.44	4%	\$ 148.97	\$ 1,787.64	5%	\$ 100.62	\$ 1,207.44	3%
200% FPL	\$ 49,720	\$ 119.62	\$ 1,435.44	3%	\$ 148.97	\$ 1,787.64	4%	\$ 105.31	\$ 1,263.72	3%

4 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 15,000	\$ 58.27	\$ 699.24	5%	\$ 73.51	\$ 882.12	6%	\$ 13.41	\$ 160.92	1%
100% FPL	\$ 30,000	\$ 58.27	\$ 699.24	2%	\$ 73.51	\$ 882.12	3%	\$ 25.98	\$ 311.76	1%
150% FPL	\$ 45,000	\$ 58.27	\$ 699.24	2%	\$ 73.51	\$ 882.12	2%	\$ 25.98	\$ 311.76	1%
200% FPL	\$ 60,000	\$ 58.27	\$ 699.24	1%	\$ 73.51	\$ 882.12	1%	\$ 30.67	\$ 368.04	1%
3000 Gal										
50% FPL	\$ 15,000	\$ 78.72	\$ 944.64	6%	\$ 98.66	\$ 1,183.92	8%	\$ 25.98	\$ 311.76	2%
100% FPL	\$ 30,000	\$ 78.72	\$ 944.64	3%	\$ 98.66	\$ 1,183.92	4%	\$ 44.39	\$ 532.68	2%
150% FPL	\$ 45,000	\$ 78.72	\$ 944.64	2%	\$ 98.66	\$ 1,183.92	3%	\$ 44.39	\$ 532.68	1%
200% FPL	\$ 60,000	\$ 78.72	\$ 944.64	2%	\$ 98.66	\$ 1,183.92	2%	\$ 49.07	\$ 588.84	1%
4000 Gal										
50% FPL	\$ 15,000	\$ 99.17	\$ 1,190.04	8%	\$ 123.82	\$ 1,485.84	10%	\$ 37.73	\$ 452.76	3%
100% FPL	\$ 30,000	\$ 99.17	\$ 1,190.04	4%	\$ 123.82	\$ 1,485.84	5%	\$ 75.47	\$ 905.64	3%
150% FPL	\$ 45,000	\$ 99.17	\$ 1,190.04	3%	\$ 123.82	\$ 1,485.84	3%	\$ 75.47	\$ 905.64	2%
200% FPL	\$ 60,000	\$ 99.17	\$ 1,190.04	2%	\$ 123.82	\$ 1,485.84	2%	\$ 80.98	\$ 971.76	2%
5000 Gal										
50% FPL	\$ 15,000	\$ 119.62	\$ 1,435.44	10%	\$ 148.97	\$ 1,787.64	12%	\$ 50.31	\$ 603.72	4%
100% FPL	\$ 30,000	\$ 119.62	\$ 1,435.44	5%	\$ 148.97	\$ 1,787.64	6%	\$ 100.62	\$ 1,207.44	4%
150% FPL	\$ 45,000	\$ 119.62	\$ 1,435.44	3%	\$ 148.97	\$ 1,787.64	4%	\$ 100.62	\$ 1,207.44	3%
200% FPL	\$ 60,000	\$ 119.62	\$ 1,435.44	2%	\$ 148.97	\$ 1,787.64	3%	\$ 105.31	\$ 1,263.72	2%

Pittsburgh UNITED Exhibit 1 - b

Water/Wastewater/Stormwater Burden Tables - Current Full Tariff, 2024 Proposed Full Tariff, and 2024 Proposed BDP

Proposed Rates Include Tier 2 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 9,860	\$ 62.24	\$ 746.88	8%	\$ 79.02	\$ 948.24	10%	\$ 14.23	\$ 170.76	2%
100% FPL	\$ 19,720	\$ 62.24	\$ 746.88	4%	\$ 79.02	\$ 948.24	5%	\$ 26.81	\$ 321.72	2%
150% FPL	\$ 29,580	\$ 62.24	\$ 746.88	3%	\$ 79.02	\$ 948.24	3%	\$ 26.81	\$ 321.72	1%
200% FPL	\$ 39,440	\$ 62.24	\$ 746.88	2%	\$ 79.02	\$ 948.24	2%	\$ 36.18	\$ 434.16	1%
3000 Gal										
50% FPL	\$ 9,860	\$ 82.69	\$ 992.28	10%	\$ 104.18	\$ 1,250.16	13%	\$ 26.81	\$ 321.72	3%
100% FPL	\$ 19,720	\$ 82.69	\$ 992.28	5%	\$ 104.18	\$ 1,250.16	6%	\$ 45.21	\$ 542.52	3%
150% FPL	\$ 29,580	\$ 82.69	\$ 992.28	3%	\$ 104.18	\$ 1,250.16	4%	\$ 45.21	\$ 542.52	2%
200% FPL	\$ 39,440	\$ 82.69	\$ 906.72	2%	\$ 104.18	\$ 1,250.16	3%	\$ 54.59	\$ 655.08	2%
4000 Gal										
50% FPL	\$ 9,860	\$ 103.14	\$ 1,237.68	13%	\$ 129.33	\$ 1,551.96	16%	\$ 38.56	\$ 462.72	5%
100% FPL	\$ 19,720	\$ 103.14	\$ 1,237.68	6%	\$ 129.33	\$ 1,551.96	8%	\$ 76.29	\$ 915.48	5%
150% FPL	\$ 29,580	\$ 103.14	\$ 1,237.68	4%	\$ 129.33	\$ 1,551.96	5%	\$ 76.29	\$ 915.48	3%
200% FPL	\$ 39,440	\$ 103.14	\$ 1,145.40	3%	\$ 129.33	\$ 1,551.96	4%	\$ 86.49	\$ 1,037.88	3%
5000 Gal										
50% FPL	\$ 9,860	\$ 123.59	\$ 1,483.08	15%	\$ 154.49	\$ 1,853.88	19%	\$ 51.14	\$ 613.68	6%
100% FPL	\$ 19,720	\$ 123.59	\$ 1,483.08	8%	\$ 154.49	\$ 1,853.88	9%	\$ 101.45	\$ 1,217.40	6%
150% FPL	\$ 29,580	\$ 123.59	\$ 1,483.08	5%	\$ 154.49	\$ 1,853.88	6%	\$ 101.45	\$ 1,217.40	4%
200% FPL	\$ 39,440	\$ 123.59	\$ 1,384.08	4%	\$ 154.49	\$ 1,853.88	5%	\$ 110.82	\$ 1,329.84	3%

3 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 12,340	\$ 62.24	\$ 746.88	6%	\$ 79.02	\$ 948.24	8%	\$ 14.23	\$ 170.76	1%
100% FPL	\$ 24,860	\$ 62.24	\$ 746.88	3%	\$ 79.02	\$ 948.24	4%	\$ 26.81	\$ 321.72	1%
150% FPL	\$ 37,290	\$ 62.24	\$ 746.88	2%	\$ 79.02	\$ 948.24	3%	\$ 26.81	\$ 321.72	1%
200% FPL	\$ 49,720	\$ 62.24	\$ 746.88	2%	\$ 79.02	\$ 948.24	2%	\$ 36.18	\$ 434.16	1%
3000 Gal										
50% FPL	\$ 12,340	\$ 82.69	\$ 992.28	8%	\$ 104.18	\$ 1,250.16	10%	\$ 26.81	\$ 321.72	3%
100% FPL	\$ 24,860	\$ 82.69	\$ 992.28	4%	\$ 104.18	\$ 1,250.16	5%	\$ 45.21	\$ 542.52	2%
150% FPL	\$ 37,290	\$ 82.69	\$ 992.28	3%	\$ 104.18	\$ 1,250.16	3%	\$ 45.21	\$ 542.52	1%
200% FPL	\$ 49,720	\$ 82.69	\$ 992.28	2%	\$ 104.18	\$ 1,250.16	3%	\$ 54.59	\$ 655.08	1%
4000 Gal										
50% FPL	\$ 12,340	\$ 103.14	\$ 1,237.68	10%	\$ 129.33	\$ 1,551.96	13%	\$ 38.56	\$ 462.72	4%
100% FPL	\$ 24,860	\$ 103.14	\$ 1,237.68	5%	\$ 129.33	\$ 1,551.96	6%	\$ 76.29	\$ 915.48	4%
150% FPL	\$ 37,290	\$ 103.14	\$ 1,237.68	3%	\$ 129.33	\$ 1,551.96	4%	\$ 76.29	\$ 915.48	2%
200% FPL	\$ 49,720	\$ 103.14	\$ 1,237.68	2%	\$ 129.33	\$ 1,551.96	3%	\$ 86.49	\$ 1,037.88	2%
5000 Gal										
50% FPL	\$ 12,340	\$ 123.59	\$ 1,483.08	12%	\$ 154.49	\$ 1,853.88	15%	\$ 51.14	\$ 613.68	5%
100% FPL	\$ 24,860	\$ 123.59	\$ 1,483.08	6%	\$ 154.49	\$ 1,853.88	7%	\$ 101.45	\$ 1,217.40	5%
150% FPL	\$ 37,290	\$ 123.59	\$ 1,483.08	4%	\$ 154.49	\$ 1,853.88	5%	\$ 101.45	\$ 1,217.40	3%
200% FPL	\$ 49,720	\$ 123.59	\$ 1,483.08	3%	\$ 154.49	\$ 1,853.88	4%	\$ 110.82	\$ 1,329.84	3%

4 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 15,000	\$ 62.24	\$ 746.88	5%	\$ 79.02	\$ 948.24	6%	\$ 14.23	\$ 170.76	1%
100% FPL	\$ 30,000	\$ 62.24	\$ 746.88	2%	\$ 79.02	\$ 948.24	3%	\$ 26.81	\$ 321.72	1%
150% FPL	\$ 45,000	\$ 62.24	\$ 746.88	2%	\$ 79.02	\$ 948.24	2%	\$ 26.81	\$ 321.72	1%
200% FPL	\$ 60,000	\$ 62.24	\$ 746.88	1%	\$ 79.02	\$ 948.24	2%	\$ 36.18	\$ 434.16	1%
3000 Gal										
50% FPL	\$ 15,000	\$ 82.69	\$ 992.28	7%	\$ 104.18	\$ 1,250.16	8%	\$ 26.81	\$ 321.72	2%
100% FPL	\$ 30,000	\$ 82.69	\$ 992.28	3%	\$ 104.18	\$ 1,250.16	4%	\$ 45.21	\$ 542.52	2%
150% FPL	\$ 45,000	\$ 82.69	\$ 992.28	2%	\$ 104.18	\$ 1,250.16	3%	\$ 45.21	\$ 542.52	1%
200% FPL	\$ 60,000	\$ 82.69	\$ 992.28	2%	\$ 104.18	\$ 1,250.16	2%	\$ 54.59	\$ 655.08	1%
4000 Gal										
50% FPL	\$ 15,000	\$ 103.14	\$ 1,237.68	8%	\$ 129.33	\$ 1,551.96	10%	\$ 38.56	\$ 462.72	3%
100% FPL	\$ 30,000	\$ 103.14	\$ 1,237.68	4%	\$ 129.33	\$ 1,551.96	5%	\$ 76.29	\$ 915.48	3%
150% FPL	\$ 45,000	\$ 103.14	\$ 1,237.68	3%	\$ 129.33	\$ 1,551.96	3%	\$ 76.29	\$ 915.48	2%
200% FPL	\$ 60,000	\$ 103.14	\$ 1,237.68	2%	\$ 129.33	\$ 1,551.96	3%	\$ 86.49	\$ 1,037.88	2%
5000 Gal										
50% FPL	\$ 15,000	\$ 123.59	\$ 1,483.08	10%	\$ 154.49	\$ 1,853.88	12%	\$ 51.14	\$ 613.68	4%
100% FPL	\$ 30,000	\$ 123.59	\$ 1,483.08	5%	\$ 154.49	\$ 1,853.88	6%	\$ 101.45	\$ 1,217.40	4%
150% FPL	\$ 45,000	\$ 123.59	\$ 1,483.08	3%	\$ 154.49	\$ 1,853.88	4%	\$ 101.45	\$ 1,217.40	3%
200% FPL	\$ 60,000	\$ 123.59	\$ 1,483.08	2%	\$ 154.49	\$ 1,853.88	3%	\$ 110.82	\$ 1,329.84	2%

Pittsburgh UNITED Exhibit 1 - c

Water/Wastewater/Stormwater Burden Tables - Current Full Tariff, 2024 Proposed Full Tariff, and 2024 Proposed BDP

Proposed Rates Include Tier 3 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 9,860	\$ 70.19	\$ 842.28	9%	\$ 90.10	\$ 1,081.20	11%	\$ 15.89	\$ 190.68	2%
100% FPL	\$ 19,720	\$ 70.19	\$ 842.28	4%	\$ 90.10	\$ 1,081.20	5%	\$ 28.47	\$ 341.64	2%
150% FPL	\$ 29,580	\$ 70.19	\$ 842.28	3%	\$ 90.10	\$ 1,081.20	4%	\$ 28.47	\$ 341.64	1%
200% FPL	\$ 39,440	\$ 70.19	\$ 842.28	2%	\$ 90.10	\$ 1,081.20	3%	\$ 47.21	\$ 566.52	1%
3000 Gal										
50% FPL	\$ 9,860	\$ 90.64	\$ 1,087.68	11%	\$ 115.21	\$ 1,382.52	14%	\$ 28.47	\$ 341.64	3%
100% FPL	\$ 19,720	\$ 90.64	\$ 1,087.68	6%	\$ 115.21	\$ 1,382.52	7%	\$ 46.87	\$ 562.44	3%
150% FPL	\$ 29,580	\$ 90.64	\$ 1,087.68	4%	\$ 115.21	\$ 1,382.52	5%	\$ 46.87	\$ 562.44	2%
200% FPL	\$ 39,440	\$ 90.64	\$ 906.72	2%	\$ 115.21	\$ 1,382.52	4%	\$ 65.62	\$ 787.44	2%
4000 Gal										
50% FPL	\$ 9,860	\$ 111.09	\$ 1,333.08	14%	\$ 140.36	\$ 1,684.32	17%	\$ 40.22	\$ 482.64	5%
100% FPL	\$ 19,720	\$ 111.09	\$ 1,333.08	7%	\$ 140.36	\$ 1,684.32	9%	\$ 77.95	\$ 935.40	5%
150% FPL	\$ 29,580	\$ 111.09	\$ 1,333.08	5%	\$ 140.36	\$ 1,684.32	6%	\$ 77.95	\$ 935.40	3%
200% FPL	\$ 39,440	\$ 111.09	\$ 1,145.40	3%	\$ 140.36	\$ 1,684.32	4%	\$ 97.52	\$ 1,170.24	3%
5000 Gal										
50% FPL	\$ 9,860	\$ 131.54	\$ 1,578.48	16%	\$ 165.52	\$ 1,986.24	20%	\$ 52.79	\$ 633.48	6%
100% FPL	\$ 19,720	\$ 131.54	\$ 1,578.48	8%	\$ 165.52	\$ 1,986.24	10%	\$ 103.10	\$ 1,237.20	6%
150% FPL	\$ 29,580	\$ 131.54	\$ 1,578.48	5%	\$ 165.52	\$ 1,986.24	7%	\$ 103.10	\$ 1,237.20	4%
200% FPL	\$ 39,440	\$ 131.54	\$ 1,384.08	4%	\$ 165.52	\$ 1,986.24	5%	\$ 121.85	\$ 1,462.20	4%

3 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 12,340	\$ 70.19	\$ 842.28	7%	\$ 90.10	\$ 1,081.20	9%	\$ 15.89	\$ 190.68	2%
100% FPL	\$ 24,860	\$ 70.19	\$ 842.28	3%	\$ 90.10	\$ 1,081.20	4%	\$ 28.47	\$ 341.64	1%
150% FPL	\$ 37,290	\$ 70.19	\$ 842.28	2%	\$ 90.10	\$ 1,081.20	3%	\$ 28.47	\$ 341.64	1%
200% FPL	\$ 49,720	\$ 70.19	\$ 842.28	2%	\$ 90.10	\$ 1,081.20	2%	\$ 47.21	\$ 566.52	1%
3000 Gal										
50% FPL	\$ 12,340	\$ 90.64	\$ 1,087.68	9%	\$ 115.21	\$ 1,382.52	11%	\$ 28.47	\$ 341.64	3%
100% FPL	\$ 24,860	\$ 90.64	\$ 1,087.68	4%	\$ 115.21	\$ 1,382.52	6%	\$ 46.87	\$ 562.44	2%
150% FPL	\$ 37,290	\$ 90.64	\$ 1,087.68	3%	\$ 115.21	\$ 1,382.52	4%	\$ 46.87	\$ 562.44	2%
200% FPL	\$ 49,720	\$ 90.64	\$ 1,087.68	2%	\$ 115.21	\$ 1,382.52	3%	\$ 65.62	\$ 787.44	2%
4000 Gal										
50% FPL	\$ 12,340	\$ 111.09	\$ 1,333.08	11%	\$ 140.36	\$ 1,684.32	14%	\$ 40.22	\$ 482.64	4%
100% FPL	\$ 24,860	\$ 111.09	\$ 1,333.08	5%	\$ 140.36	\$ 1,684.32	7%	\$ 77.95	\$ 935.40	4%
150% FPL	\$ 37,290	\$ 111.09	\$ 1,333.08	4%	\$ 140.36	\$ 1,684.32	5%	\$ 77.95	\$ 935.40	3%
200% FPL	\$ 49,720	\$ 111.09	\$ 1,333.08	3%	\$ 140.36	\$ 1,684.32	3%	\$ 97.52	\$ 1,170.24	2%
5000 Gal										
50% FPL	\$ 12,340	\$ 131.54	\$ 1,578.48	13%	\$ 165.52	\$ 1,986.24	16%	\$ 52.79	\$ 633.48	5%
100% FPL	\$ 24,860	\$ 131.54	\$ 1,578.48	6%	\$ 165.52	\$ 1,986.24	8%	\$ 103.10	\$ 1,237.20	5%
150% FPL	\$ 37,290	\$ 131.54	\$ 1,578.48	4%	\$ 165.52	\$ 1,986.24	5%	\$ 103.10	\$ 1,237.20	3%
200% FPL	\$ 49,720	\$ 131.54	\$ 1,578.48	3%	\$ 165.52	\$ 1,986.24	4%	\$ 121.85	\$ 1,462.20	3%

4 Person Household										
	Income	Monthly Full Tariff CURRENT	Annual Full Tariff CURRENT	Burden - Full Tariff CURRENT	Monthly Full Tariff PROPOSED 2024	Annual Full Tariff PROPOSED 2024	Burden - Full Tariff PROPOSED 2024	Monthly BDP PROPOSED 2024	Annual BDP PROPOSED 2024	Burden - BDP PROPOSED 2024
2000 Gal.										
50% FPL	\$ 15,000	\$ 70.19	\$ 842.28	6%	\$ 90.10	\$ 1,081.20	7%	\$ 15.89	\$ 190.68	1%
100% FPL	\$ 30,000	\$ 70.19	\$ 842.28	3%	\$ 90.10	\$ 1,081.20	4%	\$ 28.47	\$ 341.64	1%
150% FPL	\$ 45,000	\$ 70.19	\$ 842.28	2%	\$ 90.10	\$ 1,081.20	2%	\$ 28.47	\$ 341.64	1%
200% FPL	\$ 60,000	\$ 70.19	\$ 842.28	1%	\$ 90.10	\$ 1,081.20	2%	\$ 47.21	\$ 566.52	1%
3000 Gal										
50% FPL	\$ 15,000	\$ 90.64	\$ 1,087.68	7%	\$ 115.21	\$ 1,382.52	9%	\$ 28.47	\$ 341.64	2%
100% FPL	\$ 30,000	\$ 90.64	\$ 1,087.68	4%	\$ 115.21	\$ 1,382.52	5%	\$ 46.87	\$ 562.44	2%
150% FPL	\$ 45,000	\$ 90.64	\$ 1,087.68	2%	\$ 115.21	\$ 1,382.52	3%	\$ 46.87	\$ 562.44	1%
200% FPL	\$ 60,000	\$ 90.64	\$ 1,087.68	2%	\$ 115.21	\$ 1,382.52	2%	\$ 65.62	\$ 787.44	1%
4000 Gal										
50% FPL	\$ 15,000	\$ 111.09	\$ 1,333.08	9%	\$ 140.36	\$ 1,684.32	11%	\$ 40.22	\$ 482.64	3%
100% FPL	\$ 30,000	\$ 111.09	\$ 1,333.08	4%	\$ 140.36	\$ 1,684.32	6%	\$ 77.95	\$ 935.40	3%
150% FPL	\$ 45,000	\$ 111.09	\$ 1,333.08	3%	\$ 140.36	\$ 1,684.32	4%	\$ 77.95	\$ 935.40	2%
200% FPL	\$ 60,000	\$ 111.09	\$ 1,333.08	2%	\$ 140.36	\$ 1,684.32	3%	\$ 97.52	\$ 1,170.24	2%
5000 Gal										
50% FPL	\$ 15,000	\$ 131.54	\$ 1,578.48	11%	\$ 165.52	\$ 1,986.24	13%	\$ 52.79	\$ 633.48	4%
100% FPL	\$ 30,000	\$ 131.54	\$ 1,578.48	5%	\$ 165.52	\$ 1,986.24	7%	\$ 103.10	\$ 1,237.20	4%
150% FPL	\$ 45,000	\$ 131.54	\$ 1,578.48	4%	\$ 165.52	\$ 1,986.24	4%	\$ 103.10	\$ 1,237.20	3%
200% FPL	\$ 60,000	\$ 131.54	\$ 1,578.48	3%	\$ 165.52	\$ 1,986.24	3%	\$ 121.85	\$ 1,462.20	2%

Pittsburgh UNITED Exhibit 2 - a

Water/Wastewater/Stormwater Burden Tables - Current BPD, Proposed Full Tariff 2025, and Proposed BDP 2025

Proposed Rates Include Tier 1 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 9,860	\$ 10.83	\$ 129.96	1%	\$ 55.12	\$ 661.44	7%	\$ 0.13	\$ 1.56	0%
100% FPL	\$ 19,720	\$ 21.05	\$ 252.60	1%	\$ 55.12	\$ 661.44	3%	\$ 3.55	\$ 42.60	0%
150% FPL	\$ 29,580	\$ 21.05	\$ 252.60	1%	\$ 55.12	\$ 661.44	2%	\$ 3.55	\$ 42.60	0%
200% FPL	\$ 39,440	\$ 58.27	\$ 699.24	2%	\$ 55.12	\$ 661.44	2%	\$ 9.11	\$ 109.32	0%
3000 Gal										
50% FPL	\$ 9,860	\$ 21.05	\$ 252.60	3%	\$ 85.62	\$ 1,027.44	10%	\$ 13.23	\$ 158.76	2%
100% FPL	\$ 19,720	\$ 41.50	\$ 498.00	3%	\$ 85.62	\$ 1,027.44	5%	\$ 29.79	\$ 357.48	2%
150% FPL	\$ 29,580	\$ 41.50	\$ 498.00	2%	\$ 85.62	\$ 1,027.44	3%	\$ 29.79	\$ 357.48	1%
200% FPL	\$ 39,440	\$ 78.72	\$ 906.72	2%	\$ 85.62	\$ 1,027.44	3%	\$ 35.34	\$ 424.08	1%
4000 Gal										
50% FPL	\$ 9,860	\$ 31.28	\$ 375.36	4%	\$ 111.85	\$ 1,342.20	14%	\$ 26.36	\$ 316.32	3%
100% FPL	\$ 19,720	\$ 61.95	\$ 743.40	4%	\$ 111.85	\$ 1,342.20	7%	\$ 56.02	\$ 672.24	3%
150% FPL	\$ 29,580	\$ 61.95	\$ 743.40	3%	\$ 111.85	\$ 1,342.20	5%	\$ 56.02	\$ 672.24	2%
200% FPL	\$ 39,440	\$ 99.17	\$ 1,145.40	3%	\$ 111.85	\$ 1,342.20	3%	\$ 61.57	\$ 738.84	2%
5000 Gal										
50% FPL	\$ 9,860	\$ 41.50	\$ 498.00	5%	\$ 133.81	\$ 1,605.72	16%	\$ 39.46	\$ 473.52	5%
100% FPL	\$ 19,720	\$ 82.40	\$ 988.80	5%	\$ 133.81	\$ 1,605.72	8%	\$ 82.25	\$ 987.00	5%
150% FPL	\$ 29,580	\$ 82.40	\$ 988.80	3%	\$ 133.81	\$ 1,605.72	5%	\$ 82.25	\$ 987.00	3%
200% FPL	\$ 39,440	\$ 119.62	\$ 1,384.08	4%	\$ 133.81	\$ 1,605.72	4%	\$ 87.80	\$ 1,053.60	3%

3 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 12,340	\$ 10.83	\$ 129.96	1%	\$ 55.12	\$ 661.44	5%	\$ 0.13	\$ 1.56	0%
100% FPL	\$ 24,660	\$ 21.05	\$ 252.60	1%	\$ 55.12	\$ 661.44	3%	\$ 3.55	\$ 42.60	0%
150% FPL	\$ 37,290	\$ 21.05	\$ 252.60	1%	\$ 55.12	\$ 661.44	2%	\$ 3.55	\$ 42.60	0%
200% FPL	\$ 49,720	\$ 58.27	\$ 699.24	1%	\$ 55.12	\$ 661.44	1%	\$ 9.11	\$ 109.32	0%
3000 Gal										
50% FPL	\$ 12,340	\$ 21.05	\$ 252.60	2%	\$ 85.62	\$ 1,027.44	8%	\$ 13.23	\$ 158.76	1%
100% FPL	\$ 24,660	\$ 41.50	\$ 498.00	2%	\$ 85.62	\$ 1,027.44	4%	\$ 29.79	\$ 357.48	1%
150% FPL	\$ 37,290	\$ 41.50	\$ 498.00	1%	\$ 85.62	\$ 1,027.44	3%	\$ 29.79	\$ 357.48	1%
200% FPL	\$ 49,720	\$ 78.72	\$ 944.64	2%	\$ 85.62	\$ 1,027.44	2%	\$ 35.34	\$ 424.08	1%
4000 Gal										
50% FPL	\$ 12,340	\$ 31.28	\$ 375.36	3%	\$ 111.85	\$ 1,342.20	11%	\$ 26.36	\$ 316.32	3%
100% FPL	\$ 24,660	\$ 61.95	\$ 743.40	3%	\$ 111.85	\$ 1,342.20	5%	\$ 56.02	\$ 672.24	3%
150% FPL	\$ 37,290	\$ 61.95	\$ 743.40	2%	\$ 111.85	\$ 1,342.20	4%	\$ 56.02	\$ 672.24	2%
200% FPL	\$ 49,720	\$ 99.17	\$ 1,190.04	2%	\$ 111.85	\$ 1,342.20	3%	\$ 61.57	\$ 738.84	1%
5000 Gal										
50% FPL	\$ 12,340	\$ 41.50	\$ 498.00	4%	\$ 133.81	\$ 1,605.72	13%	\$ 39.46	\$ 473.52	4%
100% FPL	\$ 24,660	\$ 82.40	\$ 988.80	4%	\$ 133.81	\$ 1,605.72	6%	\$ 82.25	\$ 987.00	4%
150% FPL	\$ 37,290	\$ 82.40	\$ 988.80	3%	\$ 133.81	\$ 1,605.72	4%	\$ 82.25	\$ 987.00	3%
200% FPL	\$ 49,720	\$ 119.62	\$ 1,435.44	3%	\$ 133.81	\$ 1,605.72	3%	\$ 87.80	\$ 1,053.60	2%

4 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 15,000	\$ 10.83	\$ 129.96	1%	\$ 55.12	\$ 661.44	4%	\$ 0.13	\$ 1.56	0%
100% FPL	\$ 30,000	\$ 21.05	\$ 252.60	1%	\$ 55.12	\$ 661.44	2%	\$ 3.55	\$ 42.60	0%
150% FPL	\$ 45,000	\$ 21.05	\$ 252.60	1%	\$ 55.12	\$ 661.44	1%	\$ 3.55	\$ 42.60	0%
200% FPL	\$ 60,000	\$ 58.27	\$ 699.24	1%	\$ 55.12	\$ 661.44	1%	\$ 9.11	\$ 109.32	0%
3000 Gal										
50% FPL	\$ 15,000	\$ 21.05	\$ 252.60	2%	\$ 85.62	\$ 1,027.44	7%	\$ 13.23	\$ 158.76	1%
100% FPL	\$ 30,000	\$ 41.50	\$ 498.00	2%	\$ 85.62	\$ 1,027.44	3%	\$ 29.79	\$ 357.48	1%
150% FPL	\$ 45,000	\$ 41.50	\$ 498.00	1%	\$ 85.62	\$ 1,027.44	2%	\$ 29.79	\$ 357.48	1%
200% FPL	\$ 60,000	\$ 78.72	\$ 944.64	2%	\$ 85.62	\$ 1,027.44	2%	\$ 35.34	\$ 424.08	1%
4000 Gal										
50% FPL	\$ 15,000	\$ 31.28	\$ 375.36	3%	\$ 111.85	\$ 1,342.20	9%	\$ 26.36	\$ 316.32	2%
100% FPL	\$ 30,000	\$ 61.95	\$ 743.40	2%	\$ 111.85	\$ 1,342.20	4%	\$ 56.02	\$ 672.24	2%
150% FPL	\$ 45,000	\$ 61.95	\$ 743.40	2%	\$ 111.85	\$ 1,342.20	3%	\$ 56.02	\$ 672.24	1%
200% FPL	\$ 60,000	\$ 99.17	\$ 1,190.04	2%	\$ 111.85	\$ 1,342.20	2%	\$ 61.57	\$ 738.84	1%
5000 Gal										
50% FPL	\$ 15,000	\$ 41.50	\$ 498.00	3%	\$ 133.81	\$ 1,605.72	11%	\$ 39.46	\$ 473.52	3%
100% FPL	\$ 30,000	\$ 82.40	\$ 988.80	3%	\$ 133.81	\$ 1,605.72	5%	\$ 82.25	\$ 987.00	3%
150% FPL	\$ 45,000	\$ 82.40	\$ 988.80	2%	\$ 133.81	\$ 1,605.72	4%	\$ 82.25	\$ 987.00	2%
200% FPL	\$ 60,000	\$ 119.62	\$ 1,435.44	2%	\$ 133.81	\$ 1,605.72	3%	\$ 87.80	\$ 1,053.60	2%

Pittsburgh UNITED Exhibit 2 - b

Water/Wastewater/Stormwater Burden Tables - Current BPD, Proposed Full Tariff 2025, and Proposed BDP 2025

Proposed Rates Include Tier 2 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden - BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 9,860	\$ 11.42	\$ 137.04	1%	\$ 61.64	\$ 739.68	8%	\$ 1.11	\$ 13.32	0%
100% FPL	\$ 19,720	\$ 21.64	\$ 259.68	1%	\$ 61.64	\$ 739.68	4%	\$ 4.54	\$ 54.48	0%
150% FPL	\$ 29,580	\$ 21.64	\$ 259.68	1%	\$ 61.64	\$ 739.68	3%	\$ 4.54	\$ 54.48	0%
200% FPL	\$ 39,440	\$ 62.24	\$ 746.88	2%	\$ 61.64	\$ 739.68	2%	\$ 15.63	\$ 187.56	0%
3000 Gal										
50% FPL	\$ 9,860	\$ 21.64	\$ 259.68	3%	\$ 92.15	\$ 1,105.80	11%	\$ 14.21	\$ 170.52	2%
100% FPL	\$ 19,720	\$ 42.09	\$ 505.08	3%	\$ 92.15	\$ 1,105.80	6%	\$ 30.77	\$ 369.24	2%
150% FPL	\$ 29,580	\$ 42.09	\$ 505.08	2%	\$ 92.15	\$ 1,105.80	4%	\$ 30.77	\$ 369.24	1%
200% FPL	\$ 39,440	\$ 82.69	\$ 906.72	2%	\$ 92.15	\$ 1,105.80	3%	\$ 41.86	\$ 502.32	1%
4000 Gal										
50% FPL	\$ 9,860	\$ 31.87	\$ 382.44	4%	\$ 118.38	\$ 1,420.56	14%	\$ 27.34	\$ 328.08	3%
100% FPL	\$ 19,720	\$ 62.54	\$ 750.48	4%	\$ 118.38	\$ 1,420.56	7%	\$ 57.00	\$ 684.00	3%
150% FPL	\$ 29,580	\$ 62.54	\$ 750.48	3%	\$ 118.38	\$ 1,420.56	5%	\$ 57.00	\$ 684.00	2%
200% FPL	\$ 39,440	\$ 103.14	\$ 1,145.40	3%	\$ 118.38	\$ 1,420.56	4%	\$ 68.10	\$ 817.20	2%
5000 Gal										
50% FPL	\$ 9,860	\$ 42.09	\$ 505.08	5%	\$ 140.33	\$ 1,683.96	17%	\$ 40.44	\$ 485.28	5%
100% FPL	\$ 19,720	\$ 82.99	\$ 995.88	5%	\$ 140.33	\$ 1,683.96	9%	\$ 83.23	\$ 998.76	5%
150% FPL	\$ 29,580	\$ 82.99	\$ 995.88	3%	\$ 140.33	\$ 1,683.96	6%	\$ 83.23	\$ 998.76	3%
200% FPL	\$ 39,440	\$ 123.59	\$ 1,384.08	4%	\$ 140.33	\$ 1,683.96	4%	\$ 94.32	\$ 1,131.84	3%

3 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden - BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 12,340	\$ 11.42	\$ 137.04	1%	\$ 61.64	\$ 739.68	6%	\$ 1.11	\$ 13.32	0%
100% FPL	\$ 24,660	\$ 21.64	\$ 259.68	1%	\$ 61.64	\$ 739.68	3%	\$ 4.54	\$ 54.48	0%
150% FPL	\$ 37,290	\$ 21.64	\$ 259.68	1%	\$ 61.64	\$ 739.68	2%	\$ 4.54	\$ 54.48	0%
200% FPL	\$ 49,720	\$ 62.24	\$ 746.88	2%	\$ 61.64	\$ 739.68	1%	\$ 15.63	\$ 187.56	0%
3000 Gal										
50% FPL	\$ 12,340	\$ 21.64	\$ 259.68	2%	\$ 92.15	\$ 1,105.80	9%	\$ 14.21	\$ 170.52	1%
100% FPL	\$ 24,660	\$ 42.09	\$ 505.08	2%	\$ 92.15	\$ 1,105.80	4%	\$ 30.77	\$ 369.24	1%
150% FPL	\$ 37,290	\$ 42.09	\$ 505.08	1%	\$ 92.15	\$ 1,105.80	3%	\$ 30.77	\$ 369.24	1%
200% FPL	\$ 49,720	\$ 82.69	\$ 992.28	2%	\$ 92.15	\$ 1,105.80	2%	\$ 41.86	\$ 502.32	1%
4000 Gal										
50% FPL	\$ 12,340	\$ 31.87	\$ 382.44	3%	\$ 118.38	\$ 1,420.56	12%	\$ 27.34	\$ 328.08	3%
100% FPL	\$ 24,660	\$ 62.54	\$ 750.48	3%	\$ 118.38	\$ 1,420.56	6%	\$ 57.00	\$ 684.00	3%
150% FPL	\$ 37,290	\$ 62.54	\$ 750.48	2%	\$ 118.38	\$ 1,420.56	4%	\$ 57.00	\$ 684.00	2%
200% FPL	\$ 49,720	\$ 103.14	\$ 1,237.68	2%	\$ 118.38	\$ 1,420.56	3%	\$ 68.10	\$ 817.20	2%
5000 Gal										
50% FPL	\$ 12,340	\$ 42.09	\$ 505.08	4%	\$ 140.33	\$ 1,683.96	14%	\$ 40.44	\$ 485.28	4%
100% FPL	\$ 24,660	\$ 82.99	\$ 995.88	4%	\$ 140.33	\$ 1,683.96	7%	\$ 83.23	\$ 998.76	4%
150% FPL	\$ 37,290	\$ 82.99	\$ 995.88	3%	\$ 140.33	\$ 1,683.96	5%	\$ 83.23	\$ 998.76	3%
200% FPL	\$ 49,720	\$ 123.59	\$ 1,483.08	3%	\$ 140.33	\$ 1,683.96	3%	\$ 94.32	\$ 1,131.84	2%

4 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden - BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 15,000	\$ 11.42	\$ 137.04	1%	\$ 61.64	\$ 739.68	5%	\$ 1.11	\$ 13.32	0%
100% FPL	\$ 30,000	\$ 21.64	\$ 259.68	1%	\$ 61.64	\$ 739.68	2%	\$ 4.54	\$ 54.48	0%
150% FPL	\$ 45,000	\$ 21.64	\$ 259.68	1%	\$ 61.64	\$ 739.68	2%	\$ 4.54	\$ 54.48	0%
200% FPL	\$ 60,000	\$ 62.24	\$ 746.88	1%	\$ 61.64	\$ 739.68	1%	\$ 15.63	\$ 187.56	0%
3000 Gal										
50% FPL	\$ 15,000	\$ 21.64	\$ 259.68	2%	\$ 92.15	\$ 1,105.80	7%	\$ 14.21	\$ 170.52	1%
100% FPL	\$ 30,000	\$ 42.09	\$ 505.08	2%	\$ 92.15	\$ 1,105.80	4%	\$ 30.77	\$ 369.24	1%
150% FPL	\$ 45,000	\$ 42.09	\$ 505.08	1%	\$ 92.15	\$ 1,105.80	2%	\$ 30.77	\$ 369.24	1%
200% FPL	\$ 60,000	\$ 82.69	\$ 992.28	2%	\$ 92.15	\$ 1,105.80	2%	\$ 41.86	\$ 502.32	1%
4000 Gal										
50% FPL	\$ 15,000	\$ 31.87	\$ 382.44	3%	\$ 118.38	\$ 1,420.56	9%	\$ 27.34	\$ 328.08	2%
100% FPL	\$ 30,000	\$ 62.54	\$ 750.48	3%	\$ 118.38	\$ 1,420.56	5%	\$ 57.00	\$ 684.00	2%
150% FPL	\$ 45,000	\$ 62.54	\$ 750.48	2%	\$ 118.38	\$ 1,420.56	3%	\$ 57.00	\$ 684.00	2%
200% FPL	\$ 60,000	\$ 103.14	\$ 1,237.68	2%	\$ 118.38	\$ 1,420.56	2%	\$ 68.10	\$ 817.20	1%
5000 Gal										
50% FPL	\$ 15,000	\$ 42.09	\$ 505.08	3%	\$ 140.33	\$ 1,683.96	11%	\$ 40.44	\$ 485.28	3%
100% FPL	\$ 30,000	\$ 82.99	\$ 995.88	3%	\$ 140.33	\$ 1,683.96	6%	\$ 83.23	\$ 998.76	3%
150% FPL	\$ 45,000	\$ 82.99	\$ 995.88	2%	\$ 140.33	\$ 1,683.96	4%	\$ 83.23	\$ 998.76	2%
200% FPL	\$ 60,000	\$ 123.59	\$ 1,483.08	2%	\$ 140.33	\$ 1,683.96	3%	\$ 94.32	\$ 1,131.84	2%

Pittsburgh UNITED Exhibit 2 - c

Water/Wastewater/Stormwater Burden Tables - Current BPD, Proposed Full Tariff 2025, and Proposed BDP 2025

Proposed Rates Include Tier 3 Stormwater Fee

*income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden - BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 9,860	\$ 12.62	\$ 151.44	2%	\$ 74.69	\$ 896.28	9%	\$ 3.06	\$ 36.72	0%
100% FPL	\$ 19,720	\$ 22.84	\$ 274.08	1%	\$ 74.69	\$ 896.28	5%	\$ 6.49	\$ 77.88	0%
150% FPL	\$ 29,580	\$ 22.84	\$ 274.08	1%	\$ 74.69	\$ 896.28	3%	\$ 6.49	\$ 77.88	0%
200% FPL	\$ 39,440	\$ 70.19	\$ 842.28	2%	\$ 74.69	\$ 896.28	2%	\$ 28.68	\$ 344.16	1%
3000 Gal										
50% FPL	\$ 9,860	\$ 22.84	\$ 274.08	3%	\$ 105.20	\$ 1,262.40	13%	\$ 16.17	\$ 194.04	2%
100% FPL	\$ 19,720	\$ 43.29	\$ 519.48	3%	\$ 105.20	\$ 1,262.40	6%	\$ 32.72	\$ 392.64	2%
150% FPL	\$ 29,580	\$ 43.29	\$ 519.48	2%	\$ 105.20	\$ 1,262.40	4%	\$ 32.72	\$ 392.64	1%
200% FPL	\$ 39,440	\$ 90.64	\$ 906.72	2%	\$ 105.20	\$ 1,262.40	3%	\$ 54.91	\$ 658.92	2%
4000 Gal										
50% FPL	\$ 9,860	\$ 33.07	\$ 396.84	4%	\$ 131.43	\$ 1,577.16	16%	\$ 29.29	\$ 351.48	4%
100% FPL	\$ 19,720	\$ 63.74	\$ 764.88	4%	\$ 131.43	\$ 1,577.16	8%	\$ 58.95	\$ 707.40	4%
150% FPL	\$ 29,580	\$ 63.74	\$ 764.88	3%	\$ 131.43	\$ 1,577.16	5%	\$ 58.95	\$ 707.40	2%
200% FPL	\$ 39,440	\$ 111.09	\$ 1,145.40	3%	\$ 131.43	\$ 1,577.16	4%	\$ 84.14	\$ 1,009.68	3%
5000 Gal										
50% FPL	\$ 9,860	\$ 43.29	\$ 519.48	5%	\$ 153.38	\$ 1,840.56	19%	\$ 42.40	\$ 508.80	5%
100% FPL	\$ 19,720	\$ 84.29	\$ 1,011.48	5%	\$ 153.38	\$ 1,840.56	9%	\$ 85.18	\$ 1,022.16	5%
150% FPL	\$ 29,580	\$ 84.29	\$ 1,011.48	3%	\$ 153.38	\$ 1,840.56	6%	\$ 85.18	\$ 1,022.16	3%
200% FPL	\$ 39,440	\$ 131.54	\$ 1,384.08	4%	\$ 153.38	\$ 1,840.56	5%	\$ 107.37	\$ 1,288.44	3%

3 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden - BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 12,340	\$ 12.62	\$ 151.44	1%	\$ 74.69	\$ 896.28	7%	\$ 3.06	\$ 36.72	0%
100% FPL	\$ 24,660	\$ 22.84	\$ 274.08	1%	\$ 74.69	\$ 896.28	4%	\$ 6.49	\$ 77.88	0%
150% FPL	\$ 37,290	\$ 22.84	\$ 274.08	1%	\$ 74.69	\$ 896.28	2%	\$ 6.49	\$ 77.88	0%
200% FPL	\$ 49,720	\$ 70.19	\$ 842.28	2%	\$ 74.69	\$ 896.28	2%	\$ 28.68	\$ 344.16	1%
3000 Gal										
50% FPL	\$ 12,340	\$ 22.84	\$ 274.08	2%	\$ 105.20	\$ 1,262.40	10%	\$ 16.17	\$ 194.04	2%
100% FPL	\$ 24,660	\$ 43.29	\$ 519.48	2%	\$ 105.20	\$ 1,262.40	5%	\$ 32.72	\$ 392.64	2%
150% FPL	\$ 37,290	\$ 43.29	\$ 519.48	1%	\$ 105.20	\$ 1,262.40	3%	\$ 32.72	\$ 392.64	1%
200% FPL	\$ 49,720	\$ 90.64	\$ 1,087.68	2%	\$ 105.20	\$ 1,262.40	3%	\$ 54.91	\$ 658.92	1%
4000 Gal										
50% FPL	\$ 12,340	\$ 33.07	\$ 396.84	3%	\$ 131.43	\$ 1,577.16	13%	\$ 29.29	\$ 351.48	3%
100% FPL	\$ 24,660	\$ 63.74	\$ 764.88	3%	\$ 131.43	\$ 1,577.16	6%	\$ 58.95	\$ 707.40	3%
150% FPL	\$ 37,290	\$ 63.74	\$ 764.88	2%	\$ 131.43	\$ 1,577.16	4%	\$ 58.95	\$ 707.40	2%
200% FPL	\$ 49,720	\$ 111.09	\$ 1,333.08	3%	\$ 131.43	\$ 1,577.16	3%	\$ 84.14	\$ 1,009.68	2%
5000 Gal										
50% FPL	\$ 12,340	\$ 43.29	\$ 519.48	4%	\$ 153.38	\$ 1,840.56	15%	\$ 42.40	\$ 508.80	4%
100% FPL	\$ 24,660	\$ 84.29	\$ 1,011.48	4%	\$ 153.38	\$ 1,840.56	7%	\$ 85.18	\$ 1,022.16	4%
150% FPL	\$ 37,290	\$ 84.29	\$ 1,011.48	3%	\$ 153.38	\$ 1,840.56	5%	\$ 85.18	\$ 1,022.16	3%
200% FPL	\$ 49,720	\$ 131.54	\$ 1,578.48	3%	\$ 153.38	\$ 1,840.56	4%	\$ 107.37	\$ 1,288.44	3%

4 Person Household										
	Income	Monthly BDP CURRENT	Annual BDP CURRENT	Burden - BDP CURRENT	Monthly Full Tariff PROPOSED 2025	Annual Full Tariff PROPOSED 2025	Burden - Full Tariff PROPOSED 2025	Monthly BDP PROPOSED 2025	Annual BDP PROPOSED 2025	Burden - BDP PROPOSED 2025
2000 Gal.										
50% FPL	\$ 15,000	\$ 12.62	\$ 151.44	1%	\$ 74.69	\$ 896.28	6%	\$ 3.06	\$ 36.72	0%
100% FPL	\$ 30,000	\$ 22.84	\$ 274.08	1%	\$ 74.69	\$ 896.28	3%	\$ 6.49	\$ 77.88	0%
150% FPL	\$ 45,000	\$ 22.84	\$ 274.08	1%	\$ 74.69	\$ 896.28	2%	\$ 6.49	\$ 77.88	0%
200% FPL	\$ 60,000	\$ 70.19	\$ 842.28	1%	\$ 74.69	\$ 896.28	1%	\$ 28.68	\$ 344.16	1%
3000 Gal										
50% FPL	\$ 15,000	\$ 22.84	\$ 274.08	2%	\$ 105.20	\$ 1,262.40	8%	\$ 16.17	\$ 194.04	1%
100% FPL	\$ 30,000	\$ 43.29	\$ 519.48	2%	\$ 105.20	\$ 1,262.40	4%	\$ 32.72	\$ 392.64	1%
150% FPL	\$ 45,000	\$ 43.29	\$ 519.48	1%	\$ 105.20	\$ 1,262.40	3%	\$ 32.72	\$ 392.64	1%
200% FPL	\$ 60,000	\$ 90.64	\$ 1,087.68	2%	\$ 105.20	\$ 1,262.40	2%	\$ 54.91	\$ 658.92	1%
4000 Gal										
50% FPL	\$ 15,000	\$ 33.07	\$ 396.84	3%	\$ 131.43	\$ 1,577.16	11%	\$ 29.29	\$ 351.48	2%
100% FPL	\$ 30,000	\$ 63.74	\$ 764.88	3%	\$ 131.43	\$ 1,577.16	5%	\$ 58.95	\$ 707.40	2%
150% FPL	\$ 45,000	\$ 63.74	\$ 764.88	2%	\$ 131.43	\$ 1,577.16	4%	\$ 58.95	\$ 707.40	2%
200% FPL	\$ 60,000	\$ 111.09	\$ 1,333.08	2%	\$ 131.43	\$ 1,577.16	3%	\$ 84.14	\$ 1,009.68	2%
5000 Gal										
50% FPL	\$ 15,000	\$ 43.29	\$ 519.48	3%	\$ 153.38	\$ 1,840.56	12%	\$ 42.40	\$ 508.80	3%
100% FPL	\$ 30,000	\$ 84.29	\$ 1,011.48	3%	\$ 153.38	\$ 1,840.56	6%	\$ 85.18	\$ 1,022.16	3%
150% FPL	\$ 45,000	\$ 84.29	\$ 1,011.48	2%	\$ 153.38	\$ 1,840.56	4%	\$ 85.18	\$ 1,022.16	2%
200% FPL	\$ 60,000	\$ 131.54	\$ 1,578.48	3%	\$ 153.38	\$ 1,840.56	3%	\$ 107.37	\$ 1,288.44	2%

Pittsburgh UNITED Exhibit 3 - a

Water/Wastewater/Stormwater Burden Tables - Proposed

Full Tariff 2026, Proposed BDP 2026

Proposed Rates Include Tier 1 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 9,860	\$ 65.42	\$ 785.04	8%	\$ (0.41)	\$ (4.92)	0%
100% FPL	\$ 19,720	\$ 65.42	\$ 785.04	4%	\$ 4.38	\$ 52.56	0%
150% FPL	\$ 29,580	\$ 65.42	\$ 785.04	3%	\$ 4.38	\$ 52.56	0%
200% FPL	\$ 39,440	\$ 65.42	\$ 785.04	2%	\$ 10.86	\$ 130.32	0%
3000 Gal							
50% FPL	\$ 9,860	\$ 96.60	\$ 1,159.20	12%	\$ 15.13	\$ 181.56	2%
100% FPL	\$ 19,720	\$ 96.60	\$ 1,159.20	6%	\$ 35.56	\$ 426.72	2%
150% FPL	\$ 29,580	\$ 96.60	\$ 1,159.20	4%	\$ 35.56	\$ 426.72	1%
200% FPL	\$ 39,440	\$ 96.60	\$ 1,159.20	3%	\$ 41.94	\$ 503.28	1%
4000 Gal							
50% FPL	\$ 9,860	\$ 127.77	\$ 1,533.24	16%	\$ 30.71	\$ 368.52	4%
100% FPL	\$ 19,720	\$ 127.77	\$ 1,533.24	8%	\$ 66.73	\$ 800.76	4%
150% FPL	\$ 29,580	\$ 127.77	\$ 1,533.24	5%	\$ 66.73	\$ 800.76	3%
200% FPL	\$ 39,440	\$ 127.77	\$ 1,533.24	4%	\$ 73.21	\$ 878.52	2%
5000 Gal							
50% FPL	\$ 9,860	\$ 158.95	\$ 1,907.40	19%	\$ 46.30	\$ 555.60	6%
100% FPL	\$ 19,720	\$ 158.95	\$ 1,907.40	10%	\$ 97.90	\$ 1,174.80	6%
150% FPL	\$ 29,580	\$ 158.95	\$ 1,907.40	6%	\$ 97.90	\$ 1,174.80	4%
200% FPL	\$ 39,440	\$ 158.95	\$ 1,907.40	5%	\$ 104.38	\$ 1,252.56	3%

3 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 12,340	\$ 65.42	\$ 785.04	6%	\$ (0.41)	\$ (4.92)	0%
100% FPL	\$ 24,860	\$ 65.42	\$ 785.04	3%	\$ 4.38	\$ 52.56	0%
150% FPL	\$ 37,290	\$ 65.42	\$ 785.04	2%	\$ 4.38	\$ 52.56	0%
200% FPL	\$ 49,720	\$ 65.42	\$ 785.04	2%	\$ 10.86	\$ 130.32	0%
3000 Gal							
50% FPL	\$ 12,340	\$ 96.60	\$ 1,159.20	9%	\$ 15.13	\$ 181.56	1%
100% FPL	\$ 24,860	\$ 96.60	\$ 1,159.20	5%	\$ 35.56	\$ 426.72	2%
150% FPL	\$ 37,290	\$ 96.60	\$ 1,159.20	3%	\$ 35.56	\$ 426.72	1%
200% FPL	\$ 49,720	\$ 96.60	\$ 1,159.20	2%	\$ 41.94	\$ 503.28	1%
4000 Gal							
50% FPL	\$ 12,340	\$ 127.77	\$ 1,533.24	12%	\$ 30.71	\$ 368.52	3%
100% FPL	\$ 24,860	\$ 127.77	\$ 1,533.24	6%	\$ 66.73	\$ 800.76	3%
150% FPL	\$ 37,290	\$ 127.77	\$ 1,533.24	4%	\$ 66.73	\$ 800.76	2%
200% FPL	\$ 49,720	\$ 127.77	\$ 1,533.24	3%	\$ 73.21	\$ 878.52	2%
5000 Gal							
50% FPL	\$ 12,340	\$ 158.95	\$ 1,907.40	15%	\$ 46.30	\$ 555.60	5%
100% FPL	\$ 24,860	\$ 158.95	\$ 1,907.40	8%	\$ 97.90	\$ 1,174.80	5%
150% FPL	\$ 37,290	\$ 158.95	\$ 1,907.40	5%	\$ 97.90	\$ 1,174.80	3%
200% FPL	\$ 49,720	\$ 158.95	\$ 1,907.40	4%	\$ 104.38	\$ 1,252.56	3%

4 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 15,000	\$ 65.42	\$ 785.04	5%	\$ (0.41)	\$ (4.92)	0%
100% FPL	\$ 30,000	\$ 65.42	\$ 785.04	3%	\$ 4.38	\$ 52.56	0%
150% FPL	\$ 45,000	\$ 65.42	\$ 785.04	2%	\$ 4.38	\$ 52.56	0%
200% FPL	\$ 60,000	\$ 65.42	\$ 785.04	1%	\$ 10.86	\$ 130.32	0%
3000 Gal							
50% FPL	\$ 15,000	\$ 96.60	\$ 1,159.20	8%	\$ 15.13	\$ 181.56	1%
100% FPL	\$ 30,000	\$ 96.60	\$ 1,159.20	4%	\$ 35.56	\$ 426.72	1%
150% FPL	\$ 45,000	\$ 96.60	\$ 1,159.20	3%	\$ 35.56	\$ 426.72	1%
200% FPL	\$ 60,000	\$ 96.60	\$ 1,159.20	2%	\$ 41.94	\$ 503.28	1%
4000 Gal							
50% FPL	\$ 15,000	\$ 127.77	\$ 1,533.24	10%	\$ 30.71	\$ 368.52	2%
100% FPL	\$ 30,000	\$ 127.77	\$ 1,533.24	5%	\$ 66.73	\$ 800.76	3%
150% FPL	\$ 45,000	\$ 127.77	\$ 1,533.24	3%	\$ 66.73	\$ 800.76	2%
200% FPL	\$ 60,000	\$ 127.77	\$ 1,533.24	3%	\$ 73.21	\$ 878.52	1%
5000 Gal							
50% FPL	\$ 15,000	\$ 158.95	\$ 1,907.40	13%	\$ 46.30	\$ 555.60	4%
100% FPL	\$ 30,000	\$ 158.95	\$ 1,907.40	6%	\$ 97.90	\$ 1,174.80	4%
150% FPL	\$ 45,000	\$ 158.95	\$ 1,907.40	4%	\$ 97.90	\$ 1,174.80	3%
200% FPL	\$ 60,000	\$ 158.95	\$ 1,907.40	3%	\$ 104.38	\$ 1,252.56	2%

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Water/Wastewater/Stormwater Burden Tables - Proposed

Full Tariff 2026, Proposed BDP 2026

Proposed Rates Include Tier 2 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 9,860	\$ 73.06	\$ 876.72	9%	\$ 0.68	\$ 8.16	0%
100% FPL	\$ 19,720	\$ 73.06	\$ 876.72	4%	\$ 5.51	\$ 66.12	0%
150% FPL	\$ 29,580	\$ 73.06	\$ 876.72	3%	\$ 5.51	\$ 66.12	0%
200% FPL	\$ 39,440	\$ 73.06	\$ 876.72	2%	\$ 18.49	\$ 221.88	1%
3000 Gal							
50% FPL	\$ 9,860	\$ 104.23	\$ 1,250.76	13%	\$ 16.26	\$ 195.12	2%
100% FPL	\$ 19,720	\$ 104.23	\$ 1,250.76	6%	\$ 36.69	\$ 440.28	2%
150% FPL	\$ 29,580	\$ 104.23	\$ 1,250.76	4%	\$ 36.69	\$ 440.28	1%
200% FPL	\$ 39,440	\$ 104.23	\$ 1,250.76	3%	\$ 49.57	\$ 594.84	2%
4000 Gal							
50% FPL	\$ 9,860	\$ 135.41	\$ 1,624.92	16%	\$ 31.85	\$ 382.20	4%
100% FPL	\$ 19,720	\$ 135.41	\$ 1,624.92	8%	\$ 67.86	\$ 814.32	4%
150% FPL	\$ 29,580	\$ 135.41	\$ 1,624.92	5%	\$ 67.86	\$ 814.32	3%
200% FPL	\$ 39,440	\$ 135.41	\$ 1,624.92	4%	\$ 80.84	\$ 970.08	2%
5000 Gal							
50% FPL	\$ 9,860	\$ 166.58	\$ 1,998.96	20%	\$ 47.44	\$ 569.28	6%
100% FPL	\$ 19,720	\$ 166.58	\$ 1,998.96	10%	\$ 99.04	\$ 1,188.48	6%
150% FPL	\$ 29,580	\$ 166.58	\$ 1,998.96	7%	\$ 99.04	\$ 1,188.48	4%
200% FPL	\$ 39,440	\$ 166.58	\$ 1,998.96	5%	\$ 112.02	\$ 1,344.24	3%

3 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 12,340	\$ 73.06	\$ 876.72	7%	\$ 0.68	\$ 8.16	0%
100% FPL	\$ 24,860	\$ 73.06	\$ 876.72	4%	\$ 5.51	\$ 66.12	0%
150% FPL	\$ 37,290	\$ 73.06	\$ 876.72	2%	\$ 5.51	\$ 66.12	0%
200% FPL	\$ 49,720	\$ 73.06	\$ 876.72	2%	\$ 18.49	\$ 221.88	0%
3000 Gal							
50% FPL	\$ 12,340	\$ 104.23	\$ 1,250.76	10%	\$ 16.26	\$ 195.12	2%
100% FPL	\$ 24,860	\$ 104.23	\$ 1,250.76	5%	\$ 36.69	\$ 440.28	2%
150% FPL	\$ 37,290	\$ 104.23	\$ 1,250.76	3%	\$ 36.69	\$ 440.28	1%
200% FPL	\$ 49,720	\$ 104.23	\$ 1,250.76	3%	\$ 49.57	\$ 594.84	1%
4000 Gal							
50% FPL	\$ 12,340	\$ 135.41	\$ 1,624.92	13%	\$ 31.85	\$ 382.20	3%
100% FPL	\$ 24,860	\$ 135.41	\$ 1,624.92	7%	\$ 67.86	\$ 814.32	3%
150% FPL	\$ 37,290	\$ 135.41	\$ 1,624.92	4%	\$ 67.86	\$ 814.32	2%
200% FPL	\$ 49,720	\$ 135.41	\$ 1,624.92	3%	\$ 80.84	\$ 970.08	2%
5000 Gal							
50% FPL	\$ 12,340	\$ 166.58	\$ 1,998.96	16%	\$ 47.44	\$ 569.28	5%
100% FPL	\$ 24,860	\$ 166.58	\$ 1,998.96	8%	\$ 99.04	\$ 1,188.48	5%
150% FPL	\$ 37,290	\$ 166.58	\$ 1,998.96	5%	\$ 99.04	\$ 1,188.48	3%
200% FPL	\$ 49,720	\$ 166.58	\$ 1,998.96	4%	\$ 112.02	\$ 1,344.24	3%

4 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 15,000	\$ 73.06	\$ 876.72	6%	\$ 0.68	\$ 8.16	0%
100% FPL	\$ 30,000	\$ 73.06	\$ 876.72	3%	\$ 5.51	\$ 66.12	0%
150% FPL	\$ 45,000	\$ 73.06	\$ 876.72	2%	\$ 5.51	\$ 66.12	0%
200% FPL	\$ 60,000	\$ 73.06	\$ 876.72	1%	\$ 18.49	\$ 221.88	0%
3000 Gal							
50% FPL	\$ 15,000	\$ 104.23	\$ 1,250.76	8%	\$ 16.26	\$ 195.12	1%
100% FPL	\$ 30,000	\$ 104.23	\$ 1,250.76	4%	\$ 36.69	\$ 440.28	1%
150% FPL	\$ 45,000	\$ 104.23	\$ 1,250.76	3%	\$ 36.69	\$ 440.28	1%
200% FPL	\$ 60,000	\$ 104.23	\$ 1,250.76	2%	\$ 49.57	\$ 594.84	1%
4000 Gal							
50% FPL	\$ 15,000	\$ 135.41	\$ 1,624.92	11%	\$ 31.85	\$ 382.20	3%
100% FPL	\$ 30,000	\$ 135.41	\$ 1,624.92	5%	\$ 67.86	\$ 814.32	3%
150% FPL	\$ 45,000	\$ 135.41	\$ 1,624.92	4%	\$ 67.86	\$ 814.32	2%
200% FPL	\$ 60,000	\$ 135.41	\$ 1,624.92	3%	\$ 80.84	\$ 970.08	2%
5000 Gal							
50% FPL	\$ 15,000	\$ 166.58	\$ 1,998.96	13%	\$ 47.44	\$ 569.28	4%
100% FPL	\$ 30,000	\$ 166.58	\$ 1,998.96	7%	\$ 99.04	\$ 1,188.48	4%
150% FPL	\$ 45,000	\$ 166.58	\$ 1,998.96	4%	\$ 99.04	\$ 1,188.48	3%
200% FPL	\$ 60,000	\$ 166.58	\$ 1,998.96	3%	\$ 112.02	\$ 1,344.24	2%

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Water/Wastewater/Stormwater Burden Tables - Proposed

Full Tariff 2026, Proposed BDP 2026

Proposed Rates Include Tier 3 Stormwater Fee

*Income levels represent 50%, 100%, 150%, and 200% FPL, using 2023 federal poverty guidelines.

See HHS Poverty Guidelines for 2023, <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>

2 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 9,860	\$ 88.32	\$ 1,059.84	11%	\$ 2.97	\$ 35.64	0%
100% FPL	\$ 19,720	\$ 88.32	\$ 1,059.84	5%	\$ 7.80	\$ 93.60	0%
150% FPL	\$ 29,580	\$ 88.32	\$ 1,059.84	4%	\$ 7.80	\$ 93.60	0%
200% FPL	\$ 39,440	\$ 88.32	\$ 1,059.84	3%	\$ 33.76	\$ 405.12	1%
3000 Gal							
50% FPL	\$ 9,860	\$ 119.50	\$ 1,434.00	15%	\$ 18.55	\$ 222.60	2%
100% FPL	\$ 19,720	\$ 119.50	\$ 1,434.00	7%	\$ 38.98	\$ 467.76	2%
150% FPL	\$ 29,580	\$ 119.50	\$ 1,434.00	5%	\$ 38.98	\$ 467.76	2%
200% FPL	\$ 39,440	\$ 119.50	\$ 1,434.00	4%	\$ 64.83	\$ 777.96	2%
4000 Gal							
50% FPL	\$ 9,860	\$ 150.67	\$ 1,808.04	18%	\$ 34.05	\$ 408.60	4%
100% FPL	\$ 19,720	\$ 150.67	\$ 1,808.04	9%	\$ 70.15	\$ 841.80	4%
150% FPL	\$ 29,580	\$ 150.67	\$ 1,808.04	6%	\$ 70.15	\$ 841.80	3%
200% FPL	\$ 39,440	\$ 150.67	\$ 1,808.04	5%	\$ 96.11	\$ 1,153.32	3%
5000 Gal							
50% FPL	\$ 9,860	\$ 181.85	\$ 2,182.20	22%	\$ 49.73	\$ 596.76	6%
100% FPL	\$ 19,720	\$ 181.85	\$ 2,182.20	11%	\$ 101.33	\$ 1,215.96	6%
150% FPL	\$ 29,580	\$ 181.85	\$ 2,182.20	7%	\$ 101.33	\$ 1,215.96	4%
200% FPL	\$ 39,440	\$ 181.85	\$ 2,182.20	6%	\$ 127.28	\$ 1,527.36	4%

3 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 12,340	\$ 88.32	\$ 1,059.84	9%	\$ 2.97	\$ 35.64	0%
100% FPL	\$ 24,860	\$ 88.32	\$ 1,059.84	4%	\$ 7.80	\$ 93.60	0%
150% FPL	\$ 37,290	\$ 88.32	\$ 1,059.84	3%	\$ 7.80	\$ 93.60	0%
200% FPL	\$ 49,720	\$ 88.32	\$ 1,059.84	2%	\$ 33.76	\$ 405.12	1%
3000 Gal							
50% FPL	\$ 12,340	\$ 119.50	\$ 1,434.00	12%	\$ 18.55	\$ 222.60	2%
100% FPL	\$ 24,860	\$ 119.50	\$ 1,434.00	6%	\$ 38.98	\$ 467.76	2%
150% FPL	\$ 37,290	\$ 119.50	\$ 1,434.00	4%	\$ 38.98	\$ 467.76	1%
200% FPL	\$ 49,720	\$ 119.50	\$ 1,434.00	3%	\$ 64.83	\$ 777.96	2%
4000 Gal							
50% FPL	\$ 12,340	\$ 150.67	\$ 1,808.04	15%	\$ 34.05	\$ 408.60	3%
100% FPL	\$ 24,860	\$ 150.67	\$ 1,808.04	7%	\$ 70.15	\$ 841.80	3%
150% FPL	\$ 37,290	\$ 150.67	\$ 1,808.04	5%	\$ 70.15	\$ 841.80	2%
200% FPL	\$ 49,720	\$ 150.67	\$ 1,808.04	4%	\$ 96.11	\$ 1,153.32	2%
5000 Gal							
50% FPL	\$ 12,340	\$ 181.85	\$ 2,182.20	18%	\$ 49.73	\$ 596.76	5%
100% FPL	\$ 24,860	\$ 181.85	\$ 2,182.20	9%	\$ 101.33	\$ 1,215.96	5%
150% FPL	\$ 37,290	\$ 181.85	\$ 2,182.20	6%	\$ 101.33	\$ 1,215.96	3%
200% FPL	\$ 49,720	\$ 181.85	\$ 2,182.20	4%	\$ 127.28	\$ 1,527.36	3%

4 Person Household							
	Income	Monthly Full Tariff PROPOSED 2026	Annual Full Tariff PROPOSED 2026	Burden - Full Tariff PROPOSED 2026	Monthly BDP PROPOSED 2026	Annual BDP PROPOSED 2026	Burden - BDP PROPOSED 2026
2000 Gal.							
50% FPL	\$ 15,000	\$ 88.32	\$ 1,059.84	7%	\$ 2.97	\$ 35.64	0%
100% FPL	\$ 30,000	\$ 88.32	\$ 1,059.84	4%	\$ 7.80	\$ 93.60	0%
150% FPL	\$ 45,000	\$ 88.32	\$ 1,059.84	2%	\$ 7.80	\$ 93.60	0%
200% FPL	\$ 60,000	\$ 88.32	\$ 1,059.84	2%	\$ 33.76	\$ 405.12	1%
3000 Gal							
50% FPL	\$ 15,000	\$ 119.50	\$ 1,434.00	10%	\$ 18.55	\$ 222.60	1%
100% FPL	\$ 30,000	\$ 119.50	\$ 1,434.00	5%	\$ 38.98	\$ 467.76	2%
150% FPL	\$ 45,000	\$ 119.50	\$ 1,434.00	3%	\$ 38.98	\$ 467.76	1%
200% FPL	\$ 60,000	\$ 119.50	\$ 1,434.00	2%	\$ 64.83	\$ 777.96	1%
4000 Gal							
50% FPL	\$ 15,000	\$ 150.67	\$ 1,808.04	12%	\$ 34.05	\$ 408.60	3%
100% FPL	\$ 30,000	\$ 150.67	\$ 1,808.04	6%	\$ 70.15	\$ 841.80	3%
150% FPL	\$ 45,000	\$ 150.67	\$ 1,808.04	4%	\$ 70.15	\$ 841.80	2%
200% FPL	\$ 60,000	\$ 150.67	\$ 1,808.04	3%	\$ 96.11	\$ 1,153.32	2%
5000 Gal							
50% FPL	\$ 15,000	\$ 181.85	\$ 2,182.20	15%	\$ 49.73	\$ 596.76	4%
100% FPL	\$ 30,000	\$ 181.85	\$ 2,182.20	7%	\$ 101.33	\$ 1,215.96	4%
150% FPL	\$ 45,000	\$ 181.85	\$ 2,182.20	5%	\$ 101.33	\$ 1,215.96	3%
200% FPL	\$ 60,000	\$ 181.85	\$ 2,182.20	4%	\$ 127.28	\$ 1,527.36	3%

Pittsburgh United Statement 1

APPENDIX A

RESUME OF HARRY S. GELLER

RESUME OF HARRY S. GELLER

EDUCATIONAL BACKGROUND:

Harpur College, State University of New York at Binghamton, B.A. 1966

Washington College of Law, American University, J.D. 1969

New York University Law School, courses in Urban Affairs and Poverty Law, as part of
Volunteers in Service to America (VISTA) Program 1969-1971

EMPLOYMENT:

1988 – 2015 Executive Director, Pennsylvania Utility Law Project (PULP), a project of the civil non-profit Pennsylvania Legal Aid Network. PULP is dedicated to providing technical support, information sharing, and representation to low-income individuals and organizations, assisting and advocating for the low income in utility and energy matters. Responsibilities include project oversight, case consultation, co-counseling, and participation on task forces, work groups and advisory panels, community education and training in utility and energy matters affecting the low income.

While at PULP, served in the following capacities:

- Chairman, Low-Income Home Energy Assistance Program (LIHEAP) Advisory Committee to the Secretary, Pennsylvania Department of Human Services
- Member, Pennsylvania Public Utility Commission, Consumer Advisory Council Coordinator, Pennsylvania Legal Services Utility/Energy Work Groups
- Member, Weatherization Policy Advisory Committee to the Department of Community and Economic Development
- Member, PECO Universal Service Advisory Committee and LIURP Subcommittee

1974-1987 Staff Attorney, Managing Attorney and ultimately, Executive Director of Legal Services, Incorporated (LSI), a civil legal services program serving Adams, Cumberland, Franklin and Fulton Counties. Through a restructuring with other legal services programs, LSI became part of what is now known as MidPenn Legal Services and Franklin County Legal Services.

1971-1972 Staff Attorney, New York City Legal Aid Society, Criminal Court and Supreme Court Branches, New York County.

1969-1971 Volunteer in Service to America (VISTA) assigned to the New York University Law School Project on Urban Affairs and Poverty Law.

BAR ADMISSIONS

New York State

Commonwealth of Pennsylvania

United States District Court, Middle District of Pennsylvania

Cases in which Harry S. Geller has participated as a witness before the Pennsylvania Public Utility Commission since July 1, 2015

- Pennsylvania Public Utility Commission v. Philadelphia Gas Works, R-2022-3034229, P- 2022-3034264
- Pennsylvania Public Utility Commission v. National Fuel Gas Distribution Corporation, R-2022-3035730
- Pennsylvania Public Utility Commission v. Columbia Gas of Pa., Docket No. R-2022-3031211
- Pennsylvania Public Utility Commission v. Pa. American Water Co., Docket Nos. R-2022-3031672 & -3031673
- Pennsylvania Public Utility Commission v. UGI Utilities, Inc. – Gas Division, R-2021- 3030218.
- Joint Petition of MetEd, Penelec, Penn Power, and West Penn Power for Approval of their Default Service Programs for the Period Commencing June 1, 2023 through May 31, 2027, Docket Nos. P-2021-3030012, -13, -14, -21
- Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc. and Aqua Pennsylvania Wastewater, Inc., Docket Nos. R-2021-3027385, R- 2021-3027386.
- Pennsylvania Public Utility Commission v. Pittsburgh Water and Sewer Authority, R-2021-3024773, R-2021-3024774, R-2021-3024779.
- Pennsylvania Public Utility Commission v. Duquesne Light Company, R-2021- 3024750.
- Pennsylvania Public Utility Commission v. PECO Energy – Electric Division, R-2021-3024601.
- Pennsylvania Public Utility Commission v. Columbia Gas of Pennsylvania, Inc., R-2021-3024296.
- Tenant Union Representative Network v. PECO Energy Company, C-2020-3021557
- Pennsylvania Public Utility Commission v. Philadelphia Gas Works, R-2020-3017206.
- Petition of PPL Electric Utilities Corporation for Approval of a Default Service Program for the Period of June 1, 2021 through May 31 , 2025, Docket No. P-2020-3019356.
- Petition of PECO Energy Company for Approval of Its Default Service Program for the Period from June 1, 2021 through May 31, 2025, Docket No. P-2020-3019290.
- Petition of Duquesne Light Company For Approval of Default Service Plan For The Period June 1, 2021 Through May 31, 2025, Docket No. P-2020-3019522.
- Joint Application of Aqua America, Inc., Aqua Pennsylvania, Inc., Aqua Pennsylvania Wastewater, Inc., Peoples Natural Gas Company LLC and Peoples Gas Company LLC for all of the Authority and Necessary Certificates of Public Convenience to Approve a Change in Control of Peoples Natural Gas Company LLC, and Peoples Gas Company LLC by way of the Purchase of all of LDC Funding LLC's Membership Interests by Aqua America, Inc., Docket Nos. A-2018-3006061, A-2018-3006062, A-2018-3006063.
- Pennsylvania Public Utility Commission v. Aqua Pennsylvania, Inc. et al. Docket Nos. R2018-3003558 et seq.

- Pennsylvania Public Utility Commission v. Duquesne Light Company, Docket No. R-2018-3000124.
- Pennsylvania Public Utility Commission v. PECO Energy Company- Electric Division, Docket No. R-2018-3000164.
- Joint Petition of MetEd, Penelec, Penn Power, and West Penn Power for Approval of their Default Service Programs for the period commencing June 1, 2019 through May 31, 2023, Docket Nos. P-2017-2637855, P-2017-2637857, P-2017-2637858; P-2017-2637866.
- Pennsylvania Public Utility Commission et al. v. Philadelphia Gas Works, Docket No. R-2017-2586783.
- PECO Energy Company's Pilot Plan for an Advance Payments Program and Petition for Temporary Waiver of Portions of the Commission's Regulations with Respect to that Plan, Docket No. P-2016-2573023.
- Petition of PECO Energy Company for Approval of a Default Service Program for the Period of June 1, 2017 through May 31, 2019, Docket No. P-2016-2534980.
- Petition of PPL Electric Utilities Corporation for Approval of a Default Service Program and Procurement Plan for the Period of June 1, 2017 through May 31, 2021, Docket No. P-2016-2526627.
- Petition of Duquesne Light Company for Approval of a Default Service Program for the Period of June 1, 2017 through May 31, 2021, Docket No. P-2016-2543140.
- Pennsylvania Public Utility Commission et al. v. Columbia Gas of Pennsylvania, Inc., Docket No. R-2016-2529660.
- Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company,
- Pennsylvania Power Company, and West Penn Power Company for Approval of their Default Service Programs for the period commencing June 1, 2017 through May 31, 2019, Docket Nos. P-2015-2511333, P-2015-25113351, P-2015-2511355, P-2015-2511356.
- Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan, Docket No. M-2015-2515642.
- Pa. PUC v. PGW, Docket No. R-2023-3037933.

Pittsburgh United Statement 1

Appendix B

Cited Discovery Responses

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-I-1 Please provide the number of PWSA residential customers served from January 2019 to present, disaggregated by month and year, as of the last day of the month. If unavailable as of the last day of the month, please provide the number of PWSA residential customers served from January 2019 to present, disaggregated by month, and specify at which point in the month these customer counts were calculated.

Please provide this data in a live Excel spreadsheet.

Response: See United-I-1.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

Month	Year	Residential Customer Count
1	2019	97982
2	2019	97804
3	2019	97827
4	2019	97864
5	2019	97789
6	2019	97913
7	2019	98025
8	2019	97572
9	2019	97574
10	2019	97522
11	2019	97378
12	2019	97677

Month	Year	Residential Customer Count
1	2020	97534
2	2020	97683
3	2020	97682
4	2020	97896
5	2020	97905
6	2020	97978
7	2020	97987
8	2020	97889
9	2020	98043
10	2020	98129
11	2020	98230
12	2020	98199

Month	Year	Residential Customer Count
1	2021	97992
2	2021	98041
3	2021	98057
4	2021	98164
5	2021	98083
6	2021	98080
7	2021	97956
8	2021	97948
9	2021	98030
10	2021	97965
11	2021	97917
12	2021	97832

Month	Year	Residential Customer Count
1	2022	99219
2	2022	100570
3	2022	100542
4	2022	100676
5	2022	100627
6	2022	100682
7	2022	100838
8	2022	99506
9	2022	99289
10	2022	93805
11	2022	99678
12	2022	99421

Month	Year	Residential Customer Count
1	2023	99621
2	2023	99704
3	2023	99734
4	2023	99221
5	2023	99775
6	2023	99751

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919 and P-2023-3040678

Request: United-I-3 From January 2019 until the most recent date available, how many confirmed low income customers did PWSA serve, disaggregated by month and year, as of the last day of the month?

Please provide this data in a live Excel spreadsheet.

Response: See Response to United-I-5 regarding how PWSA defines the term “confirmed low income customer.” PWSA does not separately track information for customers who are not participants in the BDP. See attachment United-I-9 and 10 for number of BCP enrolled customers by service type Jan 2019 – June 2023.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: August 3, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-I-5 How does PWSA define the term “confirmed low income customer”? Please also indicate what customer segments are included in PWSA’s designation of “confirmed low income customers”.

Response: PWSA defines the term “confirmed low income customer” as any customer identified as having an income at or below 150% of the Federal Poverty Level (FPL). PWSA will identify a confirmed low income customer when the customer 1) enrolls in the Bill Discount Program, 2) establishes a 60-month payment arrangement, 3) qualifies for any customer assistance program or grant, and/or 4) is experiencing any other circumstance which makes it reasonably likely that the customer is low income.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-I-7 As of the most recent date available, how many estimated low income customers does PWSA serve? Please explain how PWSA arrived at these estimates, and provide a copy of any supporting documentation used to determine this estimate.

Response: PWSA continues to operate under the assumption that there are approximately 20,000 customers eligible for its assistance programs per the Household Affordability Analysis released in December 2019. Exhibit JAQ-5 as filed with my direct testimony, PWSA St. No. 8, in the prior rate case, R-2020-3017951 was a copy of the PWSA Household Affordability Analysis – Final Report December 2019. All the direct testimony supporting the prior rate case is available on the Commission’s website at: <https://www.puc.pa.gov/pcdocs/1658682.pdf>

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-I-9 From January 2019 until the most recent date available, how many customers were enrolled in PWSA’s Bill Discount Program (BDP), disaggregated by month and year, as of the last day of the month?

Please provide this data in a live Excel spreadsheet.

Response: See attachment United-I-9 and 10.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: August 1, 2023

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919 and P-2023-3040678

Request: United-I-10 For the Responses to United I-9, please additionally disaggregate by service type (e.g. water only; wastewater only; stormwater only; combined, specifying the combined services). Please provide this data in a live Excel spreadsheet.

Response: See attachment United-I-9 and 10.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: August 1, 2023

Year	Month	Number of BDP Accounts	Water Only	Wastewater Only	Combined
2023	1	6262	77	1695	4490
2023	2	6304	78	1693	4533
2023	3	6334	78	1733	4523
2023	4	6464	79	1780	4605
2023	5	6585	81	1815	4689
2023	6	6657	82	1824	4751

Year	Month	Number of BDP Accounts	Water Only	Wastewater Only	Combined
2022	1	4256	7	414	3835
2022	2	4331	8	435	3888
2022	3	4414	8	476	3930
2022	4	4576	14	548	4014
2022	5	4690	19	653	4018
2022	6	4878	23	812	4043
2022	7	5466	43	1359	4064
2022	8	5765	74	1514	4177
2022	9	5864	75	1535	4254
2022	10	5943	76	1560	4307
2022	11	6044	77	1613	4354
2022	12	6159	76	1663	4420

Year	Month	Number of BDP Accounts	Water Only	Wastewater Only	Combined
2021	1	3295	4	171	3120
2021	2	3393	3	191	3199
2021	3	3480	5	201	3274
2021	4	3498	3	215	3280
2021	5	3492	2	223	3267
2021	6	3615	2	231	3382
2021	7	3675	4	249	3422
2021	8	3784	5	259	3520
2021	9	3882	7	287	3588
2021	10	3984	7	342	3635
2021	11	4050	8	360	3682
2021	12	4132	8	390	3734

Year	Month	Number of BDP Accounts	Water Only	Wastewater Only	Combined
2020	1	2448	3	92	2353
2020	2	2532	3	100	2429
2020	3	2600	4	102	2494
2020	4	2663	4	105	2554
2020	5	2748	4	109	2635
2020	6	2816	4	117	2695
2020	7	2905	4	126	2775
2020	8	2964	4	132	2828
2020	9	3028	4	140	2884
2020	10	3100	5	145	2950
2020	11	3154	4	153	2997
2020	12	3240	4	157	3079

Year	Month	Number of BDP Accounts	Water Only	Wastewater Only	Combined
2019	1	1619	1	66	1552
2019	2	1764	2	73	1689
2019	3	1823	1	71	1751
2019	4	1882	1	74	1807
2019	5	1928	1	74	1853
2019	6	2001	1	77	1923
2019	7	2060	1	80	1979
2019	8	2119	1	80	2038
2019	9	2156	2	81	2073
2019	10	2203	2	78	2123
2019	11	2303	2	81	2220
2019	12	2363	2	83	2278

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919 and P-2023-3040678

Request: United-I-25 From January 2019 to the most recent date available, please provide the median and mean arrearages for residential customers, disaggregated by month and year, as of the last day of the month for each of the following groups:

- A. All residential customers;
- B. Residential customers, excluding confirmed low income customers;
- C. Confirmed low income customers;
- D. Confirmed low income customers, excluding BDP customers;
- E. BDP customers.

Please provide this data in a live Excel spreadsheet.

Response: A. B. E. See attachment United-I-25.a, .b, and .e.
C. and D. See Response to United-I-5 regarding how PWSA defines the term “confirmed low income customer.” PWSA does not separately track information for customers who are not participants in the BDP.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: August 3, 2023

Median and Mean Arrearages All Residential Customers Excluding BDP and BDP Jan 2019 – May 2023

Year	Month	BDP Arrearage Mean	BDP Arrearage Median
2019	1	\$ 435.76	\$ 175.52
2019	2	\$ 466.36	\$ 184.79
2019	3	\$ 505.98	\$ 216.62
2019	4	\$ 497.85	\$ 207.37
2019	5	\$ 504.88	\$ 205.64
2019	6	\$ 522.40	\$ 213.67
2019	7	\$ 544.51	\$ 238.78
2019	8	\$ 558.27	\$ 235.41
2019	9	\$ 578.89	\$ 249.95
2019	10	\$ 610.14	\$ 277.16
2019	11	\$ 623.65	\$ 287.94
2019	12	\$ 657.95	\$ 322.35
2020	1	\$ 680.11	\$ 333.29
2020	2	\$ 715.86	\$ 367.75
2020	3	\$ 714.74	\$ 356.22
2020	4	\$ 758.82	\$ 374.91
2020	5	\$ 800.25	\$ 397.90
2020	6	\$ 833.30	\$ 429.77
2020	7	\$ 844.02	\$ 423.95
2020	8	\$ 872.19	\$ 449.00
2020	9	\$ 888.05	\$ 449.28
2020	10	\$ 895.92	\$ 460.78
2020	11	\$ 932.08	\$ 501.67
2020	12	\$ 976.11	\$ 538.75
2021	1	\$ 991.03	\$ 532.63
2021	2	\$ 1,016.91	\$ 551.49
2021	3	\$ 1,064.46	\$ 586.42
2021	4	\$ 1,078.39	\$ 576.66
2021	5	\$ 1,074.31	\$ 542.88
2021	6	\$ 1,104.32	\$ 560.49
2021	7	\$ 1,104.32	\$ 560.49
2021	8	\$ 1,109.93	\$ 524.84
2021	9	\$ 1,110.81	\$ 520.43
2021	10	\$ 1,110.81	\$ 520.43
2021	11	\$ 1,107.98	\$ 527.34
2021	12	\$ 1,107.98	\$ 527.34
2022	1	\$ 1,129.20	\$ 548.51
2022	2	\$ 1,173.47	\$ 589.84
2022	3	\$ 1,216.64	\$ 590.23
2022	4	\$ 1,245.43	\$ 581.37
2022	5	\$ 1,229.47	\$ 581.65
2022	6	\$ 1,193.59	\$ 526.82

Median and Mean Arrearages All Residential Customers Excluding BDP and BDP Jan 2019 – May 2023

2022	7	\$	1,126.52	\$	436.41
2022	8	\$	1,293.08	\$	587.98
2022	9	No data available			
2022	10	\$	1,104.66	\$	438.03
2022	11	\$	1,161.31	\$	496.18
2022	12	\$	1,169.48	\$	490.25
2023	1	\$	1,161.33	\$	485.24
2023	2	\$	1,234.64	\$	548.98
2023	3	\$	1,262.38	\$	567.41
2023	4	\$	1,303.22	\$	590.00
2023	5	\$	1,322.27	\$	587.94

Median and Mean Arrearages All Residential Customers Excluding BDP and BDP Jan 2019 – May 2023

Year	Month	Residential Excluding BDP Arrearage Mean
2019	1	\$ 467.16
2019	2	\$ 462.84
2019	3	\$ 468.01
2019	4	\$ 474.19
2019	5	\$ 475.77
2019	6	\$ 470.40
2019	7	\$ 487.08
2019	8	\$ 481.64
2019	9	\$ 488.45
2019	10	\$ 521.19
2019	11	\$ 510.69
2019	12	\$ 526.54
2020	1	\$ 538.81
2020	2	\$ 554.27
2020	3	\$ 563.17
2020	4	\$ 580.83
2020	5	\$ 643.43
2020	6	\$ 621.59
2020	7	\$ 591.14
2020	8	\$ 581.95
2020	9	\$ 596.29
2020	10	\$ 613.99
2020	11	\$ 643.55
2020	12	\$ 691.82
2021	1	\$ 582.37
2021	2	\$ 600.13
2021	3	\$ 675.17
2021	4	\$ 717.60
2021	5	\$ 715.91
2021	6	\$ 735.09
2021	7	\$ 735.01
2021	8	\$ 770.63
2021	9	\$ 779.33
2021	10	\$ 779.33
2021	11	\$ 795.59
2021	12	\$ 795.59
2022	1	\$ 852.79
2022	2	\$ 845.02
2022	3	\$ 811.50
2022	4	\$ 867.72
2022	5	\$ 864.18
2022	6	\$ 861.29

Median and Mean Arrearages All Residential Customers Excluding BDP and BDP Jan 2019 – May 2023

2022	7	\$	941.86
2022	8	\$	1,029.99
2022	9	No data available	
2022	10	\$	780.03
2022	11	\$	879.13
2022	12	\$	894.07
2023	1	\$	879.72
2023	2	\$	933.02
2023	3	\$	982.66
2023	4	\$	967.51
2023	5	\$	1,004.16

Median and Mean Arrearages All Residential Customers Excluding BDP and BDP Jan 2019 – May 2023

Residential Excluding BDP Arrearage Median	
\$	92.60
\$	91.91
\$	93.97
\$	97.11
\$	95.80
\$	101.87
\$	102.71
\$	101.87
\$	101.87
\$	104.40
\$	103.81
\$	117.20
\$	117.82
\$	120.56
\$	127.67
\$	144.81
\$	160.31
\$	154.58
\$	145.18
\$	146.00
\$	154.56
\$	157.88
\$	160.31
\$	180.91
\$	142.62
\$	151.35
\$	170.77
\$	180.12
\$	173.84
\$	166.95
\$	166.94
\$	160.63
\$	172.97
\$	172.97
\$	179.89
\$	179.89
\$	202.97
\$	183.35
\$	176.14
\$	201.75
\$	192.68
\$	185.32

Median and Mean Arrearages All Residential Customers
 Customers Excluding BDP and BDP Jan 2019 – May 2023

\$	207.14
\$	348.28
\$	221.21
\$	299.03
\$	308.65
\$	300.00
\$	333.05
\$	362.69
\$	359.75
\$	342.70

Median and Mean Arrearages All Residential Customers Excluding BDP and BDP Jan 2019 – May 2023

Year	Month	Residential Arrearage Mean	Residential Arrearage Median
2019	1	\$ 467.16	\$ 92.60
2019	2	\$ 462.84	\$ 91.91
2019	3	\$ 468.01	\$ 93.97
2019	4	\$ 474.19	\$ 97.11
2019	5	\$ 475.77	\$ 95.80
2019	6	\$ 470.40	\$ 101.87
2019	7	\$ 487.08	\$ 102.71
2019	8	\$ 481.64	\$ 101.87
2019	9	\$ 488.45	\$ 101.87
2019	10	\$ 521.19	\$ 104.40
2019	11	\$ 510.69	\$ 103.81
2019	12	\$ 526.54	\$ 117.20
2020	1	\$ 538.81	\$ 117.82
2020	2	\$ 554.27	\$ 120.56
2020	3	\$ 563.17	\$ 127.67
2020	4	\$ 580.83	\$ 144.81
2020	5	\$ 643.43	\$ 160.31
2020	6	\$ 621.59	\$ 154.58
2020	7	\$ 591.14	\$ 145.18
2020	8	\$ 581.95	\$ 146.00
2020	9	\$ 596.29	\$ 154.56
2020	10	\$ 613.99	\$ 157.88
2020	11	\$ 643.55	\$ 160.31
2020	12	\$ 691.82	\$ 180.91
2021	1	\$ 582.37	\$ 142.62
2021	2	\$ 600.13	\$ 151.35
2021	3	\$ 675.17	\$ 170.77
2021	4	\$ 717.60	\$ 180.12
2021	5	\$ 715.91	\$ 173.84
2021	6	\$ 735.09	\$ 166.95
2021	7	\$ 735.01	\$ 166.94
2021	8	\$ 770.63	\$ 160.63
2021	9	\$ 779.33	\$ 172.97
2021	10	\$ 779.33	\$ 172.97
2021	11	\$ 795.59	\$ 179.89
2021	12	\$ 795.59	\$ 179.89
2022	1	\$ 852.79	\$ 202.97
2022	2	\$ 845.02	\$ 183.35
2022	3	\$ 811.50	\$ 176.14
2022	4	\$ 867.72	\$ 201.75
2022	5	\$ 864.18	\$ 192.68
2022	6	\$ 861.29	\$ 185.32

Median and Mean Arrearages All Residential Customers Excluding BDP and BDP Jan 2019 – May 2023

2022	7	\$	941.86	\$	207.14
2022	8	\$	1,057.92	\$	370.20
2022	9	No data available			
2022	10	\$	815.34	\$	241.31
2022	11	\$	911.83	\$	316.47
2022	12	\$	926.10	\$	330.00
2023	1	\$	912.15	\$	317.37
2023	2	\$	967.85	\$	356.82
2023	3	\$	1,015.34	\$	388.01
2023	4	\$	1,006.21	\$	387.00
2023	5	\$	1,041.03	\$	371.02

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set I Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919 and P-2023-3040678

Request: United-I-32 From January 2019 to the most recent date available, please provide PWSA’s number of payment troubled customers (i.e. customers who have failed to maintain one or more payment arrangement in the previous one year period), disaggregated by month and year, as of the last day of the month, for each of the following groups:

- A. All residential customers;
- B. Residential customers, excluding confirmed low income customers;
- C. Confirmed low income customers;
- D. Confirmed low income customers, excluding BDP customers;
- E. BDP customers.

Please provide this data in a live Excel spreadsheet.

Response: A. B. E. See attachment United-I-32.a, .b, and .e.
C. and D. See Response to United-I-5 regarding how PWSA defines the term “confirmed low income customer.” PWSA does not separately track information for customers who are not participants in the BDP.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: August 3, 2023

Number Payment Troubled Customers All Residential Customers Excluding BDP and BDP Jan 2019-May 2023

Year	Month	BDP payment troubled customers
2019	1	35
2019	2	23
2019	3	36
2019	4	25
2019	5	43
2019	6	29
2019	7	43
2019	8	42
2019	9	32
2019	10	17
2019	11	14
2019	12	19
2020	1	7
2020	2	7
2020	3	7
2020	4	6
2020	5	5
2020	6	5
2020	7	6
2020	8	8
2020	9	4
2020	10	7
2020	11	8
2020	12	6
2021	1	1
2021	2	4
2021	3	11
2021	4	7
2021	5	18
2021	6	16
2021	7	25
2021	8	8
2021	9	19
2021	10	24
2021	11	8
2021	12	11
2022	1	11
2022	2	18
2022	3	8
2022	4	9
2022	5	5

Number Payment Troubled Customers All Residential Customers Excluding BDP and BDP Jan 2019-May 2023

Year	Month	Residential payment troubled customers excluding_BDP
2019	1	27
2019	2	27
2019	3	47
2019	4	34
2019	5	37
2019	6	40
2019	7	61
2019	8	46
2019	9	51
2019	10	33
2019	11	26
2019	12	24
2020	1	11
2020	2	11
2020	3	13
2020	4	8
2020	5	7
2020	6	11
2020	7	10
2020	8	7
2020	9	12
2020	10	8
2020	11	12
2020	12	8
2021	1	7
2021	2	8
2021	3	12
2021	4	10
2021	5	36
2021	6	29
2021	7	56
2021	8	40
2021	9	38
2021	10	36
2021	11	21
2021	12	43
2022	1	23
2022	2	23
2022	3	30
2022	4	8
2022	5	10

Number Payment Troubled Customers All Residential Customers Excluding BDP and BDP Jan 2019-May 2023

Year	Month	Residential payment troubled customers
2019	1	27
2019	2	27
2019	3	47
2019	4	34
2019	5	37
2019	6	40
2019	7	61
2019	8	46
2019	9	51
2019	10	33
2019	11	26
2019	12	24
2020	1	11
2020	2	11
2020	3	13
2020	4	8
2020	5	7
2020	6	11
2020	7	10
2020	8	7
2020	9	12
2020	10	8
2020	11	12
2020	12	8
2021	1	7
2021	2	8
2021	3	12
2021	4	10
2021	5	36
2021	6	29
2021	7	56
2021	8	40
2021	9	38
2021	10	36
2021	11	21
2021	12	43
2022	1	23
2022	2	23
2022	3	30
2022	4	8
2022	5	10

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
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Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-I-34 Please answer.

- A. How many residential customers received a payment arrangement from January 2019 to date, disaggregated by month and year, as of the last day of the month?
- B. For the Responses to United I-34, Subsection A., please disaggregate by month, year, and the service type (e.g. water only; wastewater only; stormwater only; combined, specifying the combined services).
- C. How many confirmed low income customers received a payment arrangement from January 2019 to date, disaggregated by month and year, as of the last day of the month?

Please provide this data in a live Excel spreadsheet.

Response: See attachment United-I-34.a-c See Response to United-I-5 regarding how PWSA defines the term “confirmed low income customer.” PWSA does not separately track information for customers who are not participants in the BDP.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: August 3, 2023

	Month Year	Number of Payment Plans
Service Type	Aug 2022	127
	Combined	106
	Wastewater Only	21
	Water Only	0
	Sep 2022	564
	Combined	418
	Wastewater Only	142
	Water Only	4
	Oct 2022	580
	Combined	385
	Wastewater Only	188
	Water Only	7
	Nov 2022	281
	Combined	206
	Wastewater Only	72
	Water Only	3
	Dec 2022	310
	Combined	216
	Wastewater Only	93
	Water Only	1
	Jan 2023	679
Combined	486	
Wastewater Only	186	
Water Only	7	
Feb 2023	330	
Combined	260	
Wastewater Only	69	
Water Only	1	
Mar 2023	562	
Combined	396	
Wastewater Only	160	
Water Only	6	
Apr 2023	682	
Combined	466	
Wastewater Only	214	
Water Only	2	
May 2023	718	
Combined	503	
Wastewater Only	207	
Water Only	8	
June 2023	824	
Combined	582	
Wastewater Only	238	
Water Only	4	
	Grand Total	5,657

	Month Year	Number of Payment Plans
Service Type	Aug 2022	51
	Combined	42
	Wastewater Only	9
	Water Only	0
	Sep 2022	276
	Combined	200
	Wastewater Only	74
	Water Only	2
	Oct 2022	257
	Combined	174
	Wastewater Only	79
	Water Only	4
	Nov 2022	129
	Combined	91
	Wastewater Only	36
	Water Only	2
	Dec 2022	134
	Combined	90
	Wastewater Only	44
	Water Only	0
	Jan 2023	296
	Combined	210
	Wastewater Only	82
	Water Only	4
	Feb 2023	154
	Combined	117
	Wastewater Only	36
	Water Only	1
	Mar 2023	237
	Combined	162
Wastewater Only	72	
Water Only	3	
Apr 2023	253	
Combined	166	
Wastewater Only	87	
Water Only	0	
May 2023	265	
Combined	196	
Wastewater Only	68	
Water Only	1	
Jun-23	496	
Combined	348	
Wastewater Only	146	
Water Only	2	
Grand Total	2,548	

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-1 Has PWSA, or any third party on behalf of PWSA, conducted any formal or informal assessment of PWSA’s low income assistance programs since January 2020? If so, please provide a copy of any such assessment.

Response: No such assessment has been performed or commissioned by PWSA.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-2 From January 2019 to the most recent date available, please provide the total residential accounts that were written off for non-payment and the associated write-offs (in dollars) for those accounts, for each of the following groups:

- A. All residential customers;
- B. Residential customers, excluding confirmed low income customers;
- C. Confirmed low income customers;
- D. Confirmed low income customers, excluding BDP customers;
- E. BDP customers.

Please provide this data in a live Excel spreadsheet.

Response: PWSA has not yet engaged in a mass write-off exercise. Please see the standard operating procedure, see attachment United-II-2, that PWSA is planning to follow during its annual bad debt review in Q1 2024.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023



PWSA Standard Operating Procedure

Division: Customer Service; Collections

Scope: How to Process a Write-Off of Uncollectible Charges

Job Title: Senior Collections Manager

Subject: Write-Off Process

PWSA's write-off process is intended to expunge unpaid water/wastewater conveyance/stormwater charges that have been deemed uncollectible through the below described review process. In turn, the outstanding value of bad debts reported and reviewed annually will decrease.

The Senior Collections Manager will review accounts listed in the bad debt analysis spreadsheet annually to determine which balances to write-off. This spreadsheet can be found on the shared drive via this path: <S:\Customer Service\COLLECTIONS TERM LETTER FOLDER\Bad Debt Analysis>.

The following are the criteria that each account must meet to be considered for a write-off.

1. Water service to the property is shut at the curb;
2. Vacant, as confirmed through a) PWSA personnel visiting the property to verify vacancy, and b) PWSA regularly obtaining actual meter readings indicating no water consumption at the property;
3. Unpaid charges aged over four years;
4. Length of time overall that the charges have been outstanding;
5. Amount of outstanding water/wastewater conveyance/stormwater charges;
6. Low property value as compared to the total outstanding charges due to PWSA; and
7. Unpaid taxes per the Allegheny County Real Estate portal (<http://www2.alleghenycounty.us/RealEstate/Search.aspx>).



The Senior Collections Manager will email a spreadsheet of accounts meeting the above write-off criteria to PWSA's Director of Finance and Controller, requesting approval to move forward with the write-off process.

Once approved, the Senior Collections Manager will process write-off adjustments in PWSA's Customer Information System. If the amount of any one write-off adjustment is over \$25,000, the Senior Collections Manager will send an adjustment approval request to the Director of Customer Service. Each write-off adjustment will display a comment indicating "Uncollectible Debt" so that all PWSA personnel will know that the charges met the review criteria.

The write-off spreadsheet will be saved on the shared drive via the below path so as to be easily retrieved for audit purposes: <S:\Customer Service\COLLECTIONS TERM LETTER FOLDER\Bad Debt Analysis>.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-3 Please indicate:

- A. How many total customers received a hardship grant from January 2019 to date, disaggregated by month and year, as of the last day of the month;
- B. How many customers receiving a discount on their water bill through the BDP received a hardship grant from January 2020 to date, disaggregated by month and year, as of the last day of the month; and
- C. How many customers receiving a discount on their wastewater bill through the BDP received a hardship grant from January 2020 to date, disaggregated by month and year, as of the last day of the month.

Please provide this data in a live Excel spreadsheet.

Response: See attachment United-II-3A-C.

Response provided by: Julie A. Mechling, Director of Customer Service

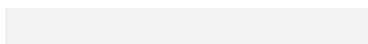
Date Response provided: August 3, 2023

Year	Month	Hardship Grant Customers
2019	1	11
2019	2	7
2019	3	4
2019	4	35
2019	5	17
2019	6	31
2019	7	7
2019	8	6
2019	9	12
2019	10	16
2019	11	18
2019	12	13
2020	1	9
2020	2	2
2020	3	3
2020	4	
2020	5	1
2020	6	
2020	7	
2020	8	
2020	9	
2020	10	
2020	11	
2020	12	10
2021	1	21
2021	2	33
2021	3	24
2021	4	41
2021	5	32
2021	6	22
2021	7	22
2021	8	26
2021	9	16
2021	10	19
2021	11	30
2021	12	17
2022	1	25
2022	2	35
2022	3	37
2022	4	23
2022	5	32
2022	6	17
2022	7	42
2022	8	37
2022	9	35

2022	10	20
2022	11	14
2022	12	23
2023	1	33
2023	2	34
2023	3	42
2023	4	42
2023	5	64
2023	6	80

Year	Month	Hardship Grant Customers & CAP / Water
2019	1	
2019	2	
2019	3	
2019	4	
2019	5	
2019	6	
2019	7	
2019	8	
2019	9	
2019	10	
2019	11	
2019	12	
2020	1	8
2020	2	1
2020	3	1
2020	4	
2020	5	1
2020	6	
2020	7	
2020	8	
2020	9	
2020	10	
2020	11	
2020	12	9
2021	1	7
2021	2	12
2021	3	18
2021	4	26
2021	5	15
2021	6	7
2021	7	9
2021	8	17
2021	9	5
2021	10	9
2021	11	16
2021	12	6
2022	1	
2022	2	14
2022	3	11
2022	4	9
2022	5	11
2022	6	6
2022	7	12
2022	8	
2022	9	10

2022	10	11
2022	11	9
2022	12	18
2023	1	20
2023	2	22
2023	3	25
2023	4	25
2023	5	40
2023	6	43



Year	Month	Hardship Grant Customers & CAP / Sewer
2019	1	
2019	2	
2019	3	
2019	4	
2019	5	
2019	6	
2019	7	
2019	8	
2019	9	
2019	10	
2019	11	
2019	12	
2020	1	8
2020	2	1
2020	3	1
2020	4	
2020	5	1
2020	6	
2020	7	
2020	8	
2020	9	
2020	10	
2020	11	
2020	12	9
2021	1	
2021	2	
2021	3	
2021	4	1
2021	5	
2021	6	
2021	7	
2021	8	
2021	9	
2021	10	
2021	11	
2021	12	
2022	1	
2022	2	4
2022	3	11
2022	4	8
2022	5	
2022	6	
2022	7	7
2022	8	
2022	9	8

2022	10	4
2022	11	5
2022	12	3
2023	1	12
2023	2	10
2023	3	13
2023	4	14
2023	5	19
2023	6	21

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-6 Please identify:

- A. The total funding for PWSA’s Hardship Fund from 2019 to date, disaggregated by year and the source of funds (e.g. voluntary ratepayer contributions, redirected fines/penalties, settlements, etc.);
- B. The total funds spent in PWSA’s Hardship Fund from 2019 to date, disaggregated by year.

Please provide this data in a live Excel spreadsheet.

Response:

- A. PWSA’s Hardship Grant program was initially funded by a court-ordered settlement payment from Veolia in the amount of \$500,000 in 2018 and has also funded through customer and employee donation drives. As of July 14, 2023, the available funds to grant are in the amount of \$145,996.
- B. Please see attachment United-II-6.B.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

Year	Grant Amount
2018	\$33,802.00
2019	\$53,273.00
2020	\$11,705.00
2021	\$80,541.00
2022	\$81,710.00
2023 YTD	\$75,077.00

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
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Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-7 For January 2021 to the most recent date available, disaggregated by month and year, please identify for which months the funds in PWSA’s Hardship Fund were depleted.

Response: See UNITED-II-6.A. The funds in PWSA’s Hardship Grant program have not yet been depleted.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-11 How does PWSA promote its BDP? Please provide a copy of all written correspondence and/or marketing materials used to inform customers about the availability of the BDP since January 2022.

Response: See PWSA Exhibit JAM-4 for PWSA’s customer assistance program flyer, which is updated annually, and is provided to customers at each community event. This flyer is also supplied to customers at the time of personal contact at termination, is inserted into food boxes at Greater Pittsburgh Food Bank drive-up food distribution events, and is available for pick-up at numerous community centers in PWSA’s territory. Each monthly bill to PWSA’s over 100K customers includes the below infographic on the front page of the bill. Additionally, the suite of PWSA customer assistance programs has a searchable page on PWSA’s website at the following web address: pgh2o.com/cap.



The flyer features a central graphic of a blue water drop containing a green dollar sign and a family silhouette, held by two green hands. Below the graphic, the text reads: "Customer Assistance Programs", "Having difficulty paying your PWSA bill?", "Contact PGH2O Cares at 412-255-2457 or cares@pgh2o.com to see if you qualify for:", and a list of four benefits: 1. Relief from your fixed, monthly PWSA charges plus forgiveness on past due balances if you are on an active payment plan; 2. A hardship grant to help pay past due charges; 3. Protection from shut-off in winter months; 4. Reimbursement for private side lead line replacement.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-12 How does PWSA promote its Hardship Fund? Please provide a copy of all written correspondence, marketing materials, or other promotional materials used to inform customers about the availability of PWSA Hardship Grants since January 2022.

Response: See United-II-11. Also, the Hardship Grant program has a searchable page on PWSA’s website at the following link: <https://www.pgh2o.com/residential-commercial-customers/customer-assistance-programs/hardship-grant-program>. Additionally, PWSA issues a seasonal press release advertising the program, and here is a responsive link: <https://www.pgh2o.com/news-events/news/press-release/2022-11-29-help-support-your-neighbors-holiday-season>.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-13 Does Dollar Energy Fund (DEF) track the number of cross-program referrals and enrollments it conducts for PWSA customers? If the answer is yes or in the affirmative, please indicate the number of referrals or cross-enrollments conducted by DEF as PWSA’s Hardship Fund administrator, from January 2019 to date, disaggregated by month and year, as of the last day of the month.

Response: DEF does not track the number of cross-program referrals and enrollments. DEF representatives do end a telephone call by asking which other utilities the caller has so that they can offer other programs that they also administer. The majority of PWSA Hardship Grant program applications are completed by Community Based Organizations who will also make referrals to other available programs.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-14 Please provide a copy of any current contracts, memorandum of understanding, or other agreements between PWSA and DEF for administration of PWSA’s low income assistance programs.

Response: See attachment United-II-14 for the Letter of Agreement between PWSA and DEF to administer *only* PWSA’s Hardship Grant program. PWSA and DEF continue to operate under the parameters of this original agreement. All other PWSA customer assistance programs are administered by the PGH2O Cares team, which consists of PWSA employees.

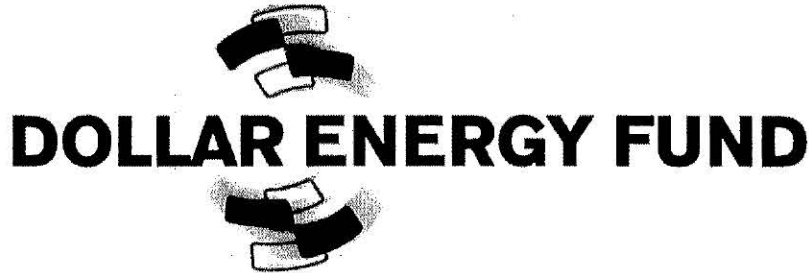
Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

Dollar Energy Fund, Inc.

Box 42329

Pittsburgh, PA 15203



LETTER OF AGREEMENT

Pennsylvania Hardship Program

The Pittsburgh Water and Sewer Authority (PWSA)

Julie A. Quigley
PWSA
1200 Penn Avenue
Pittsburgh, PA 15222



2017-2018



DRAFT

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General Information

This letter of agreement made between the **Dollar Energy Fund, Inc.** (Dollar Energy) and **The Pittsburgh Water and Sewer Authority (PWSA)** (the Company) sets forth the operating parameters of the Dollar Energy Fund Hardship Program (Hardship Program) for the 2018 program year (April 1, 2018 to December 31, 2018.)

As described below, both parties will abide by the parameters described and will only deviate from these parameters by mutual agreement confirmed in writing. The written communication should be directed to the individual whose signature appears on this document and should be sent to the following address:

If to Company:

Julie A. Quigley
PWSA
1200 Penn Avenue
Pittsburgh, PA 15222

If to Dollar Energy Fund:

Nick Meddis, CFO
Dollar Energy Fund, Inc.
P.O. Box 42329
Pittsburgh, PA 15203

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Program Administrator's Role

In conjunction with the Company, Dollar Energy will manage and administer all phases of the Hardship Program in order to provide utility grant assistance to Company customers who meet grant guidelines.

Dollar Energy is responsible for administration of the application process, general guideline development, application and data management, reporting, training, education, and outreach. In addition, Dollar Energy will conduct fundraising efforts to raise additional funds for the Hardship Program in conjunction with the efforts provided by the Company.

Application Process

Dollar Energy will act as the primary agent for the gathering, processing and approving of applications for the Hardship Program.

Program Guidelines

Dollar Energy has established a basic set of Hardship Program guidelines by which the Company's customers qualify for assistance. The 2018 Hardship Program Guidelines are described in *Exhibit A*, including a list of the guidelines that can be modified and a description of the procedures by which the Company must follow in order to modify such guidelines. Unless the Company adopts a set of modified guidelines and completes the Guideline Tailoring Agreement attached as Exhibit A, the Company agrees to abide by the guidelines established herein.

Application and Data Management

The Company is granted access to Dollar Energy's *iPartner® Grant Management System* to review information regarding fund balances, application processing, application status and standard reports. Access to *iPartner®* is granted only to named users.

It will be the responsibility of Dollar Energy to continue to maintain and upgrade the *iPartner® Grant Management System*. Dollar Energy will also provide and govern system access to all other parties involved in the application process.

Dollar Energy will take all necessary steps to hold non-public customer information and Company information in strict confidence. No information will be released or disclosed to any third party without the express written consent of the party(ies) involved. Dollar Energy will treat non-public information collected from applicants and the Company with the highest level of security at its disposal, in order to prevent any improper or unauthorized use of the information.

Reporting

Reports will be available on all application and grant activities through standard reporting procedures. This will be done through the standard set of reports available through the use of the *iPartner®* system.

The Company may request reports other the standard *iPartner®* reports. Additional fees may be associated with the production of additional reports. Fees for additional reports will be negotiated on a per case basis.

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Public Education and Outreach

Dollar Energy will provide public education about the program through public service announcements, press releases, community speaking engagements, networking and other methods deemed effective in alerting the public about the availability of the program as well as how the community can contribute to the Hardship Program.

Community Based Organizations Network

Dollar Energy will manage and train a Network of Community Based Organizations (CBOs). Currently, a network of 160 CBO's is in place to assist in the administration of the program. This training and administration will entail:

- quality assurance activities to ensure proper administration of applications. This will include an annual audit of client files and intake procedures.
- consistent updates on relevant state and federal program and utility programs.
- annual training and as needed training on program guidelines.
- annual feedback sessions with CBO representatives to gain insights on program changes and improvements.
- needs assessments, in conjunction with the Company, to determine accessibility of the program to customers. When and where necessary, Dollar Energy will recruit, train and manage new CBOs.
- consulting with agencies on problem solving and other related management issues.
- referral to LIHEAP, Crisis and other information and referral activities.

Electronic Funds Transfer of Grants to the Company

As an integral part of the basic Hardship Program management, Dollar Energy will make available the option to execute Electronic Funds Transfer (EFT) for the accounting of Hardship Program grants and credits to customer accounts. There are two options available to the Company to enact EFT. (An EFT worksheet will be provided upon request). Any programming to the EFT process outside of the normal scope may result in an extra charge to the Company.

Fundraising Efforts

Dollar Energy Fund, Inc. is a 501(c) (3) non-profit organization and is chartered as a charitable organization in the Commonwealth of Pennsylvania. Dollar Energy complies with all regulations and statutes governing non-profit organizations and maintains registrations with all government bodies as required.

Dollar Energy will make all due efforts to raise funds for the program through a variety of measures including, but not limited to, the Add a Buck program, special events, direct appeals, grant funding, and membership drives.

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Allocation of Funds Raised by Dollar Energy

Prior to the start of the program year, Dollar Energy projects the amount of money it believes it will be able to raise for the Hardship Program during the program year. A portion of these funds may be added to the pool of grant funds available to the Company's customers. This decision will be based on a formula using the following factors:

- Customer contributions
- Company matching contributions
- Other Company funds committed to the Hardship Program
- Operating funds for program administration
- Company donated facilities, equipment, materials
- Proceeds from company sponsored fundraising events
- Other programs or services contracted between the Company and Dollar Energy (gross annual receipts)
- Miscellaneous Company contributions to Dollar Energy

Allocations of the Dollar Energy funds will also consider the ability of the company to match any funds raised by Dollar Energy. Should the Company not be able to provide matching funds towards this amount, the Dollar Energy raised funds may not be made available to the Company absent of a match. Allocations of Dollar Energy funds are subject to change based on changes in overall Hardship Program funding. Throughout the year, Dollar Energy will make every effort to match all available company matching funds.

The amount of funding available to the Company is estimated in the Financing Worksheet labeled *Exhibit B*.



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The Company's Role

Collection of Customer Donations

The Company will provide the mechanism for the collection, accounting and reporting of customer donations garnered through the use of utility bill check-offs or other measures used to collect funds for the Hardship Program. At least monthly, the company will remit to Dollar Energy the entire amount of customer donations gathered from the previous period.

The Add a Buck Program

The Company will institute a bill check off system that allows each customer to elect to give at least one dollar per month to Dollar Energy. In order to maintain and recruit new Add a Buck donors, the Company will provide a minimum of 2 bill inserts or other similar customer communications during the program year promoting the Dollar Energy and asking customers to financially support Dollar Energy through the program. Dollar Energy's experience shows these inserts to be most effective when delivered to customers between September and March.

The support from the Add A Buck donors is the most consistent and reliable source of funding for the program. The Company is asked to assist in these efforts by holding at least one public opportunity to raise additional awareness for the Hardship Program. Dollar Energy will provide resources and technical assistance as needed for these activities.

On Line Bill Payment Initiative

Customers who receive and pay their utility bills online are more likely to miss Dollar Energy Hardship Program appeals ordinarily mailed with monthly bills. Dollar Energy Fund has created a donor portal available at www.dollarenergyfund.org. If the company currently does not have the ability for customers who desire to pledge funds to the program on a monthly basis electronically, the Company is encouraged to direct customers to the donor portal.

Company Fundraising

The Company is encouraged to raise additional funds for its low income customers by organizing a fundraising event. Funds raised through these efforts are reserved solely for the grant activities of customers of the Company.

Operating Costs

The Company will provide operating funds to cover the management costs of the Hardship Program. The operating funds are comprised of 2 components, operating funds and Community Based Organization (CBO) fees.

Operating funds cover the following expenses and activities of the Hardship Program:

- executive oversight
- accounting
- human resource management
- fundraising and public relations
- access to iPartner®
- technology management
- staff supervision
- Hardship Program coordinators CBO management and training
- material production and distribution
- CBO remuneration and accounting
- utility training and communications
- advertising and promotion
- audit

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- insurance
- office supplies and equipment
- postage
- printing and copying
- rent
- utilities
- telephone
- travel
- contracted services
- miscellaneous expense

Company Funding and Financial Worksheets

By answering the following questions, we can manage the Hardship Program in a manner that best fits your needs and expectations. Please complete the funding worksheet and financial summary worksheet, then sign the agreement.

Funding Worksheet

Please answer the following questions so that we can manage the Hardship Program in a manner that best fits your needs and expectations:

1) Will company funding for grants be transferred to Dollar Energy for cash management. Yes No*

2) Does the company intend to use Electronic Funds Transfer (EFT) to receive grant payments for customer accounts. Yes No

If yes, and EFT has not been used in previous years, please provide a name and phone number of the person at your company responsible for coordinating this effort.

Name: RACHEL ROMANO Phone number: (412) 255-8964

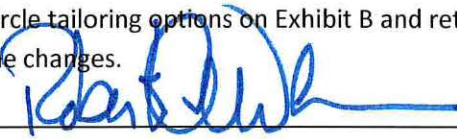
3) Can company contributions that are not matched by customer contributions or Dollar Energy contributions be used unmatched. Yes No

4) If any company contributions remain at the end of the fiscal year would you like the funds to be: rolled over to next year's program returned to company (please check one)

Program Guidelines

Does the company have changes to the proposed program guidelines (outlined on Exhibit A). Yes No

If yes, circle tailoring options on Exhibit B and return the document to Dollar Energy Fund. Sign below to verify the changes.

Signed:  Date: 3.26.18

* DOLLAR ENERGY FUND ALREADY HAS THE FUNDS.

DRAFT

Pittsburgh Water and Sewer Authority

FINANCIAL SUMMARY

2016-2017 Program Year

1	Company Funding for Grants	N/A
2	Customer Contribution (projected)	N/A
3	DEF Fundraising Contribution (projected)	N/A
4 Grants to Low Income Customers of Your Company		\$0
	Operating Fee Rate	8.75%
5	Operating Fee owed	\$0
	Company Prepaid Operating Fee	N/A
Operating Fee (credited) Owed		\$0
6	Number of Applications (projected)	N/A
	Agency Remuneration Rate	\$9.00
7	Agency Fee owed	\$0
	Company Prepaid Agency Fee	N/A
Agency Fee (credited) Owed		\$0
Balance due or (credit) towards 2015-16		\$0

2017-2018 FUNDING

Please complete lines **2,5,6,8,9**

1	Balance due or (credit) from previous fiscal year	\$0
2	Company Funding for Grants	\$446,000
3	Customer Contribution (projected)	\$0
4	DEF Fundraising Contribution (projected)	\$0
5	Grants to Low income customers of your company (Total of lines 2, 3, 4)	\$446,000
6	Operating Fee (Line 5 x .0875)	\$39,075
7	Average Grant Amount (estimated)	\$268
8	Number of Applications to be Processed (Line 5 ÷ line 7)	1,664
9	Agency Remuneration (Line 8 x \$9.00)	\$14,925
Total Company Financial Commitment (Add lines 1,2, 6,9)		\$500,000


DRAFT

Company Funding Disclosure

By executing this agreement, the company is agreeing to provide a certain and definite amount of funding to the Hardship Program. Dollar Energy expects that the Company will fully honor this agreement.

In the event that the Company is not able to honor all parts of the agreement or becomes aware that it may not be able to fully meet its original monetary obligation, the Company will immediately notify Dollar Energy Fund. If the Company has to reduce funds available to customers and Dollar Energy has expended funds in excess of the reduced amount, the Company agrees to reimburse Dollar Energy fully for all amounts expended.

By signature below, I accept the terms of the Letter of Agreement.

Executed on behalf of Company Name by:
Signed:  Date: 3.26.18
Printed Name: Robert A. Weimer
Title: Interim Executive Director

Executed on behalf of Dollar Energy Fund by:
Signed: _____ Date: _____
Printed Name: _____
Title: _____

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-17 Has PWSA targeted any specific communities in its outreach related to its low income assistance programs since 2022? If the answer is yes or in the affirmative, please indicate what specific communities PWSA has targeted, how PWSA determined it would target such communities, and the steps that PWSA has taken to targeted the specified communities.

Response: Since 2022, the PGH2O Cares team has canvassed in multiple census tract areas, including Glen Hazel, Homewood, Lincoln-Lemington-Belmar and South Oakland, to attempt contact with low income customers for the purposes of enrolment. These census tracts were identified in the 2019 Household Affordability Analysis that PWSA had commissioned as having a large concentration of potentially low income residents. When contact is not achieved, Cares team members leave doorhangers that display program information and the PGH2O Cares team’s contact information.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-19 From January 2019 to date, how many residential customers have received protection of the Winter Shut Off Moratorium, disaggregated by month and year, as of the last day of the month? If unavailable on a monthly basis, please provide annual data and explain in detail why monthly data is unavailable.

Please provide this data in live Excel spreadsheet.

Response: Prior to 2022, PWSA relied almost entirely on DEF’s tracking system, OSCAR; therefore, Winter Moratorium data prior to 2022 is unavailable. It is important to note that all confirmed low income customers, Bill Discount program enrollees, steam heat customers, and tenants receive protection from termination by PWSA during the Winter Moratorium months. When PWSA began to track Winter Moratorium customers who were eligible for protection beyond the 150% of FPL for the Bill Discount program, the total number of customers protected by Winter Moratorium between December 31, 2022 and April 1, 2023 was 6,531.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set II
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-20 From January 2021 to date, disaggregated by month and year, as of the last day of the month, please indicate:

- A. How many customers enrolled in the Arrearage Forgiveness Program;
- B. How many existing BDP customers enrolled in the Arrearage Forgiveness Program;
- C. How many customers simultaneously enrolled in the BDP and the Arrearage Forgiveness Program;
- D. How many customers were removed from the Arrearage Forgiveness Program, disaggregated by reason for removal;
- E. The mean and median dollar amount of forgiveness provided to low income customers through the Arrearage Forgiveness Program;
- F. The number of participants in the Arrearage Forgiveness Program that had their entire arrearage balance forgiven while enrolled in the Arrearage Forgiveness Program.

Please provide this data in a live Excel spreadsheet.

Response:

- A. PWSA does not enroll customers in the AFP as explained in PWSA’s responses to United-II-23 and OCA-III-25.c. The forgiveness program did not begin until February 2021. See attachment OCA-III-1.b for AFP Participants by Tier May 2021-July 2022. Attachment United-II-20.a provides the data in the same format as OCA-III-1.b for February to April 2021.
- B. See Response to A. Only BDP participants may receive the benefits of the Arrearage Forgiveness Program. The forgiveness program did not begin until February 2021 so there will be no data for January 2021. See attachment OCA-III-4.a Legacy CIS and OCA-III-4.a Current CIS for BDP and AFP Participants Disaggregated by Tier May 2021- May 2023. Attachment United-II-20.b provides the data in the same format for February to April 2021.
- C. Only participants of the BDP may receive the benefits of the AFP. See PWSA responses to United-II-23 and OCA-III-25.c.
- D. PWSA does not remove customers from the AFP program. The customer removes themselves by failing to meet the monthly requirements of the program or otherwise exiting the BDP program. Through automated processes, when the

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
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and P-2023-3040678**

CAP rate is removed from the account (no longer income eligible) and/or the payment plan is deactivated (due to failure to pay or pay timely), the AFP ceases to be credited by the CIS.

- E. The program is for customers who meet the criteria. The credit that was issued at the inception of the program, 2/1/2012, was \$15.00. The amount of the credit changed to \$30.00 in February 2022. The mean and median dollar amount of forgiveness credit from February 2021 – January 2022 was \$15.00. Starting February 2022, the mean and median dollar amount of forgiveness credit was \$30.00. See also attachments OCA-III-6.a Dollars AFP Credits Provided to Participants Disaggregated by Tier May 2021 – May 2023.
- F. Based on the legacy data structure, this cannot be derived programmatically.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: August 4, 2023

Year	Month	Number of Forgiveness Credit Accounts	Dollars of Forgiveness Credit
2021	2	23	345
2021	3	31	465
2021	4	57	855

Year	Month	Number of Forgiveness Credit Accounts	Dollars of Forgiveness Credit
2021	2	45	675
2021	3	47	705
2021	4	71	1065

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Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-II-23 Please specifically describe the process for applying for and enrolling in the Arrearage Forgiveness Program, including the steps that a customer must take in order to successfully enroll in the Arrearage Forgiveness Program.

Response: PWSA customers automatically receive Arrearage Forgiveness credits when they are 1) enrolled in the Bill Discount program, 2) are on an active payment plan, and 3) make an on-time monthly payment of their current charges plus the payment plan amount.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 17, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-III-2 When a PWSA customer calls in the PWSA’s Contact Center, under what circumstances do PWSA customer service representatives inquire or prompt customers to inquire about its low income assistance programs. Please provide a copy of any policies, procedures, call scripts, training materials, or other documents describing when PWSA’s customer service representatives engage in these inquiries or conversations related to its low income assistance programs.

Response: When a customer expresses to a PWSA Customer Service Representative (CSR) that they are struggling financially or they are entering into a payment arrangement, the CSR is to briefly describe the customer assistance programs and ask the customer if they would like to be warm transferred to the PGH2O Cares team. Attachment United-III-2 is the Collections Fact Sheet that is shared with all CSR’s at the end of each Winter Moratorium and again when any content is updated.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 19, 2023



2023 COLLECTIONS FACT SHEET

- A. Payment Plan Guidelines
- B. Assistance Programs
- C. Medicals, PFA's

A. Payment Plan Guidelines

CUSTOMER CLASS	FPL	MINIMUM # OF MONTHS
Residential	≤ 150%	60
Residential	>150-250%	24
Residential	>250-300%	12
Residential	>300%	6
Commercial	N/A	6

B. Assistance Programs

PROGRAM NAME	FPL	DESCRIPTION & REQUIREMENTS
Bill Discount	150%	Free first 1,000 gallons water/wastewater each month (\$35.53 [includes DSIC] savings if both water and wastewater customer); 50% reduction for usage over 1,000 gallons if ≤ 50% of FPL; 85% reduction of stormwater fee (\$6.76 for tier 2); recertification every 2 years Enrollment Requirements: Verbal confirmation of income

Payment Plans + Arrearage Forgiveness	150%	Customers enrolled in the BDP and in an active payment arrangement will receive a \$30 credit for each on time monthly payment Enrollment Requirements: Same as Bill Discount + payment arrangement enrollment
Hardship Grant	150%	\$300 annual; no sincere effort of payment or termination notice required Enrollment Requirements: Proof of Income (POI), examples below; minimum balance ≥ \$1.00.
Winter Moratorium	300%	December 1 st through March 31 st Enrollment Requirements: Verbal confirmation of income
ALCOSAN CWAF	150%	\$42 quarterly grant to reduce sewage treatment charges Enrollment Requirements: POI, examples below
Lead Service Line Replacement (LSLR) Reimbursement	See Chart	See Reimbursement Levels chart: https://lead.pgh2o.com/leadreimbursement/ Enrollment Requirements: a PWSA–approved plumber’s estimate (prior to the work being completed), and, after the work is a completed, a paid receipt and Allegheny County Health Dept. Inspection. If the applicant is only applying for the \$1K stipend, a plumber’s estimate is not required. If these steps were not followed, customers with replacements on or after January 1, 2019, are still welcome to apply. The property does <u>not</u> need to be occupied.

Acceptable Proofs of Income (POI) for **Grants** include:

- **Salary/Wages:** All paystubs from last 30 days; no bank statements because they do not show gross income
- **Unemployment:** Notice of Determination, Unemployment printout – <http://www.uc.pa.gov>
- **Short/Long Term Disability:** Benefits Statement, Copy of disability check
- **Social Security (SS, SSI, SSD, Veteran’s Benefits):** Copy of letter from Social Security Administration or Pension Board, Current year’s benefit statement, Bank statement showing direct deposit (Last 30 days is sufficient)
- **Workman’s Compensation:** Award or letter of determination

- **Self-Employment:** Statement on letterhead from accountant/Information provided to accountant for tax purposes, 1099 form (within 30 days of received), Tax return (within 30 days of completed), Subcontractors may provide pay stubs; as a last resort for customers unable to provide documented proof, a written note stating monthly income/source of income (for the previous year) may be provided
- **Department of Welfare:** Notice from caseworker, Notice to applicant, Cash recurring benefit inquiry
- **Zero Income:** If reported income for the last 30 days is zero, the Dollar Energy Representative completes a Zero Income Form to be signed by the applicant

Note: The last 30 days' income is the most common length of time used to verify income; however, if the last 30 days is an insufficient length of time to determine an applicant's usual income, a longer time frame (up to one year) may be used. Dollar Energy will no longer ask customers for Social Security Numbers (SSN's). Previously, a SSN was requested, but was not required.

C. Medicals – 3 days for physician to provide letter

Responsibility of the customer while the **Medical Certificate** is active:

- Customer must pay the current bill while the **Medical Certificate** is active. If a customer fails to pay the current bill, PWSA will limit the **Medical Certificate** renewals to a maximum of two. (Three totals First Submittal, First Renewal, Second Renewal) (§ 56.114.2).

A customer may continue to renew a medical certificate beyond the first three certificates if that customer continues to pay any new monthly charges.

D. Protections from Abuse (PFA's) - unlimited plan lengths

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919 and P-2023-3040678

Request: United-III-6 PWSA St. 6 at 20: 24-25 (indicating that “[m]ore than one-third of the respondents [to the customer satisfaction survey] reported incomes of less than \$35,000...”). Did PWSA collect FPL data or household size data from respondents to its described Customer Satisfaction Survey? If so, please indicate the number of percent of survey respondents at the following FPL ranges: 0-50% FPL; 51-100% FPL; 101-150% FPL; 151-200% FPL; 201-250% FPL; above 250% FPL.

Response: PWSA did collect household income ranges from annual survey respondents; however, their household size was not requested.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 19, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-III-8 See PWSA St. 6 at 32; PWSA St. 8 at 18. Is PWSA proposing any changes and/or improvements to help mitigate increases in stormwater rates for low-income customers? If so, please specifically describe what changes PWSA is proposing to help mitigate increases in stormwater rates to low-income customers.

Response: PWSA is not proposing any changes to the 85% stormwater discount that is currently in place to assist low income customers who are \leq 150% of the Federal Poverty Level.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 19, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-III-9 Is PWSA proposing any changed and/or improved outreach or community engagement related to its stormwater fees for low-income consumers? If so, please specifically describe what changed or additional outreach or engagement PWSA is proposing.

Response: PWSA held stormwater strategic plan public input meetings in communities of environmental justice in the first half of 2023, and PWSA Public Affairs will utilize that feedback to craft future outreach.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 19, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-III-10 See PWSA St. 6 at 33. For each merchant and/or convenience fee that PWSA is proposing to pass through to residential customers, please:

- a) Specifically describe the fee;
- b) Indicate the amount of the fee;
- c) Specifically describe what portion, if any, of the fee will be required to be paid by low-income customers;
- d) Specifically describe what portion, if any, of the fee will be required to be paid by BDP customers.

Response:

- a) PWSA is proposing to have residential customers pay the \$1.95 per transaction fee when the method of payment is a credit card or debit card. Note that residential customer payments made via ACH would remain transaction fee free.
- b) \$1.95 per transaction fee if the method of payment is a credit card or debit card.
- c) Low-income customers would pay \$1.95 per transaction if the method of payment is a credit card or debit card. Note that all residential customer payments being made via ACH would remain transaction fee free.
- d) See answer c above.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 19, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-III-11 See PWSA St. 2 at 20: 11-15. If PWSA is permitted to pass through the costs of credit card convenience fees and/or merchant fees to residential customers, will residential customers be charged a credit card or merchant fee if they pay their PWSA and/or ALCOSAN bill at a local or physical location? If the answer is yes or in the affirmative, please describe under what circumstances residential customers who pay their bill at a local or physical location will be charged a fee, and the projected amount of each fee which they will be charged

Response:

Residential customers are currently charged a \$1.49 fee when making a cash payment of a PWSA bill at 7-11, CVS, Dollar General, Family Dollar, Walgreens, and Walmart Super Center locations.

To be clear, PWSA is proposing that residential customers pay convenience fees when paying online or via telephone using a credit or debit card.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 13, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-III-12 See PWSA St. 6 at 37: 11-12. Regarding PWSA’s proposal to offer a 50% reduction to the IIC and 100% reduction to the CAC, please indicate:

- a) To whom and through what criteria will customers be provided with the proposed discounts to the IIC and CAC?
- b) What information will customers be required to provide in order to qualify for discounts to the IICA and CAC?
- c) Assuming BDP customers are eligible for the stated discounts to the IIC and CAC, are the stated discounts to the IICA and CAC in addition to, or included as part of the calculation of BDP discounts set forth at PWSA St. 6 at 38?

Response:

- a) PWSA is proposing to 1) expand the eligibility into the Bill Discount program from 150% FPL to 200% FPL, and 2) provide a 50% reduction to the IIC and a 100% reduction to the CAC for all customers who are enrolled in the Bill Discount program.
- b) Customers who are enrolled in the Bill Discount program will automatically qualify for the IIC and CAC discounts.
- c) The stated discounts to the IIC and CAC are in addition to the Bill Discount program discounts set forth at PWSA St. 6 at 38.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 19, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-III-14 Please describe in detail any and all eligibility requirements for qualifying for PWSA’s Hardship Fund, including but not what documentation and information a customer must provide to qualify for a Hardship Fund grant.

Response: See attachment United-III-14.

Response provided by: Julie A. Mechling, Director of Customer Service

Date Response provided: July 19, 2023



2022 - 2023

Pittsburgh Water and Sewer Authority Hardship Program

The **Pittsburgh Water and Sewer Authority** has partnered with Dollar Energy Fund to administer a Hardship Program to assist customers having difficulty paying their water bill. The **PWSA Hardship Program** provides one-time assistance grants that are applied directly to a limited-income household's utility bill. **Program guidelines and eligibility requirements are subject to change.**

Program Dates:

Open from **October 3, 2022, through September 30, 2023**, for eligible applicants regardless of service status.

Grants are dispersed on a first come, first serve basis to eligible applicants while funding is available.

Balance Requirement:

Applicants must have an outstanding balance on their utility bill of at least **\$100**.

Senior Citizens, age 62 and over, may have a \$0 balance as long as there is no existing credit on the account.

Maximum Grant:

The maximum grant amount an applicant may receive is **\$300**.

Applicants can only receive a grant **once every 12 months**.

Grant awards are based on need and each family's circumstances are different. Grant amounts are determined on a case-to-case basis.

If a customer's utility service is off or in threat of termination when they apply and the maximum grant amount will not restore service or stop termination, the application will be denied. The amount needed to restore service or stop a termination is determined by utility review. Notification will be sent to the customer advising them that their application was denied and that an additional payment is required in order to be considered for assistance.

Additional Guidelines:

- Account must be residential, single home or apartment. No commercial, industrial, or apartments with shared utility service.
- Name on account must be that of an adult who is currently living in the home.
- Dollar Energy Fund grants cannot be used to cover security deposits or reconnection fees.

Application Attachments:

- A copy of your most recent PWSA bill with proof of minimum payment must be attached to all applications.
- Total gross monthly income for all members living in the household.

Income Guidelines:

Total gross household income must be at or below **150%** of the **2023 Federal Poverty Income Guidelines** as shown in the chart below.

Household Size	150% Monthly	150% Yearly
1	\$1,823	\$21,870
2	\$2,465	\$29,580
3	\$3,108	\$37,290
4	\$3,750	\$45,000
5	\$4,393	\$52,710
6	\$5,035	\$60,420
7	\$5,678	\$68,130
8	\$6,320	\$75,840
Each add'l add	\$643	\$7,710

How to Apply:

The best way to start seeking help is by **calling the Pittsburgh Water and Sewer Authority at 412-255-2423**. They will provide you with information on a number of different assistance programs that are available to help low-income customers.

Dollar Energy also partners with a network of Community Based Organizations throughout the state. These dedicated agencies provide application intake services for clients. Find an agency in your area with Dollar Energy Fund's [Agency Finder](#).

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set III
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

- Request: United-III-17** For the analysis contained at PWSA St. 2, Exhibit EB-9, please indicate whether the projected cost increases of restructuring the Arrearage Forgiveness Program consistent with PWSA St. 2 at 51: 10-16, took into consideration in its calculations the following
- a) Reduced uncollectible expenses as a result of the considered changes to the AFP structure;
 - b) Reduced termination costs as a result of the considered changes to the AFP structure.
 - c) If the Answer to A or B is yes or in the positive, please provide a copy of this analysis, and specifically describe how A and/or B were respectively considered in the analysis described in Exhibit EB-9.

Response:

- a) Reduced uncollectible expenses were not considered because PWSA wanted to provide a conservative estimate. There is no guarantee that uncollectible expenses would be reduced.
- b) Reduced termination costs were not considered because PWSA wanted to provide a conservative estimate. There is no guarantee that termination costs would be reduced.
- c) See United-III-17.a and .b.

Response provided by: Edward Barca, Director of Finance

Date Response provided: July 19, 2023

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of Pittsburgh United Our Water Table (“United”), Set IV
Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919
and P-2023-3040678**

Request: United-IV-10 Please indicate whether PWSA’s filter replacement program is still operating. If so, please (1) indicate how many customers were served by the filter replacement program in 2022 and 2023, disaggregated by year; (2) the yearly funding for the filter replacement program; and (3) the program rules and eligibility requirements for the program, including what criteria, information, and or documentation a customer must provide to qualify for the program. If the PWSA filter replacement program is not currently operational, please identify the date the program closed, the reason the program closed, and the number of customers the program served in its last year of operation.

Response: PWSA continues to provide point-of-use filtering pitchers and filters in accordance with the prior Joint Petition for Partial Settlement and our Lead Infrastructure Plan. This includes:

- Lead Service Line Replacement (LSLR) locations where lead is detected,
- Locations where meters are replaced and lead is observed adjacent to the meter, and
- Locations where a customer collects a lead sample for analysis by PWSA and the result is 10.0 ppb or above. These include customer requested lead sampling and LCR Compliance sampling locations. In 2022, there were 21 such locations, and thus far in 2023, there have been 8 such locations.

The annual budget for filtering pitchers is largely a factor of the planned LSLR programs for that year. PWSA presently spend between \$100,000 and \$200,000 per year on filtering pitchers and replacement cartridges. Details of where PWSA provides filtering pitchers is shared with the Community Lead Response Advisory Committee (CLRAC) on a quarterly basis within information issued to members after each meeting.

Response provided by: Barry King, Director of Engineering

Date Response provided: July 25, 2023

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set III

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Each response should be provided disaggregated by water-only and combined water-sewer. There is no need for sewer-only data.

Request: OCA-III-1 In Excel format, by month for the most recent 24 months available, please provide, disaggregated by BDP tier, the number of actual participants in (or recipients of):

- a. PWSA’s Bill Discount Program (hereinafter referred to as BDP);
- b. PWSA’s Arrearage Forgiveness Program (hereinafter referred to as AFP);
- c. PWSA Hardship Grants;
- d. Low-Income Household Water Assistance Program (LIHWAP) grants.

Response:

- a. See PWSA Exhibit OCA-III-1.a.
- b. See PWSA Exhibit OCA-III-1.b.
- c. See PWSA Exhibit OCA-III-1.c and d Current CIS and PWSA Exhibit OCA-III-1.c Legacy CIS.
- d. See PWSA Exhibit OCA-III-1.c and d Current CIS and PWSA Exhibit OCA-III-1.d Legacy CIS.

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: June 9, 2023

Number of Forgiveness Credits		Month-2021
15		5
19		6
20		7
29		8
28		9
34		10
32		11
43		12

Number of Forgiveness Credits		Month-2021
41		5
49		6
54		7
73		8
84		9
83		10
80		11
98		12

Number of Forgiveness Credits Month-2022

79	1
70	2
79	3
97	4
95	5
104	6
80	7

Number of Forgiveness Credits Month-2022

136	1
133	2
140	3
184	4
187	5
208	6
181	7

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set III**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-III-15 Please provide in Excel forma by month for the most recent 24 months available disaggregated by BDP tier:

- a. The number of BDP participants with a pre-existing arrearages (subject to forgiveness) on their account;
- b. The dollars of pre-existing arrearages on BDP participant accounts, which pre-existing arrearages have not yet been forgiven;
- c. The dollars of AFP credits not granted due to a failure of the AFP-only participant to make a full and timely payment;
- d. The dollars of AFP credits not granted due to a failure of a combined BDP-AFP participant to make a full and timely payment.

Response:

- a.-b. See attachment OCA-III-15.a-b.

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: June 15, 2023

	May-21	Jun-21	Jul-21	Aug-21	Sep-21
BDP 0 - 50% Count	31	23	43	24	43
BDP 0 - 50% Arrearage dollars	\$30,071.81	\$37,691.45	\$61,828.22	\$60,386.71	\$54,889.45
BDP 50.1 - 150% Count	102	45	92	114	94
BDP 50.1 - 150% Arrearage dollars	\$122,285.82	\$67,109.53	\$119,198.73	\$174,011.43	\$123,042.48

BDP Participants With Pre-Existing Arrearages
Disaggregated by BDP Tier May 2021-May 2023

Oct-21	Nov-21	Dec-21
62	61	51
\$82,356.41	\$86,763.79	\$66,302.52
120	130	124
\$167,251.42	\$270,254.74	\$123,421.40

BDP Participants With Pre-Existing Arrearages
 Disaggregated by BDP Tier May 2021-May 2023

	Jan-22	Feb-22	Mar-22	Apr-22	May-22
BDP 0 - 50% Count	50	55	42	35	26
BDP 0 - 50% Arrearage dollars	\$55,887.62	\$71,765.97	\$47,580.08	\$45,278.85	\$32,630.17
BDP 50.1 - 150% Count	155	119	106	90	97
BDP 50.1 - 150% Arrearage dollars	\$168,645.28	\$127,272.79	\$113,969.51	\$101,254.16	\$135,439.77

BDP Participants With Pre-Existing Arrearages
 Disaggregated by BDP Tier May 2021-May 2023

Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
42	59	43	34	34	29	41
\$53,030.60	\$61,743.30	\$51,592.20	\$42,136.96	\$29,098.41	\$19,072.43	\$49,177.33
71	116	110	75	91	67	129
\$54,124.13	\$110,727.66	\$72,792.50	\$81,040.52	\$104,489.53	\$69,370.49	\$172,775.33

BDP Participants With Pre-Existing Arrearages
 Disaggregated by BDP Tier May 2021-May 2023

	Jan-23	Feb-23	Mar-23	Apr-23	May-23
BDP 0 - 50% Count	35	33	43	86	63
BDP 0 - 50% Arrearage dollars	\$28,933.37	\$36,077.55	\$48,463.78	\$122,081.30	\$68,986.14
BDP 50.1 - 150% Count	82	92	122	202	139
BDP 50.1 - 150% Arrearage dollars	\$96,022.73	\$97,360.90	\$267,247.55	\$264,750.80	\$136,600.19

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set III

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-III-47 In Excel format, please provide, by month for the most recent 24 months available:

- a. The number of new BDP new enrollees (defining a “new” enrollee as being a customer who is not currently a BDP participant and who is applying to enroll in the program).
- b. The total number of BDP participants.
- c. The number of BDP new enrollees who had preprogram arrears at the time of enrollment.
- d. The aggregate dollars of preprogram arrears for BDP new enrollees at the time of enrollment.
- e. The average dollar amount of preprogram arrears for BDP new enrollees at the time of enrollment.
- f. The number of BDP bills issued in that month.
- g. The dollars of BDP bills issued in that month.
- h. The dollars of BDP credits / discounts (i.e., the difference between the BDP bill and bills at standard residential rates) in that month.
- i. The number of BDP payments in that month.
- j. The dollars of BDP payments in that month.
- k. The number of BDP full and on-time payments in that month.
- l. The number of BDP accounts in arrears in that month (excluding arrears that are solely preprogram arrears).
- m. The dollars of arrears on BDP accounts in that month (excluding arrears that are solely preprogram arrears).

Response:

- a. See attachment OCA-III-47.a
- b. See attachment OCA-III-1.a.
- c. See attachment OCA-III-47.c.
- d. See attachment OCA-III-47.d
- e. See attachment OCA-III-47.e
- f. See attachment OCA-III-47.f-g.
- g. See attachment OCA-III-47.f-g.

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: June 15, 2023

Number New BDP Enrollees With Arrears May 2021 – May 2023

OCA-III-47.c

	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
BDP New With Arrears	93	47	97	118	118	113	84	82

Number New BDP Enrollees With Arrears May 2021 – May 2023 Pittsburgh United's Our Water Table Statement 1, Appendix B

	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
BDP New With Arrears	110	84	85	59	58	64	99	79	73	80	51	147

Number New BDP Enrollees With Arrears May 2021 – May 2023

OCA-III-47.c

	Jan-23	Feb-23	Mar-23	Apr-23	May-23
BDP New With Arrears	92	82	128	190	143

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set III**

Docket Nos. R-2023-3039920, R-2023-3039921, & R-2023-3039919

Request: OCA-III-66 In Excel format, please provide by month for the most recent 24 months available:

- a. The average bill for all residential accounts;
- b. The average arrears of residential accounts in arrears;
- c. The average bill of residential accounts in arrears;
- d. The total dollars of residential arrears;
- e. The percentage of residential dollars constituting arrears;
- f. The percentage of billed residential accounts having arrears; and
- g. The average arrears of all residential accounts disconnected for nonpayment in that month.

Response:

- a. See attachment OCA-III-66.a,.c,f, and .g.
- b. Please see OCA-III-58.
- c. See attachment OCA-III-66.a,.c,f, and .g.
- d. Please see OCA-III-58.
- e. See attachment OCA-III-66.e.
- f. See attachment OCA-III-66.a,.c,f, and .g.
- g. See attachment OCA-III-66.a,.c,f, and .g.

Response provided by: Julie A. Mechling, Director of Customer Service

Date response provided: July 18, 2023

Avg Bill Amt, Avg Bill Accounts in Arrears, Percentage of Bill Accounts with Arrears and Avg Disconnected for Non-Payment with Arrears May 2021-May 2023
Pittsburgh United's Our Water Table Statement 1, Appendix B

Month-Year	Average Bill Amount	Average Bill of Accounts in Arrears	Percentage of Billed Accounts With Arrears
May-21	\$111.95	\$417.39	22.51%
Jun-21	\$112.16	\$434.57	21.96%
Jul-21	\$119.38	\$435.17	21.97%
Aug-21	\$114.06	\$429.26	20.82%
Sep-21	\$119.73	\$426.73	21.12%
Oct-21	\$114.66	\$427.30	21.13%
Nov-21	\$112.78	\$426.80	22.16%
Dec-21	\$110.24	\$426.80	22.17%
Jan-22	\$116.18	\$437.21	21.47%
Feb-22	\$128.59	\$421.83	21.60%
Mar-22	\$115.88	\$414.68	20.06%
Apr-22	\$122.37	\$460.45	21.76%
May-22	\$117.48	\$437.93	21.47%
Jun-22	\$117.90	\$437.51	22.17%
Jul-22	\$129.51	\$456.65	17.95%
Aug-22	\$130.61	\$645.00	28.96%
Sep-22	\$125.31	No aging report available	No aging report available
Oct-22	\$124.42	\$409.80	35.96%
Nov-22	\$121.63	\$418.53	33.31%
Dec-22	\$118.05	\$424.05	32.48%
Jan-23	\$143.29	\$439.16	32.80%
Feb-23	\$131.92	\$439.26	28.94%
Mar-23	\$119.45	\$455.97	28.13%
Apr-23	\$108.16	\$474.08	22.23%
May-23	\$100.60	\$447.19	21.18%

with Arrears and Avg Disconnected for Non-Payment with Arrears May 2021-May 2023

Month-Year	Average Disconnected for Non-payment With Arrears
Mar-23	\$14,309.32
May-23	\$3,397.64

Percentage Bill Residential Accounts with Arrears May 2021-May 2023

OCA-III-66.e

Month-Year	Percentage of Residential Dollars Constituting Arrears
May-21	6.06%
Jun-21	5.90%
Jul-21	5.92%
Aug-21	5.79%
Sep-21	6.08%
Oct-21	6.08%
Nov-21	6.10%
Dec-21	6.10%

Percentage Bill Residential Accounts with Arrears May 2021-May 2023

Month-Year	Percentage of Residential Dollars Constituting Arrears
Jan-22	5.39%
Feb-23	5.65%
Mar-23	6.25%
Apr-23	5.58%
May-22	5.58%
Jun-22	5.80%
Jul-22	5.54%
Aug-22	7.10%
Sep-22	No aging report available
Oct-22	9.83%
Nov-22	13.97%
Dec-22	10.30%

Percentage Bill Residential Accounts with Arrears May 2021-May 2023

OCA-III-66.e

Month-Year	Percentage of Residential Dollars Constituting Arrears
Jan-22	10.10%
Feb-23	11.11%
Mar-23	11.14%
Apr-23	10.69%
May-22	11.16%

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket Nos. R-2023-3039920
	:	R-2023-3039921
Pittsburgh Water and Sewer Authority	:	R-2023-3039919
	:	
	:	

**REBUTTAL TESTIMONY OF HARRY S. GELLER, ESQ.
ON BEHALF OF
PITTSBURGH UNITED'S OUR WATER TABLE**

September 8, 2023

1 **PREPARED REBUTTAL TESTIMONY OF HARRY S. GELLER, ESQ.**

2 **I. INTRODUCTION**

3 **Q: Please state your name, occupation, and business address.**

4 A: My name is Harry Geller. I am an attorney. I am the former Director of the Pennsylvania
5 Utility Law Project. I am currently retired but serve as Senior Counsel to the Pennsylvania Utility
6 Law Project (PULP) and as a consultant to legal aid programs and their clients. I maintain an office
7 at 118 Locust St., Harrisburg, PA 17101.

8 **Q: Did you previously submit testimony in this proceeding?**

9 A: Yes. I submitted direct testimony that is pre-marked as Pittsburgh United Statement 1.

10 **Q: What is the purpose of your rebuttal testimony?**

11 A: My rebuttal testimony responds to the direct testimonies of Office of Small Business
12 Advocate (OSBA) Expert Witness, Kevin Higgins; the Bureau of Investigation and Enforcement
13 (I&E) Expert Witness Vanessa Okum; Office of Consumer Advocate (OCA) Expert Witnesses
14 Karl R. Pavlovic and Roger D. Colton; and the Expert Witnesses for the School District of
15 Pittsburgh, Michael J. McNamara and Eric M. Callocchia.

16 This rebuttal testimony is not intended to address every issue raised or otherwise discussed
17 by other parties' witnesses in direct testimony. Absence of a response to any specific
18 recommendation or position of any witness does not indicate my agreement. Unless required for
19 context in providing a further response to direct testimony, I will not reiterate the extensive
20 arguments and evidence that I provided in my direct testimony. To the extent an argument raised
21 by any party in rebuttal is already sufficiently addressed in my direct testimony, I do not intend to
22 respond, and stand on the evaluation, analysis, and recommendations contained in my direct
23 testimony.

1 **Q: How is your rebuttal testimony organized?**

2 A: In Section I of my rebuttal testimony, I outline the purpose of my rebuttal testimony.

3 In Section II, I respond to testimony presented by OSBA’s expert witness.

4 In Section III, I respond to testimony presented by I&E’s expert witness.

5 In section IV, I respond to testimony presented by OCA’s expert witnesses.

6 In Section V, I respond to testimony presented by the School District of Pittsburgh’s
7 expert witness.

8 In Section VI, I conclude my rebuttal testimony.

9 **II. RESPONSE TO OSBA EXPERT WITNESS**

10 **Q: How has PWSA proposed to allocate the costs of its BDP?**

11 A: PWSA is proposing to collect FPFTY 2024 CAP costs through base rates, and is proposing
12 a new Customer Assistance Charge (CAC) to collect these costs in FY 2025 and FY 2026.¹ As
13 proposed, the CAC would recover (1) the discounts provided to residential customers pursuant to
14 the BDP; (2) the operating costs for the PGH2O Cares team; (3) the costs of PWSA’s residential
15 Hardship Fund; and (4) forgiveness granted pursuant to PWSA’s Arrearage Forgiveness Program.²

16 **Q: Has the Commission given any directives on this issue?**

17 A: Yes. In its recent Final CAP Policy Statement and Order, the Commission addressed
18 recovery of universal service program costs.³ The Commission did not specifically order utilities
19 to propose a specific allocation, but indicated that it is appropriate to consider recovery of the costs
20 of customer assistance programs from all ratepayer classes because “poverty, poor housing stock,
21 and other factors that contribute to households struggling to afford utility service are not just

¹ OSBA St. 1 at 17: 17-20.

² (Direct testimony of William J. Pickering, pg. 15).

³ Final CAP Policy Statement and Order at 97; see also 52 Pa. Code §§ 69.625(1), 69.266(b).

1 ‘residential class’ problems.” The Commission explained that the provision of universal services
2 to help low income families maintain service to their homes is “a benefit to the economic climate
3 of a community.”⁴ The Commission directed that utilities and stakeholders should be prepared to
4 address CAP cost recovery in utility-specific rate cases and stated that “the Commission will no
5 longer routinely exempt non-residential classes from universal service obligations.”⁵

6 To be clear, in noting the policy guidance set forth in the Commission’s recent Final CAP
7 Policy Statement and Order, I am not arguing a legal position on universal service cost recovery
8 or the applicability of the Commission’s CAP Policy Statement to PWSA – though I am advised
9 by counsel that these legal aspects of the issue will be thoroughly addressed in briefing. Rather,
10 my testimony on this issue is focused on the policy reasons why cross-class recovery of universal
11 service programs is appropriate, as I will explain in further detail below.

12 **Q: Please summarize the direct testimony of OSBA expert Witness Kevin Higgins to**
13 **which you wish to respond.**

14 A: OSBA expert witness Kevin Higgins incorrectly claims that PWSA’s customer assistance
15 program exists solely for the benefit of the residential class and should therefore be recovered
16 solely by residential customers.⁶ Mr. Higgins proposes that all CAP costs (including CAC costs
17 for FY 2025 and FY 2026) should be recovered solely from the residential class.⁷ Mr. Higgins
18 argues that, consistent with cost allocation principles, a customer class should bear the cost of
19 services that directly benefit them.⁸

⁴ Final CAP Policy Statement and Order at 7, 94-96, 107.

⁵ Id.; see also 66 Pa. C.S. § 69.266(b).

⁶ OSBA St. 1 at 6: 1-3.

⁷ Id. at 18: 17-21.

⁸ Id. at 19: 1-5.

1 In support of his recommendation, Mr. Higgins inaccurately argues that the Commission
2 has a longstanding policy of allocating customer assistance program costs only to the residential
3 customer class, whose members are potentially eligible for respective programming.⁹ Mr. Higgins
4 acknowledges that the Commission has indicated it would consider recovering the costs of
5 customer assistance programs from all ratepayer classes in utility-specific proceedings,¹⁰ and that
6 PWSA has recovered low income program assistance costs from all customer classes since coming
7 under the Commission's jurisdiction in 2018.¹¹

8 **Q: How do you respond to the assertion that PWSA's customer assistance program**
9 **costs should be recovered solely from the residential customer class?**

10 A: I disagree. It is inappropriate to require the residential class to alone shoulder the burden
11 of universal service programs meant to remediate the impacts of poverty and utility insecurity, the
12 effects of which impact all customer classes. Poverty is a broad social problem, affecting all
13 customers and requiring holistic societal solutions. Utility insecurity is a pervasive problem with
14 long-term and far-ranging consequences for low income households and the surrounding
15 communities in which they live and work.¹² Families who are unable to afford critical utility
16 services are more prone to a variety of adverse consequences, including increased rates of health
17 complications and hospitalization, eviction, and food insecurity.¹³ For children in low income

⁹ Id. at 19: 7-14.

¹⁰ Id.

¹¹ Id. at 18: 14-16, 19:7-14.

¹² See Diana Hernández, Energy Insecurity And Health: America's Hidden Hardship, Health Affairs, available at: <https://www.healthaffairs.org/doi/10.1377/hpb20230518.472953/>; Nina Lakhani, Revealed: millions of Americans can't afford water as bills rise 80% in a decade (June 23, 2020), available at <https://www.theguardian.com/us-news/2020/jun/23/millions-of-americans-cant-afford-water-bills-rise>; Nina Lakhani and Juweek Adolphe, Key findings: the Guardian's water poverty investigation in 12 US cities (June 26, 2020), available at <https://www.theguardian.com/us-news/2020/jun/26/running-drinking-water-poverty-us-cities>; Kirsten Verclas and Eric Hsieh, From utility disconnection to universal access, The Electricity Journal, Volume 31, Issue 6, at 1-8 (July 2018), available at <https://www.sciencedirect.com/science/article/abs/pii/S104061901830143X>.

¹³ See Final Report, Recommendations for Implementation of a Statewide Low-Income Water Rate Assistance Program (Feb. 2020) at pp 15-17 (when water is unaffordable, families consume less than is healthy or sacrifice

1 households, utility insecurity has been linked to long-term health consequences and developmental
2 delays.¹⁴ Moreover, communities of color continue to experience utility insecurity at
3 disproportionately higher levels.¹⁵ The utility insecurity faced by low income and minority
4 households has only been exacerbated as a result of the COVID-19 pandemic, and the record
5 inflation and acute economic impacts that followed.¹⁶

6 While universal service program participants may derive the most direct and easily
7 quantifiable benefits from universal service programs, these programs provide important societal
8 benefits that are also enjoyed by non-residential ratepayers which should not be ignored. Many

other necessities), available at

https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/assistance/docs/ab401_report.pdf;
Dahlia Rockowitz, Chris Askew-Merwin, Malavika Sahai *et al*, Household Water Security in Metropolitan Detroit:
Measuring the Affordability Gap, University of Michigan Poverty Solutions (Aug. 2018) at 3 (low-income
households make untenable trade-offs to pay water bills), available at
<https://poverty.umich.edu/10/files/2018/08/PovertySolutions-PolicyBrief-0818-r2.pdf>; Environmental and Climate
Justice Program, NAACP, Lights Out In The Cold: Reforming Utility Shut-Off Policies as If Human Rights Matter
(March 2017), available at <https://naacp.org/resources/lights-out-cold>.

¹⁴ See See Diana Hernández, Energy Insecurity And Health: America’s Hidden Hardship, Health Affairs, available
at: <https://www.healthaffairs.org/doi/10.1377/hpb20230518.472953/>; Diana Hernandez, editorial, Energy Insecurity:
A Framework for Understanding Energy, the Built Environment, and Health Among Vulnerable Populations in the
Context of Climate Change, American Journal of Public Health, Vol.103, No 4 (April 2013) (while the author talks
about energy insecurity, there are parallels with water insecurity), available at
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3673265/pdf/AJPH.2012.301179.pdf>;

Diana Hernández, Yumiko Aratani, and Yang Jiang, Energy Insecurity Among Families with Children (January
2014), available at http://www.nccp.org/publications/pdf/text_1086.pdf.

¹⁵ See See Diana Hernández, Energy Insecurity And Health: America’s Hidden Hardship, Health Affairs, available
at: <https://www.healthaffairs.org/doi/10.1377/hpb20230518.472953/>; Lillian Holmes, Morgan Shimabuku, Laura
Feinstein *et.al.*, Water and the COVID-19 Pandemic Equity Dimensions of Utility Disconnections in the U.S.,
Pacific Institute (July 2020), available at <https://pacinst.org/publication/equity-dimensions-of-disconnections/>;
Environmental and Climate Justice Program, NAACP, Lights Out In The Cold: Reforming Utility Shut-Off Policies
as If Human Rights Matter (March 2017), available at <https://naacp.org/resources/lights-out-cold>.

¹⁶ See, e.g., CDC COVID-19 Fact Sheet, Cleaning And Disinfecting Your Home: Everyday Steps and Extra Steps
When Someone Is Sick (Updated May 27, 2020) (recommendations include cleaning surfaces with soap and water,
laundrying clothes and washing hands, also includes instructions for bleach disinfecting solution using bleach and
water), available at
<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/disinfecting-your-home.html> ; N.F. Mendoza, US
home water use up 21% daily during COVID-19 crisis, Tech Republic (June 2, 2020) available at.com
[https://www.techrepublic.com/article/us-home-water-use-up-21-daily-during-covid-19-
crisis/?mc_cid=203b67e30d&mc_eid=5b35ea314a](https://www.techrepublic.com/article/us-home-water-use-up-21-daily-during-covid-19-crisis/?mc_cid=203b67e30d&mc_eid=5b35ea314a); Elise Gout and Cathleen Kelly, Center for American Progress,
Bridging the Water Access Gap Through COVID-19 Relief (August 5, 2020), available at
[https://www.americanprogress.org/issues/green/news/2020/08/05/488705/bridging-water-access-gap-covid-19-
relief/](https://www.americanprogress.org/issues/green/news/2020/08/05/488705/bridging-water-access-gap-covid-19-relief/); Mushi, Vivian, and Magdalena Shao, Tailoring of the ongoing water, sanitation and hygiene interventions for
prevention and control of COVID-19, Tropical medicine and health, vol. 48 47 (Jun. 2020), available at
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7296519/>.

1 universal service program participants are employed – yet do not receive a wage that is adequate
2 to afford basic household needs.¹⁷ Many others are retired Seniors or individuals with a disability
3 that do not receive enough in Social Security, disability, or retirement benefits to afford basic life
4 necessities, such as utility services. Moreover, low income customers faced with utility insecurity
5 often struggle to cope with heightened levels of stress, anxiety, and depression, and must take time
6 away from work to arrange payments, locate or apply for assistance programs, and arrange for
7 reconnections¹⁸ – all of which significantly undermine worker productivity, impacting businesses,
8 non-profits, government entities, schools, and other non-residential customer groups. Universal
9 service programs also help utility companies to control uncollectible expenses, helping to bridge
10 the gap in these circumstances, which benefits all customers. Thus, each of us, regardless of rate
11 class, receives the benefits derived by a healthy and productive community – making it sound
12 policy for all customers to share in the cost of providing universal access to our most vulnerable
13 residents.

14 Universal service programs provide not only a safety net for at-need residential customers
15 but also broad societal benefits for all customer classes (industry, business, commerce, educational
16 institutions, hospitals, local and state governments, and other residential customers) in specific and

¹⁷ See, e.g., MIT's Living Wage Calculator for Pennsylvania (a one adult, one child household would need to earn \$24.30/hour to earn a wage that could cover basic expenses in PA, but the average wage for the federal poverty threshold is \$8.13/hour, and the minimum wage in PA is \$7.25/hour), available at <https://livingwage.mit.edu/states/42>.

¹⁸ See Dahlia Rockowitz, Chris Askew-Merwin, Malavika Sahai *et al*, Household Water Security in Metropolitan Detroit: Measuring the Affordability Gap, University of Michigan Poverty Solutions (Aug. 2018) at 4 (correlation between water insecurity and psychological distress), available at <https://poverty.umich.edu/research-publications/policy-briefs/household-water-security-in-metropolitan-detroit-measuring-the-affordability-gap/>; see also, Diana Hernandez, Understanding 'energy insecurity' and why it matters to health, Social Science & Medicine, Volume 167, October 2016 (similar utility insecurity stress with energy), available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/>; Ariel Drebohl & Lauren Ross, ACEEE, Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low-income and Underserved Communities, at 13 (April 2016), <https://www.aceee.org/sites/default/files/publications/researchreports/u1602.pdf>. Diana Hernández, Energy Insecurity And Health: America's Hidden Hardship, Health Affairs, available at: <https://www.healthaffairs.org/doi/10.1377/hpb20230518.472953/>.

1 identifiable ways. In turn, the responsibility to provide universal access to life-sustaining utility
2 services should be shared by all utility consumers – not simply residential customers.

3 **Q: Does the fact that PWSA is a publicly owned water utility have any bearing on how**
4 **low income program costs are recovered?**

5 A: Yes, to an extent. The fact that PWSA is a publicly owned and operated utility under the
6 jurisdiction of the Commission is a relevant factor for consideration in this context. PWSA has a
7 public Board of Directors, which operates as the governing body for the Authority. According to
8 PWSA, this Board is responsible, in part, for “providing strategic direction and oversight to the
9 PWSA management team, as well as adopting the Authority’s annual operating and capital
10 budgets, approving contracts, and setting rates.”¹⁹ The decision to recover BDP costs from all
11 ratepayers was a policy decision of a public board. Importantly, the only other publicly owned
12 utility subject to PUC regulation, Philadelphia Gas Works (PGW), also recovers universal service
13 programming from all ratepayers - rather than residential ratepayers alone.²⁰ That said, I must
14 note that the same strong policy reasons supporting cross-class recovery of universal service costs
15 apply regardless of whether a utility is public or private.

16 **Q: What is your recommendation regarding the cost allocation of PWSA’s low income**
17 **programming?**

18 A: I recommend that PWSA continue to recover the cost of its low income assistance
19 programs from both residential and non-residential customer classes.

20 **III. RESPONSE TO I&E EXPERT WITNESS**

21 **Q: Please summarize PWSA’s Customer Assistance Charge.**

¹⁹ PWSA, Board & Board Meetings, available at <https://www.pgh2o.com/about-us/board-board-meetings>.

²⁰ See, e.g., 2018 Report on Universal Service Programs & Collections Performance, at 78.

1 A: As discussed in my direct testimony, PWSA is proposing in the context of this proceeding
2 to implement a CAC beginning in FY 2025. The CAC would recover discounts provided to
3 customers pursuant to the BDP, operating costs for the PGH2O Cares team, the costs of PWSA's
4 Hardship Fund, and past due arrearage forgiven through PWSA's Arrearage Forgiveness Program
5 (AFP).²¹ PWSA indicates that they are proposing the CAC as current cost projections will likely
6 be inaccurate and lead to under-recovery of customer assistance program costs and operations.²²
7 PWSA's Witness Ms. Julie Mechling also argues that the CAC will help to provide greater
8 transparency related to ratepayer costs.²³

9 **Q: Please summarize the direct testimony of I&E Expert Witness Okum to which you**
10 **wish to respond.**

11 A: Ms. Okum disagrees with PWSA's proposal to implement a Customer Assistance Charge
12 (CAC).²⁴ Ms. Okum argues that the proposed CAC is problematic for several reasons.²⁵ First, Ms.
13 Okum argues that the CAC is not the best method to adjust inaccuracies in cost projections related
14 to low income programming.²⁶ Second, Ms. Okum argues that, contrary to Ms. Mechling's
15 assertions, the CAC will hinder cost transparency for ratepayers, as it is proposed to be combined
16 with other charges on customer bills.²⁷ Third, Ms. Okum argues that reconciliation of the CAC
17 would be completed outside of the parameters of a base rate case, disrupting the ability of the
18 Commission to review data and ratepayer impacts.²⁸ While PWSA expert witnesses reference that
19 the CAC would allow for refund of overcharges on expenses above what is included in base rates,

²¹ PWSA St. 6 at 27-32; I&E St. 2 at 33-34.

²² PWSA St. 6 at 27-32; I&E St. 2 at 34.6-11.

²³ Id.

²⁴ I&E St. 2 at 33-37.

²⁵ I&E St. 2 at 34: 14-19.

²⁶ Id.

²⁷ I&E St. 2 at 34-35.

²⁸ Id. at 35: 5-19.

1 Ms. Okum argues that PWSA’s base rates are likely to continue to increase.²⁹ Ms. Okum argues,
2 as the CAC is proposed to be implemented in FY 2025, that this serves as an opportunity to
3 increase revenue outside of rate cases, thus constituting single-issue ratemaking.³⁰ Finally, Ms.
4 Okum notes a discrepancy in PWSA witnesses’ testimonies, as Mr. Edward Barca indicates that
5 PWSA plans to reconcile the CAC on a semi-annual basis, while Ms. Mechling indicates that the
6 CAC would be adjusted on a semi-annual basis but reconciled annually.³¹

7 Ms. Okum also argues that the CAC should be rejected consistent with prior Commission
8 precedent in water/wastewater proceedings, where the Commission disagreed with reconcilable
9 recovery outside of base rates.³² Ms. Okum cites to the 2021 Aqua Pennsylvania Inc. (Aqua) base
10 rate proceeding.³³ In its May 2022 Order pursuant to this proceeding, the Commission noted that
11 “the use of a Section 1307(a) reconcilable rider ... is the exception, rather than the rule ...” and
12 “how few times the use of this mechanism has been either legislatively mandated ... or directed
13 by the Commission”³⁴ The Commission further noted in the May 2022 Aqua Order that similar
14 energy riders approved via a legislative mandate, including for Peoples Companies, were not
15 appropriate models as there was not a legislative carve-out for water companies compared to
16 electric companies.³⁵

17 For these reasons, Ms. Okum argues that the CAC should be rejected – or, in the alternative
18 assuming the Commission grant permission to use such treatment, that PWSA be required to
19 identify and deduct any related amounts from base rates and include all customer assistance costs

²⁹ Id.

³⁰ Id.

³¹ Id. at 35-36.

³² Id. at 36-37.

³³ Id.

³⁴ Pa. PUC v. Aqua Pennsylvania, Inc., Docket Nos. R-2021-3027385 & R-2021-3027386, at 314 (Order entered May 16, 2022) (May 2022 Aqua Order).

³⁵ Id. at 314-315.

1 within the rider in the manner that the universal service riders operate for energy companies, as
2 proposed by Aqua.³⁶ Ms. Okum further recommends that it should not be combined with other
3 charges so that transparency and Commission oversight are maintained.³⁷

4 **Q: What is your response to Ms. Okum's recommendation that the CAC should be**
5 **rejected?**

6 A: I am advised by counsel that the relevancy and weight of prior decisions by the
7 Commission and the Commonwealth Court are legal issues reserved for briefing. However, I am
8 concerned about the impact that Ms. Okum's recommendation to reject the CAC may have on
9 PWSA's low income assistance program funding.

10 As discussed extensively in my direct testimony, there is a tremendous need for rate
11 assistance amongst PWSA's low income customers. For example, PWSA reports that 17.95% of
12 its residential customers were in arrears as of July 2023.³⁸ The average arrearage levels amongst
13 PWSA's low income BDP customers have also grown significantly over recent years. The average
14 arrearage of PWSA's BDP customers have increased from an average of \$467.16 in January 2019
15 to an average of \$1,041.03 – or by 122%.³⁹ These numbers are significant and underscore the
16 need for robust low income assistance programs to ensure PWSA's low income customers can
17 access and maintain essential water and wastewater services to their home.

18 With this high level of need, it is imperative that robust and ongoing funding is available
19 to support PWSA's low income assistance programs, and I continue to stand by my
20 recommendations in direct testimony regarding PWSA's low income assistance programs.⁴⁰ I do

³⁶ I&E St. 2 at 37-38.

³⁷ Id.

³⁸ Pittsburgh United St. 1 at 35.

³⁹ Id. at 41.

⁴⁰ Id.

1 not take a position on whether the continued funding source should ultimately proceed through the
2 mechanism of the CAC. However, regardless of the ultimate mechanism approved, funding for
3 PWSA's low income assistance programs must be adequate to serve the needs of PWSA's low
4 income customers.

5 Finally, I note that I am opposed to Ms. Okum's alternative argument, recommending
6 generally that any approved rider should be specifically itemized on the bill. Universal services
7 should not be singled out for such treatment. The USECP portfolio has been developed for both
8 the public benefit as well as for utility collection cost reduction. It consists of a broad panoply of
9 programs, policies, protections, and benefits to individual customers, the Authority, and to the
10 general public. Many of the direct and indirect benefits such as savings to the Authority of
11 collection and termination costs, benefits occurring by receipt of federal utility grant assistance,
12 and other publicly funded disbursements are not generally included in the cost calculation. and
13 could not easily or practically be quantified to be itemized on the bill. Utilities recover costs for a
14 broad range of operational expenses necessary to deliver safe and affordable services to all
15 consumers, including staff salaries, legal and regulatory expenses, operations, universal services,
16 and a range of infrastructure maintenance costs. Isolating a single cost for itemization on a
17 customer bill may not add transparency but could lead to confusion – obfuscating some charges or
18 credits while highlighting others. Unless and until each of the universal services direct and indirect
19 benefits as well as these other costs are fully itemized, the cost of providing universal service
20 programs should not be isolated on a customer bill.

21 **IV. RESPONSE TO OCA EXPERT WITNESSES**

22 **Q: Please summarize the testimony of OCA's Expert Witness Mr. Pavlovic to which**
23 **you wish to respond.**

1 A: Similar to I&E Expert Witness Okum, OCA expert witness Pavlovic argues against
2 implementation of PWSA's proposed CAC.⁴¹ Mr. Pavlovic argues that the fact PWSA's customer
3 assistance costs are growing and that actual costs may differ from projections is not sufficient
4 reasoning to single out these particular costs through a reconcilable surcharge.⁴² Mr. Pavlovic
5 argues that reconcilable surcharges are cost trackers that are viewed unfavorably in regulatory
6 theory and practice as they allow for automatic pass through of costs to ratepayers and thus weaken
7 utility's incentives to control costs.⁴³ Mr. Pavlovic explains that a cost tracker is appropriate only
8 where costs are largely outside of the utility's control; unpredictable; and substantial and
9 recurring.⁴⁴ Mr. Pavlovic argues that the costs proposed for inclusion in the CAC do not meet these
10 criteria.⁴⁵ Mr. Pavlovic also notes that the Commission recently rejected Aqua's proposed
11 universal service rider.⁴⁶ Mr. Pavlovic recommends that the proposed CAC should be denied.⁴⁷

12 **Q: What is your response to Mr. Pavlovic's testimony related to the CAC?**

13 A: As discussed above, I do not take a position as to the appropriate cost recovery method for
14 PWSA's low income assistance programs – though I strongly agree with Mr. Pavlovic that
15 universal service costs should not be singled out for separate treatment. Regardless of the method,
16 it is critical that the Commission approve adequate funding for PWSA's universal service
17 programming to serve identified need. Such funding is imperative to meet the ongoing and acute
18 need for assistance felt by PWSA's low income customers, both at proposed and present rates.

19 **Q: Please summarize the testimony of OCA's Expert Witness Mr. Coloton to which you**
20 **wish to respond.**

⁴¹ OCA St. 2 at 33-35.

⁴² Id. at 33: 12-15.

⁴³ Id. at 33-34.

⁴⁴ Id. at 34: 1-10.

⁴⁵ Id.

⁴⁶ Id. at 34-35.

⁴⁷ Id.

1 A: In his direct testimony, Mr. Colton reviewed the reasonableness of PWSA's proposal to
2 revise the structure and discount levels of its BDP.⁴⁸ Mr. Colton analyzed PWSA's proposal
3 through the lens of both the *level* of income of BDP participants, but also by *fragility* of income
4 for those low-income customers.⁴⁹ As Mr. Colton explains, low income workers can have their
5 ability to pay utility bills threatened due to unavoidable disruptions in their economic lives.⁵⁰
6 Based on this analysis, Mr. Colton concludes that it is reasonable and appropriate to expand BDP
7 eligibility to 200% FPL.⁵¹

8 Mr. Colton also recommends that PWSA should add a third tier to its BDP, so that its tiers
9 include: (1) Tier 1: at or below 50% FPL; (2) Tier 2: above 50% FPL to 100% FPL; and (3) Tier
10 3: above 100% FPL.⁵² As Mr. Colton explains, there is a substantial difference in the income levels
11 of customers at 50% FPL (i.e. those closer to the bottom of the FPL scale) and those with 200%
12 FPL (i.e. those with the maximum income for BDP eligibility).⁵³ In consideration of these
13 disparities, Mr. Colton recommends that PWSA introduce a new tier for customers with income
14 greater than 50% FPL but at/below 100% FPL.⁵⁴ He recommends that this income tier receive a
15 volumetric discount similar to customers with income at or below 50% FPL.⁵⁵ However, he
16 recommends that this tier with somewhat higher incomes, receive a lower volumetric discount of
17 30%.⁵⁶

⁴⁸ OCA St. 4 at 25-45.

⁴⁹ Id. at 27.

⁵⁰ Id. at 27-31.

⁵¹ Id. at 32.

⁵² Id. at 40.

⁵³ Id. at 41-43.

⁵⁴ Id. at 43.

⁵⁵ Id.

⁵⁶ Id. at 43-45.

1 Mr. Colton also recommends an increase to the volumetric discount provided to the lowest
2 income tier of PWSA's BDP.⁵⁷ At present, customers with income at or below 50% FPL receive
3 a 50% volumetric discount.⁵⁸ Mr. Colton recommends the volumetric discount for customers
4 at/below 50% FPL be increased to 60%.⁵⁹ Mr. Colton reasons that, at a 50% volumetric discount,
5 households at/below 50% FPL would be in danger of exceeding 4% in their burden levels.⁶⁰ Mr.
6 Colton also notes that PWSA indicated that the median usage level of customers at/below 150%
7 FPL was 4,000 gallons/month.⁶¹ Based on PWSA's proposed revisions to the BDP, low income
8 customers at or above this median usage level will experience burden levels that may greatly
9 exceed affordable burden levels.⁶² For example, Mr. Colton estimates that a household with an
10 income of \$5,000 and 4000 gallons/month of usage would see a 12.8% burden as of FY2026.⁶³
11 Based on this analysis, Mr. Colton recommends that BDP customers at/below 50% FPL receive a
12 60% volumetric discount.⁶⁴

13 **Q: What is your response to Mr. Colton's testimony related to revisions of the BDP's**
14 **design and discount levels?**

15 A: I am highly supportive of Mr. Colton's proposed revisions to the design and discount levels
16 of the BDP. In my direct testimony, I analyzed PWSA's proposed revisions to its BDP and
17 concluded that for many low income customers between 50% and 200% FPL, PWSA's proposal
18 would result in combined burden levels at or below 4%.⁶⁵ Based on this analysis, I concluded that,
19 in the context of the present case, I was generally supportive of PWSA's proposed revisions to its

⁵⁷ Id. at 45.

⁵⁸ Id.

⁵⁹ Id.

⁶⁰ Id. at 46-47.

⁶¹ Id. at 48-49.

⁶² Id.

⁶³ Id. at 49.

⁶⁴ Id. at 49-50.

⁶⁵ Pittsburgh United St. 1 at 32.

1 BDP.⁶⁶ However, I also recognized that PWSA’s proposed revisions to the BDP may ultimately
2 require additional improvements to ensure that all BDP participants – regardless of household size
3 and usage level – may achieve affordable burden levels.⁶⁷

4 My recommendation that PWSA’s proposed revisions to the structure and discounts
5 offered through its BDP should be approved in the context of the present proceeding should not
6 be read as precluding the recommendations that Mr. Colton made to improve the BDP. I am highly
7 supportive of Mr. Colton’s revisions to the structure of the BDP, as well as increasing the
8 volumetric discount levels of the BDP for participants at/below 50% FPL. As Mr. Colton points
9 out,⁶⁸ these changes would help markedly improve affordability for BDP participants and would
10 more closely align actual bill burdens for participants – particularly those participants with
11 household income at/below 50% FPL with the greatest financial need – with affordable bill
12 burdens.⁶⁹ These revisions are essential to ensure that low income BDP participants can realize
13 consistent levels of affordability, regardless of income level, household size, or usage levels.

14 I therefore conclude that approval of PWSA’s proposal to improve the structure and
15 affordability of its BDP should be considered the foundation for BDP improvements. I recommend
16 that Mr. Colton’s proposals to adjust the income tiers within PWSA’s BDP proposal and increase
17 the volumetric discount for customers at/below 50% should be approved as necessary revisions to
18 PWSA’s proposal.

19
20

⁶⁶ Id.
⁶⁷ Id.
⁶⁸ OCA St. 4 at 48-50.
⁶⁹ Id. at 49-50.

1 **V. RESPONSE TO SCHOOL DISTRICT OF PITTSBURGH EXPERT**
2 **WITNESSES**

3 *Exemption of School District From Stormwater Fee.*

4 **Q: Please summarize the testimony of the School District of Pittsburgh related to its**
5 **proposed exemption from PWSA’s stormwater fee to which you wish to respond.**

6 A: In his direct testimony, the School District’s expert witness, Mr. Michael J. McNamara,
7 describes how the School District owns a large number of buildings and facilities equating to
8 almost 6.9 million square feet, which equates to 4,264.5 ERU, or 45% of the School District’s total
9 land area.⁷⁰ Mr. McNamara argues that, despite having a water efficiency plan that includes
10 stormwater mitigation efforts, it does not receive any credits for purported efforts to reduce
11 stormwater run-off.⁷¹ Mr. McNamara argues that PWSA’s stormwater fee may constitute an
12 unlawful tax, and cites to recent decisions by the Pennsylvania Commonwealth Court related to
13 the Borough of West Chester.⁷² While acknowledging that this case is pending appeal before the
14 Pennsylvania Supreme Court, Mr. McNamara argues that the Commonwealth Court may
15 nevertheless view the adverse financial impacts on the School District from the stormwater fee as
16 improper.⁷³ Mr. McNamara further alleges that, to budget for additional stormwater costs to
17 PWSA, it will be forced to cut custodial and maintenance personnel, which would adversely
18 impact operations.⁷⁴

19 The School District’s expert witness, Mr. Eric M. Callocchia, similarly argues that PWSA
20 should also consider several alternative stormwater fee approaches, including models that exempt

⁷⁰ School District St. 1 at 11: 1-9.

⁷¹ Id. at 12-13.

⁷² Id. at 14.

⁷³ Id.

⁷⁴ Id. at 12: 7-11.

1 school districts from payment of stormwater fees.⁷⁵ Mr. Callocchia cites a survey conducted by
2 Black and Veatch in 2021, which found that 16% of survey respondents exempt school districts,
3 and – of those – 45% indicate that this exemption is based on policy rather than enabling
4 legislation.⁷⁶ Mr. Callocchia further cites Maryland municipal law, which exempts certain property
5 owned by the State or State entities.⁷⁷ Mr. Callocchia also cites to the City of Jacksonville, FL,
6 which exempts 501(c)(3) charitable organizations from stormwater fees.⁷⁸

7 Mr. Callocchia argues that exempting the School District from PWSA’s stormwater rates
8 would not cause undue discrimination in rates, would reflect PWSA’s acknowledgment that
9 reducing costs to school districts as quasi-municipal entities focused on educating children, and
10 would result in more resources being spent on education of students, thereby allowing for a net
11 increase to public benefits.⁷⁹ Mr. Callocchia further argues that PWSA is already making certain
12 value judgments in their stormwater rate structure, including the exemption of cemeteries, and
13 City-owned streets and sidewalks by not defining a fee for right-of-ways (which constitute very
14 large contributors to stormwater runoff).⁸⁰ Mr. Callocchia appears to also argue that, in the
15 alternative, credits should be offered to educational customers such as the School District.⁸¹ Mr.
16 Callocchia estimates that the total impacts to rates of my recommendations regarding the reduction
17 in the non-residential stormwater fees. Specifically, Mr. Callocchia estimates that his
18 recommendations, as a whole, would increase stormwater fees for ERU for residential customers

⁷⁵ School District St. 2 at 24: 9-14.

⁷⁶ Id.

⁷⁷ Id. at 24-25.

⁷⁸ Id.

⁷⁹ Id. at 25: 8-17.

⁸⁰ Id. at 25-26.

⁸¹ Id. at 27: 12-16.

1 from \$10.26 to \$10.69 in 2024; from \$12.50 to \$13.64 in 2025; and from \$14.62 to \$15.96 in
2 2026.⁸²

3 **Q: What is your response to the School District’s expert witnesses related to their**
4 **recommendations the exempt to School District from payment of stormwater fees?**

5 A: It is important to initially note that I am strongly supportive of and recognize the need for
6 increased funding for public schools, including the Pittsburgh School District. Research suggests
7 that increased spending on education can improve student outcomes, especially amongst low
8 income students, and narrow achievement gaps between social-economic classes.⁸³ An equitable
9 funding system ultimately ensures that schools can adequately meet the myriad of purposes they
10 serve – from academic, to socioemotional, to providing other supportive services – including
11 health and lunch services.⁸⁴ Robust school funding is essential to the continued vitality of
12 Pennsylvania’s families and their communities.

13 Notwithstanding this support, I am concerned with the proposals of Mr. McNamara and
14 Mr. Callocchia that the School District should be *exempted* from PWSA’s stormwater fee – passing
15 costs on to residential consumers. Counsel for Pittsburgh United’s Our Water Table has advised
16 me that issues related to whether PWSA’s stormwater fee constitutes an unlawful tax are legal
17 issues that will be reserved for briefing. With more than 4,000 ERU, the School District’s
18 properties comprise significant amounts of impervious surfaces. Based on the calculations
19 provided by the School District’s expert witnesses, exempting the School District from payment

⁸² *Id.* at 32: 9-11.

⁸³ Sylvia Allegretto, Emma García, and Elaine Weiss, *Public education funding in the U.S. needs an overhaul*, Economic Policy Institute (July 22, 2022), available at: <https://www.epi.org/publication/public-education-funding-in-the-us-needs-an-overhaul/>. Kira Barrett, *The Evidence is Clear: More Money For Schools Means Better Student Outcomes*, neaToday (Aug. 2018), available at: <https://www.nea.org/nea-today/all-news-articles/evidence-clear-more-money-schools-means-better-student-outcomes>. Bruce D. Baker, *How Money Matters for Schools*, Learning Policy Institute (Dec. 13, 2017), available at: <https://learningpolicyinstitute.org/product/how-money-matters-report>.

⁸⁴ *Id.*

1 of stormwater fee would result in marked increases in residential customers monthly bills, further
2 exacerbating the rate unaffordability borne by residential customers and felt most acutely by low
3 income residential customers. These increases would directly and adversely impact the families
4 that the School District serves and would make it more difficult for Pittsburgh's low income
5 families to make ends meet.

6 According to the U.S. Census Bureau, the City of Pittsburgh currently has a 19.7% poverty rate⁸⁵
7 – well above the national average.⁸⁶ Research indicates that communities of color, single women
8 raising children, and other historically disadvantaged and marginalized populations face poverty
9 at disproportionate rates.⁸⁷ Children in Pittsburgh are also struggling profoundly. The child poverty
10 rate in Allegheny County is estimated to be 15%.⁸⁸ It is further estimated that 14.5% of children
11 in Allegheny County are experiencing child hunger; and 8.6% of children in Allegheny County
12 drop out of school.⁸⁹ These figures underscore the profound need felt amongst Pittsburgh's low
13 income consumers. Mitigation of these impacts, while admittedly important, must, in the
14 ratemaking context, be targeted and designed to ensure that low income families are not ultimately
15 disadvantaged by efforts to remediate these societal ills. While this ratemaking proceeding cannot

⁸⁵ U.S. Census Bureau, [QuickFacts: Pittsburgh City](https://www.census.gov/quickfacts/fact/table/pittsburghcitypennsylvania/AFN120217), available at: <https://www.census.gov/quickfacts/fact/table/pittsburghcitypennsylvania/AFN120217>. Note that the poverty rate is based on households at or below 100% of the federal poverty level, which is lower standard than the Commission's definition of low income households.

⁸⁶ U.S. Census Bureau, [National Poverty in America Awareness Month](https://www.census.gov/newsroom/stories/poverty-awareness-month.html) (Jan. 2023), available at: <https://www.census.gov/newsroom/stories/poverty-awareness-month.html>.

⁸⁷ The Pittsburgh Foundation, [Poverty in Our Region](https://pittsburghfoundation.org/poverty-in-region), available at: <https://pittsburghfoundation.org/poverty-in-region>.

⁸⁸ Save the Children, U.S. Childhood Report, available at: https://www.savethechildren.org/us/about-us/resource-library/us-childhood-report?cid=Paid_Search:Google_Grant:Annual_EndofChildhood:Nonbrand:061520&ds_e=GOOGLE&s_kwid=AL19048!3!435148983240!b!g!child%20poverty&ds_c=gg+-+End+of+Childhood&ds_ag=gg+-+childhood&ds_k=child+poverty&gclid=Cj0KCOjw9MCnBhCYARIsAB1WQVW6om3Uvd07EEHQroadjzycRncLPOAGLoe9stqTfjgZh4loq9_Sk6MaAh6UEALw_wcB&gclsrc=aw.ds.

⁸⁹ [Id.](#)

1 ultimately address the need for increased school funding, this proceeding can and should address
2 pervasive utility insecurity felt by PWSA’s low income consumers through the context of rates.

3 From a policy perspective, I do not believe that it is appropriate to *exempt* the School
4 District from payment of stormwater fees, though I would not necessarily oppose alternative
5 proposals to mitigate the cost burden on schools – particularly for schools serving low income
6 communities. Exempting the School District from payment of a stormwater fee, as proposed,
7 would improperly shift the burden of needed additional school funding to residential ratepayers.
8 This is a regressive method of supporting school operations and ultimately places greater onus on
9 low income families who are already contending with steep preexisting levels of unaffordability.
10 While some systems have made the policy decision to shift the burden for stormwater management
11 to residential households, including low income residents, to do so here would be detrimental to
12 the low income families and communities that both PWSA and the School District serve. Placing
13 additional onus on low income customers to bridge the gap in school funding is particularly
14 problematic given the recent funding provided through such sources as the Infrastructure
15 Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA), which may provide avenues
16 of additional funding so that the School District⁹⁰ can continue to contribute to payment of
17 PWSA’s stormwater management.

18 In sum, while I recognize the need for Pennsylvania to tackle the critical need for expanded
19 public school funding to fully support the cost of providing quality education to all students, I
20 believe that exempting the School District from stormwater fees is simply the wrong method of
21 doing so.

⁹⁰ See The White House, [The Infrastructure Investment and Jobs Act will Deliver for Pennsylvania](https://www.whitehouse.gov/wp-content/uploads/2021/08/PENNSYLVANIA_Infrastructure-Investment-and-Jobs-Act-State-Fact-Sheet.pdf), available at: https://www.whitehouse.gov/wp-content/uploads/2021/08/PENNSYLVANIA_Infrastructure-Investment-and-Jobs-Act-State-Fact-Sheet.pdf.

1 **Q: What is your recommendation related to the proposal of the School District’s expert**
2 **witnesses to exempt to School District from payment of stormwater fees?**

3 A: For the reasons stated above, the Commission should reject the recommendation of Mr.
4 McNamara and Mr. Callocchia to exempt the School District from PWSA’s stormwater fee.

5
6 Allocation of costs of low income customer assistance programs.

7 **Q: Please summarize the testimony of the School District’s expert witnesses related to**
8 **the CAC to which you wish to respond.**

9 A: In his direct testimony, Mr. Callocchia explains that PWSA’s proposed stormwater CAC
10 is calculated by dividing the annual forgone revenue and allocated operations costs by the total
11 number of stormwater ERUs to arrive at a rate per ERU.⁹¹ PWSA proposes that the CAC apply to
12 all stormwater ratepayers in all classes.⁹² Mr. Callocchia argues that the costs of the CAC should
13 apply solely to residential customers.⁹³

14 **Q: What is your response to Mr. Collocchia’s recommendations that the CAC should**
15 **solely apply to residential customers?**

16 A: As discussed above in response to Mr. Higgins recommendations to discontinue PWSA’s
17 long-standing policy of recovering costs of its low income assistance programs across customer
18 classes, it is inappropriate to require residential customers to solely shoulder the burden of low
19 income assistance programs meant to remediate the impact of societal problems of poverty and
20 utility insecurity. Exempting other customer classes from the CAC would ignore the important

⁹¹ Id. at 17: 6-12; PWSA St. No. 7, p. 48.

⁹² Id.

⁹³ Id. at 18: 1-6.

1 social benefit of assistance programs that are also enjoyed by nonresidential ratepayers.⁹⁴ In
2 addition to the benefits to nonresidential ratepayers I have discussed above, unaffordable utility
3 bills increase the forced mobility of children and their families. Frequent moves through childhood
4 hampers positive educational outcomes and leads to increased need for remedial programs.⁹⁵ By
5 contrast, increasing utility affordability for low income families promotes household stability and
6 unity, reduces the need for additional remediation by schools, and ultimately leads to more
7 effective and efficient educational systems.⁹⁶ Thus, I oppose Mr. Collocchia's proposal to exempt
8 non-residential customers from the CAC.

9 **VI. CONCLUSION**

10 **Q: Does this conclude your rebuttal testimony?**

11 **A: Yes.**

⁹⁴ See *supra*. See also Roger D. Colton, [A ROAD OFT TAKEN: Unaffordable Home Energy Bills, Forced Mobility And Childhood Education in Missouri](http://www.fsconline.com/downloads/Papers/1995%2001%20HD-START.pdf) (June 1995), available at: <http://www.fsconline.com/downloads/Papers/1995%2001%20HD-START.pdf>. American Psychological Association, [Moving Repeatedly in Childhood Associated with Poorer Quality of Life Years Later](https://www.apa.org/news/press/releases/2010/06/moving-well-being) (2010), available at: <https://www.apa.org/news/press/releases/2010/06/moving-well-being>. MacArthur Foundation, [Frequent Moves in Childhood Can Affect Later Earnings, Work, and Education](https://housingmatters.urban.org/sites/default/files/wp-content/uploads/2014/09/How-Housing-Matters-Policy-Research-Brief-Frequent-Moves-in-Childhood-Can-Affect-Later-Earnings-Work-and-Education.pdf) (2014), available at: <https://housingmatters.urban.org/sites/default/files/wp-content/uploads/2014/09/How-Housing-Matters-Policy-Research-Brief-Frequent-Moves-in-Childhood-Can-Affect-Later-Earnings-Work-and-Education.pdf>. MacArthur Foundation, [Is Moving During Childhood Harmful?](https://www.macfound.org/media/files/hhm_brief_-_is_moving_during_childhood_harmful_2.pdf), available at: https://www.macfound.org/media/files/hhm_brief_-_is_moving_during_childhood_harmful_2.pdf.

⁹⁵ [Id.](#)

⁹⁶ [Id.](#)

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

Pennsylvania Public Utility Commission :
: **Docket Nos. R-2023-3039920**
v. : **R-2023-3039921**
: **R-2023-3039919**
Pittsburgh Water and Sewer Authority :
:
:

SURREBUTTAL TESTIMONY OF HARRY S. GELLER, ESQ.
ON BEHALF OF
PITTSBURGH UNITED'S OUR WATER TABLE

September 22, 2023

1 **PREPARED SURREBUTTAL TESTIMONY OF HARRY S. GELLER, ESQ.**

2 **I. INTRODUCTION**

3 **Q: Please state your name, occupation, and business address.**

4 A: My name is Harry Geller. I am an attorney. I am the former Director of the Pennsylvania
5 Utility Law Project. I am currently retired but serve as Senior Counsel to the Pennsylvania Utility
6 Law Project (PULP) and as a consultant to legal aid programs and their clients.

7 **Q: Did you previously submit testimony in this proceeding?**

8 A: Yes. I submitted direct testimony that is pre-marked as Pittsburgh United Statement 1, and
9 rebuttal testimony, pre-marked as Pittsburgh United Statement 1-R.

10 **Q: What is the purpose of your surrebuttal testimony?**

11 A: My surrebuttal testimony responds to rebuttal testimonies of Pittsburgh Water and Sewer
12 Authority (PWSA) expert witnesses Julie A. Mechling (PWSA St. 6-R), Edward Barca (PWSA
13 St. 2-R), and Keith Redling (PWSA St. 8-R).

14 This surrebuttal testimony is not intended to address every issue raised or otherwise
15 discussed by other parties' witnesses in their rebuttal testimonies. Absence of a response to any
16 specific recommendation or position of any witness does not indicate my agreement. Unless
17 required for context in providing a further response to direct or rebuttal testimony, I will not
18 reiterate the extensive arguments and evidence that I provided in my direct and rebuttal
19 testimonies. To the extent an argument raised by any party in rebuttal is already sufficiently
20 addressed in my direct or rebuttal testimonies, I do not intend to respond, and stand on the
21 evaluation, analysis, and recommendations contained in my direct and rebuttal testimonies.

22

23

1 **Q: How is your surrebuttal testimony organized?**

2 A: In Section I of my surrebuttal testimony (above), I outline the purpose of my rebuttal
3 testimony.

4 In Section II, I respond to rebuttal testimony of PWSA's expert witness related to low
5 income assistance program outreach and enrollment.

6 In Section III, I respond to rebuttal testimony of PWSA's expert witness related to my
7 recommendation that PWSA submit a Universal Service Plan for Commission review and
8 approval.

9 In Section IV, I respond to rebuttal testimony of PWSA's expert witness regarding
10 recommendations to conduct systematic screening of low income customers.

11 In Section V, I respond to rebuttal testimony of PWSA's expert witnesses related to
12 recommendations to restructure PWSA's Arrearage Forgiveness Program (AFP).

13 In Section VI, I respond to rebuttal testimony of PWSA's expert witness related to
14 recommendation to pass through convenience fees for low income customers.

15 In Section VII, I respond to rebuttal testimony of PWSA's expert witnesses related to
16 recommended mitigation measures for stormwater.

17 In Section VIII, I conclude my surrebuttal testimony.

18
19 **II. RESPONSE RE: LOW INCOME ASSISTANCE PROGRAM OUTREACH AND**
20 **ENROLLMENT (PWSA ST. 6-R).**

21 **Q: Please summarize rebuttal testimony of PWSA's expert witness related to the**
22 **undersubscription of PWSA's low income assistance programs to which you wish to respond.**

23 A: Ms. Mechling disagrees with my conclusion that PWSA's low income customer assistance
24 programs remain woefully undersubscribed and only reach a fraction of PWSA's estimated low

1 income customers.¹ Ms. Mechling argues against my recommendations to enhance enrollment in
2 PWSA's low income assistance programs.² Ms. Mechling specifically disagrees with my
3 recommendations that PWSA develop a consumer education and outreach plan; update estimated
4 low income customer count and needs assessment within a year of the final order in this
5 proceeding; implement screening measures for new and moving customers on non-emergency
6 contacts for low income status; update its confirmed low income count; and begin tracking cross-
7 enrollment program referrals and enrollment.³

8 Ms. Mechling also takes exception to my recommendations that the Commission require
9 PWSA to implement enrollment targets for its low income assistance programs.⁴ She argues that
10 the Commission does not require water utilities to implement enrollment targets, and Commission
11 has not deemed rates to be unjust or unreasonable based on enrollment of low income assistance
12 programs.⁵

13 In rejecting my recommendations to improve program enrollment, Ms. Mechling
14 recommends that these ideas be presented during LIAAC meetings to be discussed in an informal
15 collaborative manner.⁶ She opines that the LIAAC process is a far superior way for PWSA to
16 address suggestions related to program enrollment, and that this rate proceeding involves a
17 plethora of interrelated issues that must be considered.⁷ While rejecting consideration of these
18 important issues related to program enrollment through this proceeding, Ms. Mechling also
19 opposes mandating specific reporting requirements for LIAAC meetings to equip LIAAC

¹ PWSA St. 6-R at 23: 16-24; 25-26; United St. 1 at 23.

² PWSA St. 6-R at 23: 16-24; 25-26.

³ Id. at 26:1-11.

⁴ Id. at 23-24; 34.

⁵ Id. at 23-24.

⁶ Id. at 27: 1-20.

⁷ Id.

1 members with information and data necessary to make meaningful recommendations.⁸ She argues
2 that LIAAC members may not find information of interest, and that reporting requirements would
3 require additional time and resources to prepare.⁹

4 **Q: What is your response to Ms. Mechling’s rebuttal testimony related to continued**
5 **undersubscription of PWSA’s low income assistance programs?**

6 A: As an initial matter, I am advised by counsel for Pittsburgh United’s Our Water Table that
7 issues related to whether universal service enrollment or related universal service program issues
8 are relevant factors for the Commission to investigate in determining whether rates are just and
9 reasonable is a legal issue reserved for briefing.

10 Putting these legal issues aside, I am concerned with Ms. Mechling’s suggestion that issues
11 and recommendations related to enrollment in PWSA’s low income assistance programs should
12 be relegated to consideration in the context of informal LIAAC meetings, rather than considered
13 in the context of the present case. I am supportive of the use of utility advisory group meetings to
14 provide a forum for parties and stakeholders to discuss issues surrounding the design and delivery
15 of low income assistance programming, and to reach consensus where possible. This may help to
16 reduce the number of issues raised through formal litigation and would be beneficial to all parties.

17 Notwithstanding my support of collaborative processes to attempt to resolve issues that
18 affect low income consumers outside of litigation, informal stakeholders meetings and the
19 recommendations put forward are advisory only and subject to PWSA acceptance, veto, or
20 modification. PWSA’s decisions following a collaborative are not appealable or subject to review.

21 A collaborative process is simply not a substitute for a formal examination of the justness and

⁸ Id. at 27: 17-21.

⁹ Id.

1 reasonableness of rates produced by low income assistance programming in the context a rate
2 proceeding.

3 Informal stakeholder processes lack a myriad of tools necessary to meaningfully
4 investigate the adequacy of universal services, including the use of discovery and evidentiary
5 hearing. If parties are relegated to informal processes to advocate for improvements to these
6 programs, there is no mechanism to require PWSA to implement – or even consider – parties’
7 proposals. If PWSA fails to implement recommended improvements, parties would have no clear
8 path to redress PWSA’s decisions. An evaluation of the justness and reasonableness of any
9 proposed rate increase must necessarily analyze the adequacy and design of rate assistance
10 programming to ensure that water, wastewater, and stormwater services are reasonably affordable
11 and universally accessible to households in PWSA’s service territory.

12 To be just and reasonable, it is critical that rates – together with the attendant terms,
13 conditions, and programming – are also affordable for those served. It is inappropriate to raise
14 rates for water, wastewater, and stormwater services without first ensuring that low and moderate
15 income customers are able to receive affordable service under just and reasonable terms.
16 Affordability of rates for low income consumers, and in turn the structure and delivery of low
17 income assistance programming, are key components of determining whether rates are just and
18 reasonable. Precluding consideration of universal service issues in the context of rate proceedings
19 ignores the statutory mandate to ensure that all rates charged are just and reasonable and denies
20 meaningful opportunity of the parties to review the same. Indeed, universal accessibility is a
21 polestar principle of ratemaking for essential, life-sustaining utility services.

22 In short, relegating consideration of improvements to universal service programs solely to
23 informal stakeholder processes severs parties from their rights to investigate the justness and

1 reasonableness of rates for PWSA’s low income customers in the context of a formal proceeding,
2 and denies the right to a meaningful opportunity to be heard by an ALJ and the Commission related
3 to issues affecting low income customers’ ability to access assistance programs critical to affording
4 and staying connected to services. Thus, I oppose Ms. Mechling’s recommendations that the
5 important recommendations I advance in my direct testimony related low income assistance
6 program outreach and enrollment not be addressed in this proceeding and should be relegated to
7 the LIAAC for consideration.

8

9 **III. RESPONSE RE: UNIVERSAL SERVICE PLAN SUBMISSION (PWSA ST. 6-**
10 **R)**

11 **Q: Please summarize PWSA expert witness rebuttal testimony related to your**
12 **recommendations that PWSA submit a Universal Service Plan for Commission review and**
13 **approval.**

14 A: Ms. Mechling opposes the recommendation set forth in my direct testimony that PWSA
15 develop and submit a Universal Service Plan for Commission review and approval.¹⁰ Ms.
16 Mechling argues that there is no statutory requirement that water utilities submit Universal Service
17 Plans.¹¹ She also argues that requiring PWSA to submit a Universal Service Plan would be
18 premature because PWSA intends to participate in the Commission’s upcoming Universal Service
19 Plan Working Group.¹² Ms. Mechling contends that it would be a waste of resources to impose
20 requirements that differ from those developed through that working group process.¹³

¹⁰ PWSA St. 6-R at 28: 16-24.

¹¹ Id.

¹² Id.

¹³ Id. at 29: 1-4.

1 Ms. Mechling further argues that submission of a Universal Service Plan does not “lend
2 itself to a collaborative process as PWSA has developed through its LIAAC.”¹⁴ Ms. Mechling
3 argues that additional Commission requirements would impose improper strain on staff resources
4 and costs.¹⁵ Ms. Mechling bases this assessment on her experience with PWSA’s recent
5 compliance plan proceeding – arguing that the proceeding “slowed down the ability of PWSA to
6 reach definitive closure on issues which could be implemented” and was “not the best way to
7 move forward in a timely manner.”¹⁶ Ms. Mechling argues that submission of a Universal
8 Service Plan would experience similar pitfalls.¹⁷

9
10 **Q: What is your response to Ms. Mechling’s rebuttal testimony that opposes**
11 **requirements that PWSA submit a Universal Service Plan for Commission review and**
12 **approval?**

13 A: As discussed above, I am opposed to relegating important considerations related to
14 PWSA’s low income assistance programming solely to informal stakeholder processes, such as
15 the LIAAC. While informal stakeholder processes serve an important purpose for stakeholders to
16 gain information and provide feedback related to low income assistance programs, they do not
17 substitute for formal Commission review of the policies, procedures, and eligibility requirements
18 of these programs. Again, PWSA is not currently required to submit a Universal Service Plan for
19 Commission review and approval, which forecloses any opportunity for Commission review. As
20 Ms. Mechling points out, these proceedings deal with a multitude of other issues, aside from those
21 impacting low income programming. However, this fact does not negate the need to ensure that

¹⁴ Id. at 29: 4-5.

¹⁵ Id. at 29: 4-16.

¹⁶ Id.

¹⁷ Id.

1 PWSA’s low income programs – which provide critical rate assistance to low income families in
2 PWSA’s service territory – are designed and implemented in a manner that ensures all rates and
3 attendant terms, conditions, and programs are just and reasonable. While low income programs
4 must necessarily be considered in any determination related to the justness and reasonableness of
5 rates, it is essential that additional avenues are provided so that the Commission has the ability to
6 periodically review, and ultimately compel, important changes to PWSA’s low income assistance
7 programming without having to wait for PWSA to exercise its discretion as to when to initiate a
8 rate filing. Requiring PWSA to submit a Universal Service Plan for Commission review and
9 approval would provide this important forum.

10 I also take issue with Ms. Mechling’s assertion that the time and effort required for proceedings
11 such as PWSA’s recent compliance proceedings indicate that informal mechanisms should be used
12 instead. Informal stakeholder processes, like the LIAAC, do not preclude undertaking the essential
13 due process review of low income assistance programs in the context of determining the justness
14 and reasonableness of rates. I acknowledge that due process review, such as that provided in
15 PWSA’s compliance plan review, requires the time and attention of PWSA. Nevertheless, PWSA’s
16 compliance plan proceeding provided important processes to formally evaluate PWSA’s
17 compliance with Commission regulation and order changes.

18 I also firmly deny that the Commission’s upcoming Universal Service Plan Working Group
19 should preclude consideration of important program improvements in the context of the present
20 proceeding. I am highly supportive of the Commission’s collaborative efforts through its Universal
21 Service Plan Working Group to advance statewide policy regarding the coordination and
22 streamlined delivery of universal service programs. However, the mere existence of this statewide
23 policy Working Group does not preclude the Commission from directing PWSA to develop and

1 submit a Universal Service Plan for Commission review and approval. This Plan is specifically
2 geared towards addressing low income customers' ability to learn about and ultimately enroll in
3 assistance programs that are critical to addressing unaffordability at both present and proposed
4 rates in PWSA's service territory. As I understand it, the Working Group is tasked with identifying
5 broad recommendations that will be included in a report to the Commission. It will not be exploring
6 the benefits or the terms and conditions or each utility's individual portfolio of universal service
7 programs. The mere existence of this Working Group does not relieve PWSA of its continuing
8 duty to provide just and reasonable rates to its customers. PWSA should not be permitted to obtain
9 a rate increase in the context of this proceeding to be borne by customers least able to afford it,
10 while avoiding its responsibilities to provide robust review and enhancements to its low income
11 assistance programs. Thus, I stand firmly behind my recommendation that the Commission require
12 PWSA to submit a Universal Service Plan for formal Commission review and approval.

13

14 **IV. RESPONSE RE: SYSTEMATIC SCREENING OF LOW INCOME STATUS**
15 **(PWSA ST. 6-R)**

16 **Q: Please summarize PWSA expert witness rebuttal testimony related to your**
17 **recommendation that PWSA routinely screen customers for low income status.**

18 A: Ms. Mechling disagrees with my recommendations that PWSA implement a systematic
19 approach to identify customers who may be eligible for universal service programs, including
20 screening for low income status for all new and moving customers and any non-emergency calls.¹⁸

21 Ms. Mechling also disagrees with my proposal that PWSA develop associated call scripting and
22 checklists for its Customer Service Representatives to implement my recommended screening for

¹⁸ Pittsburgh United St. 1 at 27-28; PWSA St. 6-R at 30-31.

1 low income status.¹⁹ Ms. Mechling cites vague cost concerns from this proposal,²⁰ and further
2 argues that customers may be confused by questions about income in the flow of interaction with
3 Customer Service Representatives.²¹ She incorrectly reasons that these questions could be viewed
4 as offensive by customers and “would not engender the spirit of trust with customers that [PWSA
5 is] working to achieve.”²²

6 **Q: What is your response to Ms. Mechling’s rebuttal testimony related to your screening**
7 **proposals?**

8 A: As discussed, PWSA’s universal service program enrollment rates are inadequate. It is not
9 sufficient to wait for economically-distressed customers to reach the point of potential loss of
10 essential services before offering information and referral to low income assistance programs.
11 PWSA needs to be more proactive in identifying and enrolling low income customers to actively
12 prevent the unnecessary accrual of arrears, and help low income customers establish important
13 protections – including the PWSA’s winter moratorium on terminations. Being more proactive
14 will help reduce the number of arrearages held by low income customers.

15 I firmly disagree that regular screening for low income status will engender customer
16 confusion or offense. There is a significant difference in a customer’s perception when they are
17 informed that they may be eligible for a discount on their bill if they provide their household
18 income – as opposed to when they are coldly asked their income without further context for why
19 the information is being requested. Simply asking the single question of whether customers would
20 like to provide their income to be screened for eligibility in low income assistance programs will
21 not unduly complicate customer calls. Moreover, Ms. Mechling fails to quantify how this simple

¹⁹ Id.

²⁰ PWSA St. 6-R at 31: 7-14.

²¹ Id.

²² Id.

1 inquiry would result in additional costs for ratepayers. Indeed, the benefit of simply asking
2 customers whether they are interested in being screened for available assistance outweighs these
3 amorphous potential downfalls. Thus, I stand by my recommendation that PWSA should be
4 required to routinely screen for low income status, as outlined in my direct testimony.

5

6 **V. RESPONSE RE: ARREARAGE FORGIVENESS PROGRAM (PWSA ST. 6-R)**

7 **Q: Please summarize the rebuttal testimony of PWSA's expert witnesses concerning**
8 **restructuring of the Arrearage Forgiveness Program (AFP) to which you wish to respond.**

9 A: Ms. Mechling disagrees with the recommendations put forth by myself and OCA expert
10 witness Roger Colton regarding restructuring of the AFP.²³ Specifically, Ms. Mechling disagrees
11 with my recommendation that for each in-full payment that a customer makes while enrolled in
12 the BDP, 1/36th of the customer's preprogram arrears should be forgiven.²⁴ Ms. Mechling similarly
13 opposes OCA expert witness, Roger Colton's, recommendations to restructure the AFP. Ms.
14 Mechling specifically opposes Mr. Colton's recommendations that (1) PWSA eliminate the
15 requirement that AFP participants enter into a payment arrangement, adding to their monthly
16 payment obligation; (2) AFP participants receive forgiveness for each in-full payment, regardless
17 of timeliness; and (3) PWSA apply retroactive AFP credits for late payments.²⁵ Ms. Mechling
18 argues that the AFP is an incentive for customers to keep paying on their payment arrangements
19 to receive AFP credits.²⁶ Ms. Mechling argues that the current AFP parameters are appropriately

²³ PWSA St. 6-R at 41-42.

²⁴ *Id.*; Pittsburgh United St. 1 at 39.

²⁵ PWSA St. 6-R at 41-42. OCA St. 4 at 58-59.

²⁶ PWSA St. 6-R at 43: 16-27.

1 balanced to incentivize payments, as they permit two missed payments before a customer is
2 removed from the program and enables removed customers to reenroll upon full payment.²⁷

3 PWSA expert witness, Edward Barca, similarly argues against recommendations set forth
4 by Mr. Roger Colton and myself related to restructuring the AFP to provide a more robust percent
5 forgiveness structure.²⁸ Mr. Barca disagrees with Mr. Colton's assessment of Mr. Barca's initial
6 cost-benefit analysis related to restructuring of the AFP, and with Mr. Colton's conclusion that the
7 analysis failed to consider several important factors, including the benefits stemming from
8 program enhancements.²⁹ Mr. Barca argues that Mr. Colton's conclusions regarding the
9 effectiveness of PWSA's AFP structure are based in opinion rather than fact, and that AFP
10 participants would see considerable benefits as a result of arrearage forgiveness.³⁰ Mr. Barca
11 briefly notes that PWSA disagrees with my claims for similar reasons as those set forth in response
12 to Mr. Colton's direct testimony.³¹

13 **Q: What is your response to this rebuttal testimony related to restructuring of the AFP?**

14 A: As discussed at length in my direct testimony, failing to provide AFP credits for full
15 payment because they are not within narrowly prescribed timeframes does not correctly recognize
16 low income customer economic realities, fails to incentivize positive full payment behaviors, and
17 punishes customers who cannot make payments within strict timeframes due to financial hardships
18 or fluctuations in their incomes.³² A properly designed AFP should incentivize full payments –
19 regardless of timeliness – in recognition of the financial realities of low income households.³³
20 While Ms. Mechling points to PWSA's policy of allowing two missed payments prior to removal

²⁷ Id.

²⁸ PWSA St. 2-R at 76-77.

²⁹ Id.

³⁰ Id.

³¹ Id.

³² Pittsburgh United St. 1 at 39.

³³ Id.

1 from the AFP, these guidelines speak to whether AFP participants can remain in the Program to
2 earn forgiveness in the *future*, rather than whether they are able to earn forgiveness credits for late
3 or missed payments in the *past*. Thus, I stand firmly by my recommendation that the AFP should
4 be restructured so that, what includes, customers who make full payment while enrolled in the
5 AFP receive arrearage forgiveness credits, regardless of the timeliness of the payments.

6 I also stand by the recommendation in my direct testimony that AFP participants should
7 not have to enter into a payment plan in order to earn forgiveness on past due arrears.³⁴ As I
8 discussed in the context of PWSA’s refusal to provide forgiveness credits for catch-up payments,
9 when properly designed, the AFP is an alternative collections program that is designed to
10 incentivize low income households with insufficient resources to prioritize water/wastewater
11 payments.³⁵ These households – by definition – operate in a state of scarcity, as they have
12 categorically insufficient monthly income to pay for food, rent/mortgage, electricity, heat,
13 childcare, and transportation.³⁶ To properly incentivize payment through the AFP, the Program
14 must be designed in a manner that encourages participants to continue to pay on their regular
15 monthly bills without requiring them to also keep up with an unaffordable payment plan over and
16 above these monthly bill amounts. Thus, I stand by my recommendation that the AFP should be
17 restructured based on the parameters set forth in my direct testimony, without requiring
18 participants to enter into and maintain a payment plan in order to receive arrearage forgiveness
19 credits.³⁷

20 I continue to disagree with Mr. Barca that PWSA appropriately considered the benefits to
21 ratepayers when conducting its cost-benefit analysis of restructuring the AFP. First, Mr. Barca’s

³⁴ *Id.* at 37.

³⁵ *Id.* at 39.

³⁶ *Id.*

³⁷ Pittsburgh United St. 1 at 37.

1 assertion is short-sighted and does not take into consideration the myriad of other benefits that are
2 incurred as a result of a robust AFP structure. As discussed more fully in my direct testimony,
3 robust universal service programs, including a robust, well-structured AFP, helps to reduce
4 collections and uncollectible expenses for all ratepayers.³⁸ Second, even assuming Mr. Barca's
5 assertion that the quantifiable ratepayer benefits from the AFP are relegated to arrearage
6 forgiveness for AFP participants is correct, it does not negate the importance of PWSA developing
7 an appropriately structured and workable AFP. Thus, I stand firmly by my recommendations set
8 forth in my direct testimony to restructure the AFP to provide for each in-full payment that a
9 customer makes while enrolled in the BDP, 1/36th of a customer's pre- program arrears are
10 forgiven.³⁹

11

12 **VI. RESPONSE RE: CONVENIENCE FEE PASS THROUGH (PWSA ST. 6-R)**

13 **Q: Please summarize PWSA expert witness rebuttal testimony related to pass-through**
14 **convenience fees to which you wish to respond.**

15 A: Ms. Mechling disagrees with my recommendation regarding third-party bill payment fees
16 for residential customers – including fees for cash payments at a third-party location.⁴⁰ Ms.
17 Mechling acknowledges that these fees are more likely to be incurred by vulnerable customers,
18 but nevertheless concludes that removing the cost from all ratepayers will lessen the amount of
19 rate increase that is needed.⁴¹ Ms. Mechling argues that there is no legal requirement for PWSA
20 to pass through convenience fees in the manner I recommend.⁴² Ms. Mechling notes that she has

³⁸ Pittsburgh United St. 1 at 36.

³⁹ Id. at 38: 1-4.

⁴⁰ PWSA St. 6-R at 15: 1-5; United St. 1 at 48.

⁴¹ PWSA St. 6-R at 15: 1-16.

⁴² Id. at 15-16.

1 been advised by counsel that the presence of any related settlement commitments does not bar
2 PWSA from making a new proposal related to this issue.⁴³ Ms. Mechling also argues that PWSA
3 has never recovered the cost of such third-party fees through rates – and that the process would be
4 extremely difficult, costly and time consuming, and not a reasonable use of ratepayer funds.⁴⁴ Ms.
5 Mechling further argues that these fees are charges assessed and collected by third-party retailers
6 at the time of payment, and are not submitted to PWSA.⁴⁵

7 **Q: What is your response to Ms. Mechling’s rebuttal testimony related to pass-through**
8 **convenience fees?**

9 A: As an initial matter, I am advised by counsel for Pittsburgh United’s Our Water Table
10 that issues related to whether PWSA is required to take specific actions related to convenience or
11 third-party fees as a result of settlement obligations is a legal issue that counsel reserves for
12 briefing.

13 I am cognizant of Ms. Mechling’s concern that these fees are collected by third parties at
14 the time of customer payment within certain establishments. However, I disagree with Ms.
15 Mechling’s allegation that it is unreasonable or unduly onerous to ensure that all residential
16 customers have access to cost-free payment options. However, since PWSA concedes that it is
17 primarily vulnerable low income customers who utilize third party vendors for payment, I modify
18 my recommendation so that pass through of fees be limited to that group. PWSA maintains records
19 of residential customers who it has identified as low income. Customers who are identified as low
20 income based on PWSA’s records should be eligible for a fee reimbursement if they utilize a
21 method that incurs these convenience fees. I recommend that this reimbursement be applied to a

⁴³ Id.

⁴⁴ Id.

⁴⁵ Id.

1 customer's asked to pay amount in the month following incursion of convenience fee. I further
2 recommend that PWSA instruct vendors that receive payments on its behalf to disclose current
3 convenience fees and any subsequent changes thereto so that PWSA is able to appropriately
4 reimburse for any adjusted amounts.

5

6 **VII. RESPONSE RE: STORMWATER FEE AND MITIGATION (PWSA ST. 6-R**
7 **AND PWSA ST. 8-R).**

8 **Q: Please summarize PWSA expert witness rebuttal testimony related to stormwater**
9 **mitigation measures to which you wish to respond.**

10 A: Ms. Mechling disagrees with my recommendation that PWSA be required to allocate
11 \$100,000 annually in rates to provide access to green mitigation measures at no cost to low income
12 customers.⁴⁶ Ms. Mechling also opposes my proposal that low income customers who adopt green
13 mitigation measures be eligible to receive the \$40 credit PWSA proposes to offer residential
14 customers who purchase rain barrels.⁴⁷ Ms. Mechling argues that my recommendation is short-
15 sighted because all green infrastructure improvements will require maintenance from customers.⁴⁸
16 Ms. Mechling expresses concern that, after initial provision, low income customers will not be
17 able to devote the time, resource, and financial requirements to maintain these mitigation
18 measures.⁴⁹ Ms. Mechling argues that this recommendation would not provide ratepayers with a
19 return on their investment, and improperly increase some customers' property values.⁵⁰ Finally,
20 Ms. Mechling argues that my recommendation that low income customers receive a \$40 rain barrel

⁴⁶ Pittsburgh United St. 1 at 46. PWSA St. 6-R at 46.

⁴⁷ Id.

⁴⁸ PWSA St. 6-R at 46-47.

⁴⁹ Id. at 47: 1-14.

⁵⁰ Id.

1 credit, in addition to other recommended credits, is not a reasonable or justifiable use of ratepayer
2 money.⁵¹

3 PWSA expert witness Keith Readling similarly argues against my proposal to allocate
4 funds to support low income customer adoption of green stormwater mitigation measures.⁵² Mr.
5 Readling argues that my recommendation would essentially require PWSA to administer a grant
6 program for stormwater mitigation measures.⁵³ Mr. Readling argues that this would increase
7 complexity and costs for PWSA's program administration, increasing ratepayer costs.⁵⁴ Like Ms.
8 Mechling, Mr. Readling incorrectly argues that my recommendations would require PWSA to pay
9 for reduced runoff associated with these measures twice – once through a grant to fund mitigation
10 measures, and once through the credit.⁵⁵

11 **Q: What is your response to this rebuttal testimony related to stormwater mitigation**
12 **recommendations?**

13 A: I believe it is just, reasonable, and in the public interest to assist low income customers to
14 adopt green stormwater mitigation measures. Practicing green mitigation of stormwater runoff has
15 numerous community benefits, including stemming local erosion, reduced flooding, and increased
16 capacity of stormwater systems to handle runoff.⁵⁶ Low income customers should be given an
17 opportunity to participate in green mitigation which would benefit their households and their
18 communities. I do not deny that administration of this funding may require some additional
19 administrative costs by PWSA, as Mr. Readling suggests. However, it is reasonable and in the

⁵¹ Id.

⁵² Pittsburgh United St. 1 at 47; PWSA St. 8-R at 7: 12-24.

⁵³ PWSA St. 8-R at 7: 12-24.

⁵⁴ Id.

⁵⁵ Id. at 8: 1-5.

⁵⁶ U.S. EPA, What is Green Infrastructure?, available at: <https://www.epa.gov/green-infrastructure/what-green-infrastructure>; WWF, Saving Water and Money with Rain Barrels, available at: <https://www.worldwildlife.org/blogs/sustainability-works/posts/saving-water-and-money-with-rain-barrels#:~:text=Rain%20barrels%20like%20this%20one,%2C%20stream%20erosion%2C%20and%20pollution.>

1 public interest to ensure that low income households and their communities can equitably access
2 and adopt green mitigation measures, and realize the attendant benefits as a result of these
3 practices.

4 Further, I dispute Ms. Mechling's unsupported conclusion that low income consumers are
5 unable to reasonably maintain green stormwater measures, such as rain barrels, once installed. For
6 example, maintenance of rain barrels includes: disconnection, washing out, and storage of the rain
7 barrel during the winter months; opening rain barrel spigots if a household is expected to be away
8 for extended periods; cleaning rain barrels to remove residue; cleaning out downspouts and roof
9 gutters if there is a concern about mosquito control.⁵⁷ It appears that rain barrel maintenance
10 requires rather minimal costs after initial installation. It is unclear based on Ms. Mechling's rebuttal
11 testimony why low income households cannot perform the straightforward cleaning and
12 maintenance required for rain barrels. I acknowledge that, in order to practice green mitigation
13 most effectively, low income households who choose to be part of this initiative may need to install
14 some additional measures, such as downspouts or gutter covers, which may come at some cost to
15 households.⁵⁸ In the event that low income households want to maximize green mitigation on their
16 properties in these manners, I recommend that PWSA include assistance to install these attendant
17 measures as part of the \$100,000 annual funding.

18 Finally, contrary to Ms. Mechling and Mr. Readling arguments, my recommendation would
19 not duplicate the stormwater credits that PWSA is proposing in the context of this proceeding. Low
20 income stormwater credits are not aimed at reducing runoff. Rather, these credits are meant to
21 reduce the financial burden for low income customers who cannot afford to shoulder the full costs

⁵⁷ Chesapeake Bay Foundation, Rain Barrel Maintenance, available at: https://www.cbf.org/document-library/cbf-guides-fact-sheets/CBF_Rainbarrels_011614e420.pdf.

⁵⁸ Id.

1 of PWSA's stormwater rates. By contrast, my recommendation would help to reduce stormwater
2 runoff on low income customers' properties. As discussed, reducing runoff on low income
3 customer's properties has tangible benefits for customers, their communities, and the stormwater
4 system as a whole. Low income families should be given an opportunity to participate in green
5 mitigation efforts through allocation of additional assistance to practice green stormwater
6 mitigation. Thus, I stand firmly by my recommendation that PWSA be required to allocate
7 \$100,000 annually for the provision and installation of green mitigation measures for stormwater
8 runoff for low income customers.

9

10 **VIII. CONCLUSION**

11

12 **Q: Does this conclude your surrebuttal testimony?**

13 **A: Yes.**